Advice on pre-terms of reference for the Post Conflict Impact Assessment for the Reconstruction of the Mining Sector in Katanga - Democratic Republic of Congo-

Dear Mr. Hassan Partow,

In your above mentioned email, you requested the Netherlands Commission for Environmental Assessment (NCEA) to advise on pre-terms of reference for the Post Conflict Impact Assessment for the Reconstruction of the Mining Sector in Katanga, Democratic Republic of Congo.

It is my pleasure to submit herewith the Advice on Pre-Terms of Reference for the PCIA.

First of all, I would like to express my appreciation for the organisation of the site visit and the personal interest demonstrated by the UNEP Post Conflict and Disaster Management Branch staff. The site visit has allowed the Commission to receive a great deal of information in a short period of time, which made it possible to find some answers in a very complex situation.

Secondly, I would like to note here that the Commission would have liked to have discussions with mining policy makers like the ministers of mining and environment and the CEO of Gecamines. This has not happened and I consider that to be a missed opportunity to get first hand information and achieve an improved level of buy-in from the Congolese side.

I am happy to repeat that the Commission is available to continue co-operation with the UNEP Post Conflict and Disaster Management Branch in the next stages of this PCIA procedure and for advice on other post conflict strategic environmental assessments.

Yours sincerely,

ir. A. van der Velden
Chairman of the Working Group on the Post Conflict Impact Assessment for the Reconstruction of the Mining Sector in Katanga, Democratic Republic of Congo

cc. Netherlands Embassy Kinshasa
Advice on Terms of Reference for the Post Conflict Impact Assessment for the Reconstruction of the Mining Sector in Katanga, Democratic Republic of Congo

Advice submitted to the Post Conflict and Disaster Management Branch of the UNEP, by a working group of the Commission for Environmental Impact Assessment in the Netherlands.

the technical secretary

R.A.M. Post

the chairman

A. van der Velden

Utrecht, 11 November 2010
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1. **INTRODUCTION**

1.1 The UNEP PCIA

The United Nations Environmental Programme (UNEP), more specifically its Post Conflict and Disaster Management Branch has decided to assist the DRC in its post conflict reconstruction planning and sustainable development by providing a Post Conflict (environmental and social) Impact Assessment (PCIA). UNEP has decided that this assessment will address four aspects related to post conflict reconstruction:

- rebels in the national parks,
- resettlement of refugees,
- the environmental problems of Kinshasa and its surrounding areas,
- reconstruction of the mining sector (base elements) in Katanga.

The present advisory report relates to the fourth component of the PCIA: the reconstruction of the mining sector in Katanga.

1.2 Component 4: PCIA for Reconstruction of the Katanga Mining Sector

The specific objective of this component of the PCIA is to define the conditions and modalities in which the development of the mining sector in Katanga can contribute to poverty reduction, to political and civil stability and to a better environment.

An important additional objective is to identify approaches that can be useful for the development of the mining sector in RDC as a whole.

Primary focus is on industrial mines of the base metals: copper, cobalt, zinc, while small scale mining will also get attention. The component will be mainly geared towards assessing the development perspectives for the sector, the conditions for management of the sector so that it contributes to sustainable development, to improvement of environmental governance, to poverty reduction and to peace.

**Main Aspects of the Component :**

- What is the distribution of control over mineral resources over national and international parties?
- How is governance of the sector secured? Is improvement needed and, if so, how?
- What is the state of affairs with regard to positive and negative impacts, the accumulated impacts of past mining operations and the cumulative impacts of the presently active operations?

The study zone is indicated in the map in Appendix 11.

**Project Ownership and Consultations**

UNEP assures buy-in and participation of the Interior and Mining Ministries through the PCIA Coordinating Committee and the Ministry of Environment
and Sustainable Development. The UNEP and the Ministry of Environment and Sustainable Development mobilise the governor of the province, provincial authorities on mineral resources and, whenever necessary, municipal authorities.

1.3 PCIA Process and present Stage

The process is of a rather programmatic in nature. It is designed according to the facts as they present themselves. In broad lines the following phases can be distinguished:

1. Prep- and inventory phase:
   - setting the principles and basic designing of the process;
   - getting basic government buy-in;
   - priority setting on issues, inventory of available information and identification of gaps in knowledge;
   - getting solid government buy-in.

2. Consultations and assessment:
   - impact assessment;
   - consultations.

3. Field verification:
   - verification of results;
   - validation of results.

4. Recommendations:
   - writing the draft report + formulation of recommendations;
   - getting government buy-in for proposed solutions and action plan; final report;
   - writing final report.

5. Media presentation and donor engagement for implementing action plan.

Presently, the process is the last stage of its first phase.

1.4 UNEP’s Request

By mail dated 11 July 2009, the UNEP has requested the Netherlands Commission for Environmental Assessment (NCEA) to advise on the present state of knowledge with regard to issues that condition the rehabilitation of the Katanga base mining sector and on gaps in knowledge that definitely must be addressed before rehabilitation planning can be done. The NCEA received the request for the site visit on July 16th 2009 (Appendix 1).
2. **Approach**

2.1 Points of Departure

The NCEA advises in line with the approach proposed by the Organisation for Economic Cooperation and Development (OECD) as specified by the SEA Task Team of its Development Assistance Committee (DAC)\(^1\). This implies amongst other things, that the NCEA assumes the main stakeholders will be consulted and heard throughout the PCIA-process.

2.2 Expert Working Group, Site Visits and Interviews

In order to formulate this advice, the NCEA has composed a working group of experts. The group consists of experts in mining, metallurgy, social aspects of the mining industry, mining economics and environmental aspects of mining. A professional chairman chairs and a technical secretary coordinates and assists the working group. The composition of the working group is given in Appendix 2. The working group visited Katanga from 16-23 August 2009, paid visits to various mining sites and old and new metallurgical complexes. It held a number of interviews with representatives of various types of stakeholders, among which MONUC (United Nations Organisation Mission in the Democratic Republic of the Congo), mining companies, NGOs (Non Governmental Organisation), mining service delivery companies, the University of Lubumbashi and the chamber of commerce and industry/syndicate.

During the site visit, a number of locations in Katanga could not be visited. In addition, the NCEA regrets not having had interviews with decision makers such as the Minister of Mining and Environment and with the CEO of the Gécamines. Hence, the NCEA will not express itself on certain issues on which it does not feel confident. The NCEA will indicate in this advisory report where it refrains from making statements.

2.3 This Report: Information, Analyses and Advice

In chapter 3 the NCEA recommends priorities for the PCIA study. In chapter 4, the NCEA substantiates its advice on subjects the PCIA should study and works out the details of its advice. Each paragraph in chapter 4 starts with a context analysis, in which the NCEA first presents its general conclusions on the subject, which are subsequently substantiated with literature findings\(^2\) and its own observations from interviews and visits in Katanga. With this context analysis in mind, the NCEA then provides recommendations for further study in the PCIA.

The digital version of this advice\(^3\) includes a literature database including all documents referenced in this advice.

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2. Which do not necessarily represent the opinion of the NCEA
3. [see http://www.eia.nl](http://www.eia.nl)
3. **THE NCEA-RECOMMENDED PRIORITIES FOR PCIA STUDY**

Priority 1: Governance of Mining Sector\(^4\) (Scope: whole of RDC)

1. **Actual governance of the mining sector**: Study actual government behaviour in governing the mining sector as compared to governance as required by mining code and regulations and to international best practices.

2. **Investment climate**: Study investment climate for, employment figures of and government income from the mining sector etc. if the mining code and other applicable legislation would be enforced as compared to the actual situation under current governance practice. Draw conclusions regarding necessary fundamental changes and make recommendations thereon.

3. **Transparency of governance**: Study what the government of RDC would need to regulate in order to achieve transparency of decision-making in addition to actual regulation to comply with EITI (Extractive Industry Transparency Initiative)\(^5\) ambitions.

4. **Environment**:
   a. Investigate if there is, indeed, a controversy over competence/authority concerning environmental issues between the Ministry in charge of environment and the Mining ministry.
   b. Study what institutional development is needed to enhance the recommended governance model for the mining sector in order to realise environmental compliance and how this development can be financed.
   c. Governing the environmental heritage: complete the SNC (Société en Nom Collectif) Lavalin\(^6\) study on the environmental heritage of past mining operations and do a literature study of their (potential) health impacts. Estimate monetary costs per year in terms of loss of lives and/or productivity as a result of mining operations heritage. Make an inventory of approaches to arrest dispersion of pollutants from the heritage and propose an approach per polluted site, guesstimating the costs and benefits.
   d. Do a full environmental, health and safety audit of all operations of ‘Gécamines’ (Générale des Carrières et des Mines)\(^7\) and other operations. Realise a categorisation of the operations according to environmental, health and social performance and where needed set up a plan to reach compliance. In cases of severe and unacceptable infringements, recommend to shut down the operations.

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\(^4\) see 4.1  
\(^5\) Extractive Industry Transparency Initiative (see http://eiti.org/)  
\(^6\) SNC-Lavalin International 2004, see 4.3.1.  
\(^7\) see appendix 5
Priority 2: Prospects and Alternatives for the Artisanal Mining Sector\textsuperscript{8} (cope: Katanga)

5. **Artisanal mining:** Explore existing studies on the options for craft mining. Study and formulate recommendations on alternative sources of employment in Katanga.

Priority 3: Structure of the Mining Sector\textsuperscript{9} (Scope: whole of RDC):

6. **Structure of Gécamines:** The Gécamines in its actual composition - a set of activities and responsibilities-, is an outcome of a long-lasting process of adding on and splitting of activities and assets. This might mean that the present shape of the company is not necessarily an optimal one. The NCEA recommends the PCIA to study the structure of the mining sector and more specifically the Gécamines and, if the study results suggest that alternative structures with a better separation of interests provide better chances for Gécamines, work out substantiated (motivated) recommendations as to alternative structures.

7. **Selection of potential Concession Holders:** Critically study the process of selection of concession holders and the financial, social and environmental screening criteria actually used. Make recommendations on improvement of the selection process and outcomes.

The priorities the NCEA recommends above are elaborated in chapter 4.

\textsuperscript{8} see 4.2.3. and 4.4.2
\textsuperscript{9} see 4.2
4. **Issues for In-Depth Study**

4.1 Governance of the Mining Sector

4.1.1 Legislation (Mining Code and Regulation)\textsuperscript{10}

**Context Analysis**

Although not perfect in all its aspects\textsuperscript{11}, the NCEA considers the Mining Code and the Mining Regulation to provide in principle a solid base for regulation of the mining sector and a stimulus for investments. However, the NCEA observes that overall compliance with the Code and Regulation is weak and that government practice seems to have deviated from at least some of the basic principles underlying these legal texts. The NCEA concludes that the resulting situation of legal insecurity for investors discourages investments.

These observations are based on multiple sources in literature that describe limitations in the implementation of the mining code:

1. Reports produced by the Commission for the Re-visititation of Mining Contracts emphasise on the following issues:
   a. Conclusions of the commission: None of the contracts revisited (n=61) could be maintained as such; 64 per cent of them had to be renegotiated; 36 per cent should be terminated.
   b. Feasibility studies are often delivered beyond delays.
   c. Less than one project over two that are implemented in partnership with Gécamines has led to visible social realisations (creation of jobs non included).

   They also mention that the commission was insufficiently documented and noticed withholding of information from the part of some public servants and their partners.


2. Other gaps are mentioned by international agencies:
   a. In 2007 only six of the 237 mining companies present in the DRC published their mining production data [IMF (International Monetary Fund), 2007].
   b. There is a serious problem with what is called the Tax Gap (see Appendix 3): “The Mining Code of 2002 is consistent with international best practice and the fiscal regime is internationally competitive”. However, “fraudulent practices by companies and

\textsuperscript{10} for an introduction to the mining code, see Appendix 6
\textsuperscript{11} e.g. the mining code is not clear on where exactly craft miners are allowed to collect minerals and where they are forbidden to do so.
government agencies have created a gap of US$ 35 million of what should be paid versus what is actually recorded as having been received in terms of royalties and surface rents alone. The gap is larger if total mining taxes are considered: about $200 million per year should be generated by the sector; the Government claims to have received sector taxes in 2005 of $27 million” [IPIS, World Bank and DR Congo, Mining Session, Paris November 30, 2007. Custers, R (Notes: Raf Custers, researcher with International Peace Information Service)]

3. Several independent entities also point to the disrespect of the mining code:

a. "Because Gécamines (GCM) cannot buy minerals directly from the (artisanal) miners, it deals with traders. The traders work at mining sites that have been assigned to them by GCM. To dig for the minerals they engage artisanal workers who can only sell their products within the limits of the mining site that is owned by GCM. They cannot leave for other markets to try to seek a better price. Consequently, all products that leave the site before having been sold to a trader are illegal". [S Spittaels & F Hilgert, 2008: Mapping Conflict Motives: Katanga Update: May-September 2008, IPIS Report; p 8-9]

b. In a speech, the technical advisor for the BIT notes that improvement of working conditions in craft and industrial mines is a priority in Katanga; disrespect of hygiene, health and security at work are infractions to the mining code (art. 14) and of the Labour Code (art. 59); he recalls that foreign investors come from countries that are member of the International Labour Organisation where legislation is strict regarding such issues. [G Bokundu et al., 2008 : « Rapport de la table ronde : Journées minières du Katanga, musée de Lubumbashi, 30-31 mai 2008 », p 1-26 ; p 15-16, NCEA translation]

4. At a higher level, the responsibility in the failure of the reform process is shared by the big international finance institutions:

a. Mazalto suggests that legal texts are ill adapted: priority was given to aligning them with the mining codes of other African countries rich in mineral resources, without taking Congolese specificities into consideration: “Cette stratégie, qui mise sur l’implantation rapide d’un Etat de droit, semble ignorer la part grandissante occupée par le secteur « artisanal » informel, ou encore la faiblesse des moyens et l’absence de l’Etat dans de nombreuses zones minières. Ces données de contexte étaient-elles inconnues, ont-elles été minimisées ou tout bonnement ignorées par les concepteurs du Code et des nouvelles institutions minières ?”

b. Mazalto suggests that the important role played by the Worldbank (WB) in elaborating the agenda, the orientations and the content of the new legal and institutional frameworks did not encourage a genuine appropriation of their content and objectives by the Congolese political elites. Furthermore, the methods of adoption of the mining law reveal a process that was largely framed, i.e. controlled by the presidency and foreign actors: according to a Congolese member of parliament’s evi-
(…) le texte de loi, dans sa version définitive, aurait été soumis au Parlement pour adoption sans examen préalable de son contenu. Plus encore, alors que ces parlementaires proposaient certains amendements destinées à protéger les acteurs congolais œuvrant dans le secteur, des ‘instances supérieures’ contactent le président de l’Assemblée par téléphone, lui demandant une suspension de séance”.


5. Despite the fact that a high majority of foreign mining companies do not even produce EIA nor EMP studies, counter examples do exist. Some companies go further than what the code expects (see Appendix 4, produced by a member of the team that prepared the EIA for the Tenke Fungurume mine).

Interviews and site visits by the NCEA confirm the above observations from literature:

- compliance with this legal and regulatory framework is weak over the whole range, but specifically on the subjects of
  - the granting of concessions, permits and authorisations,
  - enforcement of environmental regulations and standards,
  - enforcement of rules and regulations relating to (financial reservations for) mine closing,
  - revenue management;
- that decisions taken after enactment of the legal and regulatory framework have compromised the funding base of the Mining Cadastre (CAMI), undermining proper enforcement of the code and the regulation with regard to concession, permit and authorisation granting;
- that the (for compliance) necessary direct and formal link between government and mining companies is non-existent;
- that the way that government manages the sector has evolved since enactment of the code and the regulation (contract revisions, limitation of export of non-treated ores) and that the code and the regulation are no longer fully in line with the current government management practices in the sector;
- the non-enforcement of the legal and regulatory framework and newly evolved management practice, that still awaits to be formalised in policy documents, prove to be not conducive for highgrade investors despite the extreme resource richness of the country.

In some more detail the NCEA observes with regard to enforcement of the Mining code and the regulations that:

1. Most of foreign mining companies in Katanga do not produce EIA nor Environmental Management Plan (EMP) studies. When such studies are produced, they come when the approval has already been given and they often consist of mere ‘copy and paste’ versions of older projects.
2. EIA studies and EMPs are supposed to be accessible (in the ministry of mines) to the public, but in fact, they are not available.
3. There is a huge gap in terms of collection of mining taxes.

4. Private companies do not pay the caution (guarantee), so the state has absolutely no means of pressure on them if they do not respect their engagements (restitution of the site in good conditions) or in case human or environmental damages have to be repaired due to their presence: as such, some companies simply close the door and disappear without any warning.

5. Even Gécamines does not respect basic safety standards as it subcontracts companies that do not respect these rules: e.g. employment of craft diggers within concessions (while only digging in the embankments is authorised by the Code).

6. There is no collaboration between the Ministry of Mines and the Ministry of Environment, each one claiming the prerogative is theirs: Ministry of mines delivers permits within protected areas, where exploration is prohibited, for instance.

For an overview of interviews held by the NCEA, see Appendix 12.

**Recommendations for the PCIA**

The NCEA recommends the PCIA to study in detail the actual government practices on mining resource use and mining revenue distribution, study the consequences of these practices for the feasibility of private sector investments in the mining sector, presented in a best case, middle and worst case scenarios with regard to electricity prices, infrastructure development, presence and location of smelters and direct and indirect costs of non-legal taxation.

Based on results of this study, the PCIA could then provide clues as to the ‘bien fondé’ of actual government practices and provide recommendations with regard to the relevance of establishing the actual practices in a formal policy document. Also, if a new policy document proves relevant, the PCIA could express itself with regard to the need of reviewing the Code and the Regulation.

Moreover, the NCEA recommends the PCIA to study the content of social plans/negotiations with local stakeholders: check how far social plans that foreign companies do intend, or promise, to implement are pertinent in terms of mitigation measures, sustainable development or improvement of Project Affected Persons (PAP’s) well being and in line with the legal and regulatory framework.

In addition to the previously mentioned studies, the NCEA advises that the PCIA analyses (in line with the foreseen adherence of the RDC to the EITI initiative), what (more than already regulated) would be needed in terms of measures and tools to enhance transparency of governance in the sector and in terms of legal and institutional optimisation measures and instruments, to secure compliance with the legal and regulatory framework. Specific subjects for this study are:

- concession permits and authorisations granting;
- enforcement of the fee structure;
• enforcement of the financial reservation for abandonment and post abandonment;
• enforcement of environmental requirements and standards;
• conditions for export of non-processed ores and products (decisions are now in the hands of the mining minister);
• revenue management and distribution;
• roles and functions of civil organisations amongst which unions.

The NCEA recommends to review the existing Guide for Mining Investors to assess whether it needs an update. This review could be done on the basis of the guides of Canada or Brazil.

4.1.2 Distribution of Powers

For an overview of the distribution of powers in the mining sector, see appendix 8.

4.1.2.1. Management of Concessions and Permits

Context Analysis

An effective mine registration and cadastre is strongly dependent upon a prime quality cartographic infrastructure based on a undisputable triangulation network. According to the World Bank observations, published in Mineral Rights Cadastre, 2009, the geodetic network in the recent past was not ready to allow for the use of GPS and the accuracy of available topographic maps still today does not allow for representative license boundaries and forms a potential danger for lease hold conflicts. Today however, the DRC’s mineral rights are managed by a modern and efficient institution, well organised, with trained and capable staff and CAMI (Cadastre Minier) is a reasonably well-equipped computerised cadastre with a guarantee for transparency and accuracy. First steps are taken with the revision of the geodetic network in Katanga. [Worldbank, Extractive Industries for Development Series #4 June 2009; EOGirones, A Pugachevsky, G Walser "Mineral Rights Cadastre, Promoting Transparent Access to Mineral Resources; Washington, p 1-100]

Clear and transparent procedures for granting licenses, and an efficient Mining Registration Cadastre are prerequisite for the security of tenure for mineral rights. According to World Bank observations DRC has a comparatively low institutional capacity and civil service tradition in managing the mining sector, and there is a strong dependency on foreign financial support. Nevertheless, at the technical level, this dependency is less significant, at least for the mining sector, because of the accumulated experience in exploration and exploitation activities.

From interviews during its mission, the NCEA further observed that the capacity of the CAMI to cope with the number of applications is restricted both in terms of budget and human resources. Until recently, CAMI was economically sustainable, due to collection of mineral rights management fees. The government decided in 2008 to change this situation and the fees are now transferred to the central treasury, making CAMI vulnerable for political fluctuations.
**Recommendations for the PCIA**

Based on the above, the NCEA recommends that the PCIA should study the practices with regard to management of concessions and permits before and after the 2008 decision on CAMI funding.

**4.1.2.2. Environmental Governance in the Mining Sector**

**Context Analysis**

The NCEA concludes that the Ministry of Mining is neither monitoring nor enforcing the mining code with regard to its environmental paragraphs. In practice there is no environmental governance in the mining sector in Katanga. The staff of the Ministry of Environment, observing absence of environmental governance, regrets its present lack of competence in the mining sector and hopes to be attributed competence by the Environmental Framework Law, which has been submitted to the DRC parliament for approval.

The NCEA bases its conclusions on interviews and literature sources which paint the following picture on competence for environmental compliance monitoring and enforcement:

1. It is clear that, at all levels of the mining hierarchy, environmental policies are still only being partially applied. Several factors explain why this is the case. Firstly, the State’s central and provincial services are functioning without adequate means to ensure that operations actually perform to the expected standards. Lacking adequate transport, expertise, equipment and supplies, the directorate is unable to enforce the environmental standards contained in the law [Secrétariat Général des Mines, 2005]^12^.

2. In the mining regions, state bureaucrats, who are typically poorly or irregularly paid, tend to be compliant towards investors, while corruption is reported to continue to dominate the institutional landscape. [Global Witness, juillet 2006. Rapport : « Une corruption profonde : Fraude, abus et exploitation dans les mines de cuivre et de cobalt du Katanga », Washington, p 1-55]

3. The Mining Code, adopted in 2002, has not yet been widely disseminated and is still inconsistently applied. Reportedly, many companies operating in the DRC are not aware of the new code and its requirements, and there are insufficient copies of the code available to ensure that all affected communities and interested parties are informed about their rights under the code. In particular, concerns have been raised that artisanal miners are not well-informed about changes in the Mining Code and accompanying regulations pertaining to the regulation of small-scale mining. Accord-

[^12]: www.miningcongo.cd)
ing to civil society sources in Kolwezi, copies of the Mining Code were available from the Mining Service for $50 each, before the limited supply ran out. At the time of the BIC/ED (Bank Information Centre’s Executive Director) visit, the provincial office of the Ministry of Mines in Lubumbashi did not have any copies of the Mining Code available. [Bank Information Centre, DRC trip report 2006, p 1-197]

Findings from interviews by the NCEA further substantiate the above observations:

1. The Mining Code attributes the power to provide the various forms of mining licenses to the ministry of mining. Provision of these licences is not subject to presentation of an environmental certificate or licence. However, the minister of mining can not provide a mining license without an approved Environmental Impact Statement (EIS) including an Environmental Management Plan (PGEP) or Mitigation and Rehabilitation Plan (PAR).

2. The Mining Code attributes the power to instruct approve and enforce PARs, EIEs and PGEPs to the Mining Ministries’ own Mining Environment Protection Service. The code imposes that this service works in coordination with other State Agencies, but expressly denies other state agencies the power to enforce the Mining Code.


4. The Mining Ministry’s Environmental Service institutional capacity is far from being adequate to correctly administer and enforce the environmental governance dispositions of the mining code.

5. Consequently, the effectiveness of environmental governance instruments like EIEs, PARs, PGEPs and the like are in practice dependent of the intentions of the mining and metallurgical operators.

6. The Ministry of Environment deplores the lack of enforcement of the Mining Code and its own lack of competence on enforcement of environmental governance in the mining sector. The Ministry of Environment expects to remedy this lack of competence by the enactment of the environmental framework law, which is soon expected.

7. The level of professionalism of the Ministry of Environment agencies trusted with environmental compliance and environmental law enforcement needs to be proven.

**Suggested Study for the PCIA**

The NCEA does not expect that a new version of the Mining Code will be published any time in the near future, which means that the responsibility for environmental governance for the sector remains with the Ministry of Mines and Energy. Given the observed limited current practice and capacity for environmental governance in this Ministry, the NCEA recommends that the PCIA studies which institutional arrangements could eventually lead to effective environmental monitoring and enforcement, including looking into options to in the mean time delegate tasks on environmental governance such as quality review of EIA s PARs and PGEPs and tasks on monitoring and inspection to other ministries or private sector.

The NCEA further recommends that the PCIA assesses the Environmental Framework Law, its coherence with the Mining Code, its consequences for en-
environmental governance in the mining sector in Katanga and the likeliness of its enactment. Based on the results of this assessment, the NCEA also advises that the PCIA evaluates which structural financial arrangements could eventually lead to effective environmental monitoring and enforcement.

4.1.2.3. Revenue Management

Context Analysis

Payment, collection and allocation of revenues from the mining sector seems to be qualitatively and quantitatively far from sufficient\(^\text{14}\) and is not at all transparent.

Recommendations for the PCIA

The NCEA recommends to make revenue management an important part of the PCIA. The experience and competence in this matter of Norway is well known\(^\text{15}\) and they could formulate a set of rules and give advice on an adequate governance structure.

4.1.3 Investment Climate

Context Analysis

Based on the literature sources and interviews mentioned below, the NCEA’s general conclusion is that the investment climate in the RDC is very unfavourable. In order to create the right conditions for a healthy and profitable private sector, a precondition for economic development, the investment climate needs massive improvement, mainly on the government side.

In the opinion of the NCEA, improvement of governance is of the highest priority and without a serious effort in this regard there will be no, or only very limited economic growth or sustainable development. Without improvement of governance, illegal and undesirable activities and non social behaviour will flourish, making the situation even worse. That’s why the NCEA recommends governance to be at the centre of the PCIA.

There is ample information publicly available that shapes the above picture of the “Entrepreneurial Conditions” in the DRC. The NCEA consulted respectively:

Doing Business 2010 (World Bank)

Economies are ranked on their ease of doing business, from 1 – 183, with first place being the best. A high ranking on the ‘ease of doing business’ index means that the regulatory environment is conducive to the operation of business. This index averages the country’s percentile rankings on 10 topics, made up of a variety of indicators, giving equal weight to each topic. The

\(^{14}\) see paragraph 4.1.1.1

\(^{15}\) see the Norwegian Oil for Development program: http://www.norad.no/en/Thematic+areas/Energy/Oil+for+Development/Oil+for+Development.127154.cms

The DRC is rated 182 out of 183 countries.

[World Bank, Doing Business 2010, Reforming through difficult times (p 1-231); Overview. p 1-9]16

Africa Competitiveness Report (World Economic Forum)


Corruption Perception Index (Transparency international)

The Corruption Perception Index shows a country’s ranking on how that country compares to other countries included in the index. The CPI score indicates the perceived level of public-sector corruption.

DRC is rated on the 162th place out of 180.

[More information on the Corruption Perception Index17 is available in a country report and regional report for southern Africa.]

The Human Development Report 2009 (UNDP)

Each year since 1990 the Human Development Report publishes the human development index (HDI) which looks beyond GDP to a broader definition of well-being. The HDI provides a composite measure of three dimensions of human development: living a long and healthy life (measured by life expectancy), being educated (measured by adult literacy and gross enrolment in education) and having a decent standard of living (measured by purchasing power parity, PPP, income). The index provides a broadened prism for viewing human progress and the complex relationship between income and well-being.

The DRC is situated on the 176th position out of 182 in the Human Development Index. The Country Fact Sheets (of the Human Development Report) give more detailed information on the DRCs’ rating. [Human Development Report 2009, Overcoming Barriers: Human Mobility and Development (p1-229), published for the United Nations Development Programme]

The Economic Freedom Map 2007 (The Fraser Institute)

This report of the Canadian Fraser Institute comprises a rating of the Economic Freedom in 141 countries based on 2005 data; RDC is on position 138. Should the economic climate in DRC be favourable, RDC would jump to position 2 mainly because of the richness of its mineral reserves. [The Economic Freedom Map 2007 (The Fraser Institute)]

In addition to the above, the NCEA recorded the following issues concerning the investment climate during meetings with private sector company representatives (a full list of interviews can be found in appendix 12):

- There is not a good relationship between the national and regional authorities and the private sector. Government's perception seems to be that the private sector should serve the government and its servants. Government officials do not seem to see the importance of this sector for the economic development and they do not seem to support economic development through private initiative in this sector. “Civil servants rather see private initiative as a potential possibility for personal benefit”.
- Private sector companies indicate that they receive frequent visits of all kinds of (said) incapable officials from various public services with unclear and often illegal messages.
- Private sector observes unclear division of responsibilities and competences between a number of governmental services.
- Private sector companies claim that they cannot rely on the court system to be fair, impartial and uncorrupted.
- Private sector companies cannot rely on the licences, permissions, conditions, agreements etc. covenanted with the government. They state that the government itself does regularly offend such legal documents.
- Companies claim to suffer from unreliable and expensive power supply (in comparison with, for instance, Zambia).
- The financial infrastructure is insufficiently developed.
- There is poor and sometimes non-existing physical infrastructure.
- There is an insufficient and inadequate educational system.

Recommendations for the PCIA

For the reasons outlined in the previous paragraph, the NCEA recommends governance to be at the centre of the PCIA. Given the large quantity of available information that the NCEA considers credible, the NCEA recommends the PCIA to concentrate on remedies for the flaws and not so much on the analysis of the flaws of the investment climate.

Besides this search for remedies the NCEA recommends the PCIA to study as other determining factors for the investment climate:

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18 personal communication Mr. M Bouchard
Infrastructure
1. Electric power:
   a. evaluate the future demand in Katanga,
   b. evaluate the future production capacity (in relation to Inga, transport and substations),
   c. evaluate tariff security and delivery collateral.
2. Roads and rails:
   a. evaluate road construction and maintenance,
   b. evaluate vulnerability of rail haulage to Zambia, Dar es Salaam, Durban and Lobito.
3. Smelter and processing capacity:
   a. assess the total installed smelter and processing capacity and its availability within Katanga.

4.2 Structure of the Mining Sector

4.2.1 Role of Gécamines, Partnerships

Context Analysis

The Gécamines in its actual composition (a set of activities and responsibilities) is an outcome of a long-lasting process of adding on and splitting of activities and assets:

- The Gécamines owns and exploits assets like mining concessions and metallurgical plants;
- The Gécamines also participates in quite a number of other private concession holders.

The present composition or shape of Gécamines might not necessarily be an optimal one.

Recommendations for the PCIA

The NCEA recommends to have this issue analysed in the PCIA process.

More specifically, the NCEA suggests the following subjects for study:

- Quality of Gécamines’ concessions and its production assets, status of installations, logistical implications etc, etc.
- Quality of Gécamines’ participations in other private concession holders.
- Pros and cons of Gécamines being a state owned company.
- Is the current combination of assets and participations and the fact that Gécamines is government-owned an optimal combination, and if this is not the case, what would be better options?

4.2.2 License to Operate

Context Analysis

The selection process of potential concession holders is not known and, thus, not transparent. In addition, the NCEA has found no indication that concession holders and their operators accept or implement international standards
of social and environmentally responsible entrepreneurship, such as required by the OECD Guidelines for Multinational Enterprises, the ILO Guidelines and others.

**Recommendations for the PCIA**

The PCIA should analyse this process. Additionally, the NCEA recommends to establish a list of criteria to assess potential concession holders. Keeping in mind the potential value of the deposits, there are strong arguments to set high performance standards for successful selection. For the benefit of the country and the people of RDC the potential concession holder should be a financially strong international company with an impeccable reputation for fraud, corruption, health and safety, environmental and social behaviour. The PCIA should study which (internationally required) quality standards potential concession holders would need to meet.

**4.2.3 Artisanal Miners, Diggers**

**Context Analysis**

The NCEA concludes that working conditions in the informal, artisanal mining sector leave much to be desired. MIRECA (Mineral Resources in Central Africa (task force)) claims that craft mining is a disaster in terms of working and living conditions for the diggers: those are submitted to exploration, unacceptable working conditions as well as to all sorts of extortions from officials.

1. ’’Au plan social, il y a un écart de revenus énorme entre la base et le sommet de la chaîne de production. Les creuseurs travaillent dans des conditions éprouvantes, insalubres et dangereuses. Leur équipement est rudimentaire et inadapté à l’activité extractive. L’étañçonnement, la ventilation et l’éclairage des galeries est insuffisant. L’instabilité du sol très altéré dans lequel ces galéries sont creusées conduit à de nombreux éboulements, qui sont régulièrement à l’origine d’accidents mortels. Les ouvriers sont exposés aux poussières riches en métaux lourds lors de l’extraction et du tamisage des minerais. Ils sont également exposés à la radioactivité, s’ils travaillent dans des zones minéralisées enrichies en uranium’’ [TF MIRECA, 2008, p 6].

2. MIRECA also claims that, technically speaking, craft mining is poorly efficient and productive, and potentially detrimental to a profitable further large scale industrial exploitation of the sites:

   ’’Au plan technique, l’exploitation artisanale est peu efficace et peu productive : les ressources sont mal identifiées, mal valorisées et les gisements écrémés par une activité qui prive tout exploitant ultérieur (désireux de travailler de manière professionnelle) de la partie superficielle, très enrichie en métaux et la plus rentable, du gisement ’’. [TF MIRECA, p 6].

3. In addition, MIRECA claims that the opacity surrounding the flows of income in the craft mining sector hides the fact that this activity, that contributes to illegal exporting of minerals, represents also a huge loss of earnings for the State :

   ’’Il y a un manque de transparence total dans le flux de revenus générés par cette activité minière artisanale et donc un important manque à gagner en termes de recettes fiscales au profit de l’État’’ [TF MIRECA, p 15]

4. MIRECA also demonstrates that while the craft mining sector is usually perceived as separated from the industrial sector, their respective activi-
ties in fact intermingle (see figure 1): part of the minerals dug by craft minors enter the formal channel; conversely, part of the minerals exploited by allegedly official enterprises are exported illegally; part of craft miners are former Gécamines workers; Gécamines itself subcontracts companies that hire craft miners. Finally, both sectors take advantage in the same way of the lax and corruption demonstrated by state agents. [MIRECA, p 8]

[Task Force “MIRECA” – Mineral Resources in Central Africa, Ministère belge des Affaires Étrangères; Bonne Gouvernance & Transparence dans le secteur minier, Traçabilité des flux de matières et des flux financiers dans le commerce des minerais de Cu et de Co en RDC Description synthétique du projet Avril 2008 p 1-111]

Fig. 1. Simplified representation of the ownership circuits of minerals from any site, artisanal or industrial; the complexity of the artisanal circuits is obvious, although it is only schematised [TF MIRECA, 2008:8], translated from French by the NCEA).

5. Steps have been taken by the government to control and integrate the craft mining sector: beyond the establishment of ‘unions’ or cooperatives, craft diggers and traders are recognised by the State as professionals and, as such, supposed to comply with different taxes and authorisations. Practically, they do not. The fact is that being in possession of all official documents does not exonerate their being bribed and harassed by guards in the mining sites and policemen on the road; in consequence, they prefer to pay only for bribes, thus aliment-
ing the corruption channel, at different steps in their work (see Appendix 9: Data collected in 2004-2005 in the village of Kawama, 15 km from Lubumbashi).

The NCEA further observed during its meetings in the area (see Appendix 12 for a full list of interviews) that:

- The craft mining sector is perceived as problematic by the majority of persons met by the team: main issues relate to work and living conditions, see to respect of elementary human rights;
- The way it is implemented currently, craft mining is unproductive and little efficient;
- The craft mining sector exemplifies, though at a lower scale, the drifts noticed in the formal mining sector in terms of disrespect of rules, resort to bribes, tax evasion, illegal export of minerals, etc.

**Recommendations for the PCIA**

As far as the NCEA is aware, two initiatives study alternatives to craft mining as it currently happens:

- Task Force MIRECA: feasibility study on the possibilities of certification and traceability of mineral resources, with the objective to fighting against illegal exploitation and illegal export and favouring transparency in the mining sector [Task Force “MIRECA” – Mineral Resources in Central Africa, Ministère belge des Affaires Étrangères; Bonne Gouvernance & Transparence dans le secteur minier, Traçabilité des flux de matières et des flux financiers dans le commerce des minerais de Cu et de Co en RDC Description synthétique du projet Avril 2008 p 1-111];

- “BIT ACT MINES [(Amélioration des Conditions des Travailleurs dans les mines au Katanga)]: Improvement of worker’s conditions in Katanga mines: reinforce the craft mining sector through relying on cooperatives issued from the base (Contact: M. Yerodé 099/930.60.71)]. Financed by Belgium and implemented by Group One and Belgian Technical Cooperation.

The NCEA recommends the PCIA to evaluate these studies and take stock of their results.

Further dimensions of the wide issues linked to craft mining are amply discussed below (paragraph 4.3, 4.4). What resorts so far is that abuses in the craft mining sector are strongly influenced by corruption practices. In consequence, the NCEA suggests that the PCIA:

- focuses on the literature devoted to this issue at the level of the African continent, with special attention to measures adopted in the field of development;

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21 see also section on employment under 4.4.1
22 http://www.artisanalmining.org/userfiles/file/ilo.pdf
• adapts such initiatives to the current context or ongoing initiatives\textsuperscript{23} in the DRC;
• identifies agencies apt to fund and implement such measures in the field concomitantly with the more economically oriented initiatives.

4.3 Environment

4.3.1 Environmental Heritage

Context Analysis

The NCEA concludes that there is an enormous, yet not inventoried heritage of environmental impacts (amongst which impacts caused by deforestation and pollution) of past Katanga mining operations. There is enough information to suggest that pollution is dispersing over large areas, is ingested by humans and is potentially affecting their health. Yet, at the level of those entities legally entrusted to take action, the containment of these impacts does not seem to be urgently felt.

The NCEA comes to these conclusions on the basis of information from the following literature and interview sources:

1. In 2002 and 2003, SNC Lavalin’s experts inspected 39 sites in the mining districts of Lubumbashi, Likasi and Kolwezi, and assessed environmental performance at 32 of these sites. The conclusions contained in a preliminary report are clear: the environmental situation at the sites visited, and in the region in general, is described as highly problematic\textsuperscript{24}. The authors of the report noted the striking absence of recent data that would permit detailed documentation of the extent of environmental consequences of mining activity in Katanga. Consequently, they indicated their inability to “distinguish which of the different forms of contamination are most problematic”. [M Mazalto, Environmental Liability in the Mining Sector referring to SNC- Lavalin International (2004) Rapport Préliminaire, Étude sur la restauration des mines des cuivres et cobalt, République démocratique du Congo. Division Internationale, environnement. Banque mondiale, Montréal, 2004]

2. \textit{High human exposure to cobalt and other metals in Katanga, a mining area of the Democratic Republic of Congo} (2009).The human health impact of the historic and current mining and processing of non-ferrous metals in the African Copperbelt is not known. This study assessed the exposure to metals in the population of Katanga, in the south east of the Democratic Republic of Congo, using bio-monitoring\textsuperscript{25}. Conclu-

\textsuperscript{23} One possible way would be to add to the staff of the cooperatives that have been created around each mining site (BIT-project), representatives of civil society (churches, health, education), targeting increased social pressure on the racketeers to change their behaviour into a socially more acceptable behaviour.

\textsuperscript{24} “Of a total of 32 sites assessed, 13 (4\%) are considered as presenting Priority 1 environmental problems (requiring immediate corrective measures), and 10 sites (31\%) present moderate, Priority 2 problems (requiring corrective measures in the short term). Finally, 9 sites are considered as presenting few or no environmental problems and require few or no corrective measures (Priorities 3 and 4)”. (SNC-Lavalin International, 2004, p IV)

\textsuperscript{25} Seventeen metals (including Cd, Co, Cu, Pb, U) and non-metals (including As) were measured by ICP-MS in urine spot samples from 351 subjects (32\% women), aged 2-74yr (mean 33yr). Forty subjects (controls) lived 400km
sions: This study reveals a substantial exposure to several metals, especially in children. The urinary Co concentrations found in this population are the highest ever reported for a general population. The pathways of exposure and health significance of these findings need to be further investigated. [Environ Res. 2009 Aug; Banza CL, Nawrot TS, Haufroid V, Decrée S, De Putter T, Smolders E, Kabyla BI, Luboya ON, Ilunga AN, Mutombo AM, Nemery B. High human exposure to cobalt and other metals in Katanga, a mining area of the Democratic Republic of Congo. Unite de Toxicologie et Environnement, Ecole de Santé Publique, Université de Lubumbashi, Democratic Republic of Congo. 109(6):745-52. Epub 2009 May 31]

3. World Rain Forest Movement (WRM). WRM Bulletin 133: "The Democratic Republic of the Congo (DRC) has the second largest tropical rainforest in the world, second only to the Amazon rainforest in Brazil. The country’s forests have recently drawn international attention, not only due to the challenges posed by climate change, but also because of the struggle being waged by Congolese civil society in general, and the environmental movement in particular, to stop the government from lifting its current moratorium on new logging concessions. In the province of Katanga in south-eastern DRC, another type of forest predominates, known as the Miombo or Zambezian woodlands\(^26\). There are numerous factors responsible for the gradual shrinking of the Miombo woodlands in Katanga, and one of the principal causes is mining. Mining activities inevitably require deforestation. Every day large tracts of forest and woodland are cleared to allow access to mineral deposits, as well as for the processing of the minerals, since the mining companies operating in Katanga use archaic techniques that do not respect the environment\(^27\) [WRM Bulletin 133].

outside the mining area; 311 subjects lived in the mining area, either very close (<3 km) (n = 179; 6 communities) or moderately close (3-10 km) (n = 132; 4 communities) to mines or smelting plants. Results: For all metals (except Ni) urinary concentrations were significantly higher in subjects from the mining area than in control subjects. In subjects living very close to mines or smelting plants, the geometric means (25th-75th percentile) of urinary concentrations, expressed as μg/g creatinine, were 17.8 (10.9-29.0) for As, 0.75 (0.38-1.16) for Cd, 15.7 (5.27-43.2) for Co, 17.1 (8.44-43.2) for Cu, 3.17 (1.47-5.49) for Pb and 0.028 (0.013-0.065) for U, these values being significantly higher than those of subjects living 3-10 km from mines or industrial operations. Urinary Co concentrations were markedly elevated, exceeding 15 μg/g creatinine in 53% of the subjects, and even 87% of children (<14 yr), living very close to the mining areas. Urinary As was also high (79% above 10 μg/g creatinine in subjects living very close to the mining areas). Compared with background values from the US general population, subjects living very close to areas of mining or refining had 4-, 43-, 5- and 4-fold higher urinary concentrations of Cd, Co, Pb and U, respectively.

\(^26\) The Miombo has been defined as “a mixed plant formation with a thin layer of grass species beneath a population of trees between 15 to 20 metres in height; the canopies of the trees, often umbrella-shaped, touch or almost touch, but their foliage is not very dense, which means the area as a whole is well illuminated.” (Aubreville, cited in Malaisse, F. (1997) Se nourrir en forêt claire africaine: Approche écologique et nutritionnelle, p. 21 ). The Miombo woodlands are rich in biodiversity, with regard to both animal and plant species. They are also vital to the people who live there. Their importance has become even more crucial after a decade of civil wars and ongoing economic crisis, which has left the majority of Miombo dwellers cut off from the formal economy. Under these conditions, it is the woodlands that provide them with food, medicine, building materials, and so on. Consequently, the destruction of the woodlands endangers the survival of these local populations.

\(^27\) The WRM Bulletin 133 continues: “Even worse, for some time now mining operations have been spreading towards the province’s so-called listed forests. According to the current legislation in the DRC, namely the Forest Code passed on 2 August 2002, listed or protected forests are state-owned assets. This heading covers national parks [strict nature reserves], game reserves, urban forests, botanical gardens and reforested areas controlled by the state or decentralised agencies [articles 12 and 13 of the Forest Code]. In the province of Katanga there are two national parks and fifteen game reserves, of which five are in operation. One of these is the Basse Kando Reserve, an appendix to Uphemba National Park in the district of Kolwezi. It was created by Decree N° 52/48 of 27 March 1957, which has been extended several times since then, including most recently by the Ministry of the Environment and Conservation of Nature, Waters and Forests in December 2006.
During its visit to Katanga, the NCEA further observed that:

- There is an as yet only partly mapped and quantified heritage of environmental impacts caused by all forms of mining and metallurgical processing that have taken place in the past in Katanga.
- The major constituent of this heritage is a multitude of locations where substantial surface areas have been withdrawn from their natural status and are now occupied, polluted and have become sources for dispersion of pollutants. These locations include:
  a. tailing deposits,
  b. slag and debris deposits,
  c. metallurgical industrial area,
  d. non dismantled yet abandoned metallurgical installations,
  e. abandoned yet not rehabilitated pits.
- Dispersion of the pollutants from these sites is ongoing, mainly by leakage and infiltration, surface drainage, erosion (wind and water) and sedimentation. The magnitude of the dispersion of pollutants that has taken place is qualitatively and quantitatively unknown.
- There is proof (see observations from literature above) that contact with the (dispersed) pollutants affects human health and aquatic and terrestrial live.
- Gécamines, as monopolist of mining and metallurgical operations in Katanga up to the seventies of the past century, is to be considered owner on the majority of this heritage.
- Only in civil society organisations the NCEA observed a serious sense of urgency and real commitment to rehabilitation of the sites and to putting an end to the dispersion of pollutants from the sites.

For an overview of interviews conducted during the visit, see appendix 12.

**Recommendations for the PCIA**

Departing from the SNC Lavalin study information, the NCEA recommends to complete the inventory and classification of the potentially pollutes sites, dam conditions, the character and degree of the pollution and the risks of dispersion of pollutants (per site), to make an inventory of the techniques available for containment of the pollution identified (focusing on techniques that eliminate further dispersion of pollutants and prioritising approaches that are self-funding) and to propose an approach per site and guesstimate costs and benefits per site. Moreover, the NCEA recommends to do a further literature survey on health impacts and to quantify and qualify the impacts of the mining sector on vegetation and wildlife.

As some of the pollution problems require immediate action, the NCEA recommends that a quick assessment is made within the context of the PCIA to see whether mining waste would qualify as raw material and could be classi-
fied (according to mineral associations, grade, layered composition, extractability) for further mineral extraction and safe disposal of waste products. In case the mining waste does not present any value, the PCIA should study and develop feasible plans how to eliminate the threat related to waste deposits.

With respect to vegetation and wildlife: not only past mining operations but also present and targeted mining operations seriously threaten vegetation cover and wildlife. The NCEA advises that the PCIA identifies ways to improve the protection of declared (gazetted) conservation areas as well as new conservation area’s and compensation measures for vegetation and wildlife loss.

### 4.3.2 Environmental Behaviour of Operating Enterprises

#### 4.3.2.1. Gécamines

**Context Analysis**

While the NCEA did conduct an interview with Gécamines it should be noted that the NCEA’s own observations regarding Gécamines environmental behaviour are very limited and only regard the production site Shituru. The NCEA observes that Shituru is a very old and poorly maintained metallurgic site in Likasi. With regard to safety, environment and quality, The NCEA considers working practices at the production site in Shituru to be far below standard. While the construction of new installations and new processes is underway, the NCEA observes that progress is slow and that it is difficult to secure sufficient financial means.

**Recommendations for the PCIA**

The NCEA recommends that a thorough and complete environmental, health and safety audit of all the operational sites of the Gécamines should be conducted. A plan should be made up (i) how to stop further pollution and (ii) to determine what to do with existing damage. This plan is recommended to include an inventory of the necessary investments to be made to make the company ‘state of the art’.

In the mean time the NCEA recommends to study closure and decommissioning of existing old installations\(^{28}\). The NCEA reiterates its advice to reconsider the structure of Gécamines to make this all possible\(^{29}\).

#### 4.3.2.2. Big Enterprises

**Context Analysis**

The NCEA concludes that the picture on actual environmental behaviour in Katanga is diverse, but that overall environmental compliance could be much

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\(^{28}\) see also 4.3.3  
\(^{29}\) See 4.2.1
better. The government has the legal tools in hand to guarantee compliance but does not use these tools in the sense that they effectuate compliance.

This conclusion is based on the following observations, made during interviews (see appendix 12 for an overview of interviews):

- The NCEA observed a sense of responsibility for the environmental performance of new mining and metallurgical operations, both at the level of some major mining and metallurgical companies and to a lesser extent of the Gécamines.
- Information provided to the mission by various interlocutors suggest that there are also companies operational that lack that sense of responsibility and that continue to increase the environmental burden on Katanga.
- The NCEA has the opinion that the Mining Code provides sufficient legal basis for selection of reliable and responsible partners/foreign investors. The Mining ministry does not use its legal competence to enforce this code.
- As a consequence, the effectiveness of environmental governance instruments like EIEs, PARs, PGEPs and the like are in practice dependent of the intentions of the mining and metallurgical operators.
- In its interviews, the received credible information that the fact that some international companies seem to behave responsibly is due to standards imposed by financiers.

**Recommendations for the PCIA**

The NCEA recommends that a thorough and complete environmental, health and safety audit of all the mining and metallurgical sites be done, those in production as well as those abandoned. This assessment could be the basis for a characterisation/categorisation/rating of the enterprises based on their environmental performance and for a pinpointing of responsibilities for observed pollution. As the NCEA is aware that this is an enormous task, it recommends to do a quick scan first, leading to a list of priorities for urgent intervention.

**4.3.2.3. Small Enterprises, Diggers**

**Context Analysis**

The NCEA concludes that the craft mining sector is extremely harmful in terms of damages to the environment and in terms of social and health impacts. This conclusion is substantiated by literature as well as interviews, as follows:

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CHEMAF, for instance, is said to still use old mineral transformation technologies that generate serious ecological and human damages: it is said to pour out its waste residues in basins that are neighbouring crowded residential areas (cité SNCC in Lubumbashi). Public health: a doctor has pointed out the prevalence amongst women of breast nodules that could well be a consequence of toxic products and of radioactivity that are disseminated by the mining industries in their environment (for instance, in the neighbourhood behind the “Cité SNCC”, near the cemetery).


4. "Les résultats de l’étude démontrent qu’il y a effectivement contamination du bassin de la Lufira supérieure par les métaux lourds. La source principale de pollution identifiée dans ce bassin est le complexe hydro-métallurgique de Shituru/Gécamines et la zone d’influence de ses effluents s’étend jusque dans le lac Tshangalele. L’analyse de la composition des effluents indique un excès de cuivre et de cobalt. Les valeurs obtenues dans cette étude dépassent les seuils fixés par le code minier de la RD

During interviews the NCEA further observed that:

- Small enterprises are numerous and less visible, and thus more prone to illegal practices.
- The craft sector is extremely harmful in terms of damages made to the environment. Due to the methods they use, they bring high quantities of metals in the rivers. The same applies to craft ‘fondeurs’ who reject harmful gazes and metallic dusts in highly populated areas.
- Artisanal diggers use to stock radioactive minerals in their courtyards, even inside their habitations. This creates a human health issue.
- Members of civil society who advocate for the environment or against abuses of the human rights, take risks in Katanga, particularly as soon as their critics call government officials into question.

Recommendations for the PCIA

The NCEA recommends:

- Using available studies, to complete the findings (inventories, exhaustive identification of impacts), using lake Tshangalele as a case study, emblematic of side effects of mining waste (from both industrial and craft activities) on downstream populations and their environment living; this site is further located within a protected area.

4.3.3 Obligations for Mine Closure

**Context Analysis**

Until recently, mine decommissioning and closure activities were not obligatory in most countries. “Many decades and even centuries of inadequate and non-existent mine closure practice, have left a huge legacy of derelict mine sites and often impoverished communities”\(^{33}\). Katanga also has such a legacy\(^{34}\). However, reclamation, where possible as a concurrent integrated part of the extraction, subsequent mine closure, site abandonment and decommissioning are nowadays recognised as responsibility of the mining industry and host government.

DRCs mining code holds provisions for Mine closure and decommissioning but enforcement of these provisions is weak\(^{35}\). Guidelines, however, for sustain development in mining are widely accepted and defined in international context. Moreover, the Democratic Republic of Congo is in the process to join EITI\(^{36}\) which will oblige the DRC to be transparent on financial issues around mine closure and decommissioning.

**Recommendations for the PCIA**

Assess whether the Mining Code and associated legal texts provide sufficient legal basis for enforcing mine closure and decommissioning at a standard comparable to other mining countries. Assess whether the Mining Ministry has sufficient and quality guidance documents and toolkits for mine closure and decommissioning.

In case the recommended assessment concludes that, in the DRC, there is insufficient legal basis an/or guidance on mine closure and mine decommissioning, the NCEA recommends the PCIA to propose development of a two step Strategic Framework for Mine Closure and Decommissioning. For suggested contents of such a strategy, see appendix 10.

4.4 Social:

4.4.1 Employment and unemployment in Katanga

**Context Analysis**

The NCEA concludes that, in terms of employment, all the sectors are intermingled and interdependent and offer few job opportunities, at least in the present situation. Food production at large is acknowledged by a majority of the analyses as promising and as the first sustainable richness in Katanga, although huge improvements would first need to be realised to make this happen. This is substantiated through literature and interviews, as follows:

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\(^{33}\) Quote from website of Postmining Alliance (Cornwall, UK) http://www.postmining.org/index.php

\(^{34}\) See 4.1.3.

\(^{35}\) see 4.1.1.

\(^{36}\) Extractive Industry Transparency Initiative (see http://eiti.org/)
1. The problems of the mining sector: there has been a recent setback in mining activity with numerous social impacts:

“Prior to the eruption of the global financial crisis, the revival of industrial mining in the transition period between the end of the civil war and the elections of 2006 coincided with a remarkable expansion of artisanal mining. Benefiting from the formal reconfirmation of the artisanal mining sector by the regime of Laurent-Désiré Kabila, an estimated 250,000 people went to the mining areas to work as “creuseurs”. [J Cuvelier, IPIS 2009. Katanga Mining and econ.crisis.pdf. 1-24; p 11]

If there is consensus among scholars, government officials and development practitioners that artisanal and small scale (ASM) mining is a poverty-driven activity, what is often overlooked is that -at least in the case of sub-Saharan Africa- it is the World Bank mining sector reforms that have fuelled the expansion of illegal artisanal mining activity: “Many of the very people left unemployed by industry privatisation both in the large-scale mining industry and other important segments of economies have pursued employment in ASM” [SM Banchirigah, How have reforms fuelled the expansion of artisanal mining? Evidence from sub-Saharan Africa Institute for Development Policy and Management (IDPM), School of Environment and Development, The University of Manchester; Resources Policy, Volume 31, Issue 3, September 2006, p 165-171; p 167]

In Katanga, access to small-scale mining sites has become a crucial part of the provincial economy: “Today, some 20 per cent of these small-scale miners are former employees of Gécamines, laid off when the company was restructured” [P Mazalto, 2009: Chapter 5 “Governance, Human Rights and Mining in the Democratic Republic of the Congo”, in Bonnie Campbell Ed.: Mining in Africa, Regulation and Development, Pluto Press/IDRC.] But one also finds graduated people who are jobless and make do with this activity, for a daily gain that, in 2006, amounted to 3 US$. [Global Witness, juillet 2006. Rapport : « Une corruption profonde : Fraude, abus et exploitation dans les mines de cuivre et de cobalt du Katanga », Washington, p 1-55; p 10]

Mining companies are perceived negatively by the population: “Après la chute de la Gécamines, l’on assiste actuellement à l’expansion du secteur minier et les nouvelles sociétés enregistrées (plus de 300) l’illustrent. Malheureusement pour la population, ces sociétés ne font rien que piller »; Selon Monseigneur Gaston Ruvezi, « les richesses dont notre pays a été doté ne contribuent pas encore au bonheur de nos populations mais au contraire, elles sont source de tous leurs maux ». [G Bokundu et al, 2008 : « Rapport de la table ronde : Journées minières du Katanga, musée de Lubumbashi, 30-31 mai 2008 », p 26, p 3-5]

The global employment crisis, worsened by the slowing down of mining activities has provoked:

1. the sudden closure of foreign companies:

“The Katangese government is very upset by the sudden departure, at the end of December 2008, of 40 Chinese companies that were previously running copper smelters in Katanga. According to the Katangese governor Moïse Katumbi, the provincial government sent the companies a letter, asking them to pay their remaining taxes and to give a severance pay to

2. series of social troubles:
In the beginning of February 2009, the employees of the Société Nationale des Chemins de Fer du Congo (SNCC), Congo's national railway company, went on strike because they had not been paid for the past 30 months (J. Cuvelier, p 10).

"In the beginning of April 2009, Kolwezi witnessed several demonstrations by artisanal and industrial workers threatened with unemployment. First, on the 9th of April, a group of négociants demonstrated in front of the town hall to demand the payment of an outstanding debt of $10 million by Gécamines"; then, “On the 10th of April, 40 employees of the company MCK (Mining Company Katanga), who had been sent into technical unemployment 6 months before, took to the streets to ask for their final payment (décompte final). Finally, on the 16th of April, artisanal miners and employees of the mining company Kaol-DCP jointly protested against the cancellation of the latter’s employment contracts as well as against the low level of the latter’s final payment (décompte final)” (J. Cuvelier, 2009, p 11)

3. a perceived increase in criminality:
“The economic crisis is also leading to higher levels of insecurity in Katanga’s major urban centers. In recent months, 11 people were killed in Lubumbashi, while 2 people were murdered in Likasi. It is believed that this may have something to do with the considerable influx of former artisanal miners who are massively leaving their working places out of discouragement over the declining copper and cobalt prices” [J. Cuvelier, 2009, p 11]

“As far as the artisanal mining sector is concerned, it is pointed out that, due to the sharp decline in mineral prices, large numbers of artisanal miners have left the mines. While some of them appear to have found a new source of income in agriculture, there are disturbing reports that others may have chosen to engage in criminal activities in order to stay afloat” [J. Cuvelier, p 3]


4. Agriculture (and, by extension, food production) as possible response to the crisis issues and to sustainable development, requiring (i) financial support, (ii) tax and collateral withdrawals alleviation.

“Though not identified in 2006 by the president of the republic as a priority objective, agriculture and food security should be the motor of job creation, and infrastructures should benefit agricultural development in the first place”. Imported basic foods are in competition with local production, which is in deficit; [E Tollens, 2009: "Agriculture, sécurité alimentaire et développement économique: défis et enjeux », in T. Trefon : Réforme au Congo (RDC) : Attentes et désillusions, Cahiers Africains N° 76, MRAC, Tervuren et L’Harmattan, Paris; p 1-275] ; the latter is highly restrained by taxes and the diverse (official and unofficial) levying. [World Bank, 2005 : « Agricultural Sector Review », Report Nr. 30215-ZR, AFTS3]
“Les importations aident à stabiliser l’approvisionnement des villes” ; “En revanche, elles concurrencent fortement une production locale largement déficitaire pour des produits clé comme le riz, le sucre, l’huile végétale, la viande, le poisson, etc. Tous ces aliments pourraient facilement être produits dans le pays avec des techniques et des investissements appropriés à condition, toutefois, de reformer le système de taxes et de prélèvements divers auxquels est soumise la production nationale, tant de façon officielle que non officielle” [World Bank, 2005 : « Agricultural Sector Review », Report Nr. 30215-ZR, AFTS3]

“Development is conditioned by agriculture and food security: agriculture has the biggest multiplying effect (1$ given generates 3$). [E Tollens, Creac’s conference, Brussels, September 17th 2009]37

“Restarting the agricultural sector was also one of the recommendations put forward by the participants in a recent conference on Katanga’s economic future” (15-18 April 2009), where government officials, experts from international organisations, members of NGOs and guests from Chile, Zambia and South Africa, gathered in Lubumbashi to think about alternatives to the mining industry. Apart from the need to kick-start Katangese agriculture, the conference’s recommendations list also included the need to strengthen the production capacity in the mines, to guarantee a consistent application of the new mining code, to rehabilitate a number of tourist sites, to involve the University of Lubumbashi in scientific research on the development of various sectors of the Katangese economy and to establish a development policy based on renewable natural resources”. [J Cuvelier, July 2009: “The impact of the global financial crisis on mining in Katanga”, IPIS report, p 1-24, p15]

Despite the fact agriculture definitely should be developed in Katanga, it appears that the province will stay dependent upon food importation from neighbouring countries. A researcher has identified the 28% of remaining lands, that is those for which no research or exploration permit has been delivered by the Ministry, and made a simulation over a 50 years period (2008 - 2058) under various scenarios: The results are that these remaining lands are unable to nourish, in the long run, the population of Katanga even if they were all cultivated (Kasongo Lenge Mukonzo, 2009). [J Cuvelier, July 2009: “The impact of the global financial crisis on mining in Katanga”, IPIS report, p 1-24, p 20 footnote]

3. Employment/unemployment develops into a pretext for ethnic rivalries. Jobs (particularly formal ones) at stake exacerbate identities. There is a history of enmity between the Katangese and their generally better-educated, more successful Kasaian brothers (from the Luba ethnic group) who predominate among the country’s intellectuals, professionals, and entrepreneurs.

“In August 2008, during an ethnic feud, members of the Katangese community in Kolwezi attacked members of the Kasai community setting fire to

37 http://www.eca-creac.eu/
two warehouses and bikes. The row had started as revenge after a member of the Katangese community had been attacked while being caught stealing. All in all, the human costs of the violence have not been very serious, but the importance of the event lies in the memories it calls up of dramatic confrontations between the two groups in the past. The most infamous of them was the hate campaign against the Kasaians in 1991 led by the then governor Kyungu and executed by his militant youth gangs of JUFERI.” [Spittaels & F Hilgert, 2008: Mapping Conflict Motives: Katanga Update: May-September 2008, IPIS Report; p 1-14, p 8]

Aside from observations based on literature, the NCEA noted the following on employment/unemployment issues during interviews and visits:

**Formal sector**

Within the formal employment context, the NCEA observed the following (A list of interviews is provided in appendix 12):

- In the past the CNCC (Société Nationale des chemins de fer du Congo) and the Gécamines used to be the main job providers.
- In people’s minds, the ‘paternalist management model’ adopted by the Union Minière de Haute Katanga (UMHK) and later Gécamines, keeps being considered as a mainstay, though it is overtaken: such expectancies could restrain entrepreneurship.
- Today, according to the FEC (Fédération des Entreprises du Congo), a mere 3.3% of the all jobs in Katanga is in the formal sector.
- The mining contract re-visititation process and the credit crisis have recently contributed in restraining mining activities and investment in Katanga.
- Locally produced goods are more expensive than imported ones.

**Informal sector**

Looking at the informal employment context, the NCEA observed the following:

- Craft mining has become an important part of the economy: it absorbs jobless workers from the formal sector as well as immigrants and adventurers. Working conditions (health and safety) are extremely bad. The sector is characterised by exploitation and criminality (see appendix 9). Inversely, the fear is that forced reduction of the informal mining activities might even generate more criminality.
- Paradoxically, the province is now extremely dependent upon neighbouring countries, for its supplying of basic food products (chicken, eggs, etc.). This sector has almost completely disappeared although those products could in fact easily be produced locally (like they were in the past).

38 Taking care of its workers from cradle to grave.
There is a tendency amongst southern Katangese, to consider migrants from other provinces as being responsible for the problems they face: according to some, it is essentially migrants (unemployed people from the North and neighbouring provinces as well as people who fled from the conflict zones in 2006-2006) who are involved in craft digging and/or charcoal production to survive. Similarly, foreigners are regularly blamed for plundering their resources.

Agriculture remains potentially the most needed, promising and sustainable source of income and the sector that potentially could absorb a lot of the manpower now working as digger; the same applies to fishing, to a lesser extent. By opposition, the importance of the mining sector is relative in Katanga and its durability is reduced and anyhow limited in time.

The above observation lead the NCEA to believe that, the main issues are the following:

1. There is too much confidence in Katanga on the resources of the formal mining sector, particularly in terms of job creation. The recent switchback evolution of the mining sector shows how fragile and dependant this activity is upon the world economy, specifically the less developed (primitive), inefficient and labour intensive activities. Unfortunately, the workers and their families in this category of enterprises are the first victims of such fluctuations. In periods of growth they have a job, but with questionable working conditions. In periods of drop they are on the dole and obliged to accept a job in the equally suffering craft mining business with unacceptable working conditions. On the other hand one should realise that under normal and stable business conditions Katanga is one, if not the most favourable region in the world to keep on production, even in a downturn of the world economy.

2. There might also be overconfidence on the potential in food production, not as a resource per se, but due to the current situation:
   a. this market is partly in the hands of neighbouring countries who have already invested in industrial or semi industrial food production and are extremely competitive with traditional subsistence farming;
   b. production costs in DRC increase, due to the degraded road infrastructure, but also due to the various withdrawals and/or extortions imposed on producers and transporters by state agents, along the road and at the entrances of town markets.

3. The market in terms of goods production is also limited: small and medium Katangese entrepreneurs complain on the high production costs due to (legal and illegal) taxes imposed by the state and its agents. This situation would force to imports goods instead of producing them locally, which further restrains entrepreneurship and employment. Further, this sector necessarily profits of the fallouts from the mining sector, which forces to question its long-term sustainability. So they should avoid being too dependent on the mining sector.

4. Unemployment is used as a weapon in two ways: or by politicians to strengthen their client’s base through diabolizing people originating from Kasai and/or foreign mining companies “who pillage their resources”; or
by any person who draws profit from the current situation, invoking the	hread to see illegal diggers inflate the number of bandits and criminals,
if deprived from jobs.
5. The very poor investment climate\textsuperscript{39} and the unstable political situation
have created a fatalistic society where initiatives are demoralised. The au-
thorities aren’t there to facilitate the businesses, it is considered to be the
other way around.

\textbf{Recommendations for the PCIA}

The NCEA, admitting that the mining sector (after its reconstruction) will not
be able to absorb the current number of craft miners, recommends to study
in the PCIA the necessary conditions that stimulate agriculture/fishing/cattle
raising development, as these are crucial components of economic develop-
ment and form an alternative for the mining sector in creating jobs. In addi-
tion they are potential generators of wealth, as – at least partly - shown by
neighbouring countries. More in general, the NCEA recommends to study how
central and local governments can create a good investment climate encour-
aging entrepreneurial initiatives\textsuperscript{40}.

The NCEA further recommends the PCIA to study to what extent and under
which conditions agriculture and other local production in small and medium
sized enterprises can actually create economic development and jobs. The
NCEA also recommends to assess the negative impacts from mining activities
on such productions (fishing, notably)\textsuperscript{41}.

In addition, the NCEA recommends to study the level of political will to de-
velop agriculture, rural production and SMC’s (in view of the budget currently
devoted to agriculture (1.7\% of the total)).

\section{Mining Sector as Employer}

\textbf{Context Analysis}

Based on literature and its own observations in Katanga, the NCEA concludes
that:
1. Gécamines used to be the main jobs provider in Katanga: 35.000 agents
in 1990, which corresponds indirectly to “feeding” 350.000 persons (fami-
lies included), and sustaining one million persons (through indirect); Gé-
camines also offered the best social and work standards in the country.
In the context of a World Bank re-structuring plan, 10.500 workers are
sacked in 2003 (whose major part had not been paid for more than two

\textsuperscript{39} See 4.1.3.
\textsuperscript{40} See 4.1.3
\textsuperscript{41} For an example of a project that supports and finances water, plant and fish analysis to help fishermen complain
on the non protection by the government of the aquatic environment that is polluted by mining activities, check
the CTB-BTC (Belgian Technical Cooperation) project ‘PRODEPAAK’: Développement de la Pêche Artisanale et
de l’Aquaculture au Katanga) : Contact : Jean-Pierre Marquet : jp_marquet@hotmail.com
years). Today, Gécamines merely employs a limited number of workers, a part of which being in technical unemployment.

2. Employment in the mining sector crystallizes all issues (environmental, social, humanitarian, linked to governance) that are at stake in the realm of resources exploration in Katanga (but also in other conflict zones in Congo), namely: non enforcement of the law (Mining code, Labour code); absence and irresponsible behaviour of the state and its servants, part of the enterprises not taking their Corporate Social Responsibility (CSR). Craft mining raises issues like: financing armed conflicts, smuggling of raw minerals; exploitation of workers, child labour, violation of human rights, extortion of money, harassing.

3. Further, craft mining makes more apparent practices that are embedded in the culture and about which local people prefer not to comment: generalised corruption, systematic exploitation of one’s weaker, predatory behaviour of state agents, conflicts of interest associated to high authorities.

4. The balance sheet of the period since partnerships exist between state agencies and foreign mining companies is much mitigated: job opportunities (in socially correct conditions) are extremely limited, while working conditions have globally degraded (and worsened with the recent crises).

5. Disrespect of human and worker’s rights in the mining sector is regularly denounced by civil society and international organisations, but no improvements are noticeable. According to the NCEA, there are two options: to forbid craft mining once and for all while developing alternative sources of income (by boosting agriculture, for instance) or to regularise this sector. Both solutions are not applicable in the short term (see point 1); while enforcement of rules also remains an issue.

6. The few steps towards regularisation of the informal mining sector taken by the provincial government have had no effect (forbidding access to mines to children, for instance); it appears that the state is more inclined to better controlling craft miners than to protecting their rights (EMAK and SAESSCAM experiences).

7. Noticeable achievement are nonetheless visible in the work of some NGOs and international agencies: the objectives they have in common in their respective projects is to encourage the social responsibility of private companies; to seek a stronger implication of the base (workers within cooperatives, for instance) and, finally, to diminish as much of possible the margin for manoeuvring of state agencies and civil servants in order to avoid any misappropriation of funds generated.

These conclusions are substantiated by literature as follows:

**Formal Sector**

1. The recent massive arrival of Chinese capital in the mining sector is not synonymous with job creation: “Enfin, les premiers contrats (signés avec les Chinois) ne semblent pas fournir à la RDC des garanties solides pour un développement futur, notamment en termes d’emplois pour les Congolais” [Task Force “MIRECA” – Mineral Resources in Central Africa, Ministère belge des Affaires Étrangères; Bonne Gouvernance & Transparence dans le secteur minier, Traçabilité des flux de matières et des flux financiers dans le commerce des minéraux de Cu et de Co en RDC Description synthétique du projet Avril 2008 p 1-111, p 12]
2. Since April 2009, several big enterprises in partnership with Gécamines (such as DCP, KOL, KMT) have operated restructuring and massively made their workers redundant. [J Gorus & D Rukan, 2009 “Etat du secteur minier artisanal à Kolwezi en avril 2009”, report, p 1-10]

3. In addition to the uncertainty created by the revisitation process, the credit crisis came at a very bad time for the Katangese mining industry because several companies (such as: Metorex project (Ruashi); CAMEC ((Mukondo Mountain and Luita sites), Anvil Mining ‘(Kinsevere); Kamoto Copper Company (KCC); Katanga Mining Ltd (Tilwezembe open pit; Kolwezi concentrator)) were in the middle of starting up or expanding their activities. [J Cuvelier, july 2009: “The impact of the global financial crisis on mining in Katanga”, IPIS report, p 1-24, p 8]

4. Formal employment is a crucial stake in Katanga: as soon as a mining company provides contracted jobs (also true for temporary ones), the issue of tribal identity quickly surfaces, in order to guarantee that any job (un)qualified; temporary, long term) is given in priority to ‘true’ locals or ‘true’ Katangese nationals [personal experience of a NCEA team member as a consultant for the TF MIRECA project].

Informal Sector

1. There are numerous entities that report on human issues related to resources exploration in Katanga:
   a. International as well as Congolese humanitarian NGO’s systematically denounce violations of human rights and monitor craft mining in the field; they more precisely denounce ill practices as corruption, smuggling, fatal accidents etc. and write recommendations to the government and private operators: Global Witness; Association Africaine de Défense des Droits de l’Homme (Asadho); Action Contre l’Impunité pour les Droits Humains (ACIDH); Rights and Accountability in Development (RAID); Human Right Watch (HRW).
   b. Independent research institute focusing on arms trade, exploitation of natural resources and corporate social responsibility: IPIS (International Peace Information Service) and Fatal Transaction.
   c. International NGOs who do invest in research in addition to implementing projects in Katanga:
      i. Pact-Congo : identifies mining companies that are eager to assume social and environmental responsibility and support them; has created (+ USAID (United States Agency for International Development)) of an Extractive Industries Network whose aim is to promote sustainable and equitable social and economic recovery. Pact Congo has analysed the impact of ‘cow-boy-type’ mining companies : the conclusion is that the situation has worsened since such companies arrived in Katanga . They will soon make a study on existing conflicts between (i) private sector and craft diggers; (ii) cooperatives (SAESSCAM) and craft diggers.
      ii. Group One: supports reinserion into activities adapted to their age of children working in the mines
   d. Scientists who make field studies and research for economically and socially pertinent alternatives to the current situa-
tion: RMCA (Royal Museum for Central Africa) Tervuren; VUB (Vrije Universiteit, Brussel); Cedemol (UNILU).

e. Task Force MIRECA (Cf. section on “Structure of mining sector”).
f. Gecoproject: Cartography of mining sites (in order to identify sites that are free or could be freed for artisanal mining as proposed by MIRECA project).

2. The artisanal mining sector generates unacceptable living and working conditions for small scale miners:

“The tragedy of the miners’ comes from the absence of adequate equipment and safety measures, child labour, contamination risks and mortal accidents. The DRC provides a striking illustration of the complexity of the stakes raised by the issue of human rights”. [M Mazalto, 2009: Chapter 5 “Governance, Human Rights and Mining in the Democratic Republic of the Congo”, in Bonnie Campbell Ed.: Mining in Africa, Regulation and Development, Pluto Press/IDRC (online publication, p 1-41, p 16)]

3. Several authors denounce the institutionalisation of corruption in DRC:


b. “On the 10th of April, artisanal miners working on the site of Kolwezi’s zinc factory blocked the road leading to their workplace in order to claim the removal of all the roadblocks created by Gécamines’ Industrial Guard (Garde Industrielle) (of which the members were probably hoping to make some extra money by taxing passers-by)”. [J Cuvelier, July 2009: “The impact of the global financial crisis on mining in Katanga”, IPIS report, p 1-24, p 11]

4. Attempts made to organise the craft mining sector proved to be a failure:

a. EMAK (Exploitant Miniers Artisanaux du Katanga) a union created in 1999 and supposed to organise the craft miners and the traders and protect their interest; it turned out to protect mainly the traders and to become a supplementary source of money extortion for the diggers; a rival organisation, CMKK (Coopérative Minière Madini Kwa Kilimo) and, finally (2005) SAESSCAM (Service d’Assistance et d’Encadrement du Small Scale Mining), a public service created within the Ministry of Mines and said to be the solution to the majority of the problems of this sector. [Global Witness, juillet 2006. Rapport : « Une corrup-
NCEA’s own observations in Katanga, through visits and interviews (see Appendix 12), further illustrate the following:

**Formal Sector**

- Gécamines is still the main jobs provider in Katanga, in conditions that, despite the decrease in quality standards, keep being better than the average in Congo. However, in August 2009, part of the company workers are on “technical unemployment” due to recent slowing down of activities.

- Paradoxically, Gécamines now hires, though indirectly, the services of informal workers, in the context of its partnerships (private subcontracting) like, for instance in the Kamfungo mine (MCK).

- People in Katanga have seen the arrival of foreign mining companies as generating a second breath in the mining sector, after the collapse of Gécamines. In this regard one should distinguish mid-scale, state of the art and high efficient operations from small-scale more labour-intensive activities. The first category foreign mining companies mostly hire relatively few contractual workers: 3000 in CHEMAF; 3500 in Tenke Fungurume; 375 in STL. Those companies are less vulnerable for metal price variations on the world market. The second category, being less efficient, is much more touched by the depression and the decrease in the market prices because of the financial crisis. These companies have recently slowed down their activities, see closed (some without any warning).

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43 although the NCEA has observed in Shituru that health and safety conditions of workers are far below standard (see also 4.3.2).
recent re-visitation of contracts has made it more difficult to get DFI (Direct Foreign Investments).

- The recent arrival of Chinese companies appear to announce more degradation in terms of local employment and respect of labour rights: “Contrairement aux autres, les Chinois ne se soucient pas d’au moins faire semblant d’appliquer les règles”. [Task Force “MIRECA” – Mineral Resources in Central Africa, Ministère belge des Affaires Étrangères; Bonne Gouvernance & Transparence dans le secteur minier, Traçabilité des flux de matières et des flux financiers dans le commerce des mineraux de Cu et de Co en RDC Description synthétique du projet Avril 2008 p 1-111, p 12]

- The distinction between formal and informal within the mining sector is not operational, for many companies take advantage of the ease demonstrated by state agents not to comply with their legal obligations (Mining and labour codes). Gécamines, for instance, indirectly resorts to craft miners in the context of its private subcontracting.

- The best (social, work conditions) standards are now found within the few foreign companies that decided to comply with WB and OESO principles, but those hire only a limited number of workers [TF MIRECA, STL].

**Informal Sector**

- The presence of craft diggers on mining sites is a recognised fact: the NCEA has also noticed the presence of women and children, seen their camps, settled near the mines and along their access roads.

- Craft mining sector compensates for the variations in offer and demand of the formal mining sector: beyond jobless people (see educated) it is also the recipient of people laid off from the formal sector (former Gécamines workers, notably).

- The majority of jobs in the mining sector is found in the informal sector: the number of craft diggers was estimated, for Southern Katanga, to 300.000, but some doubt they are as many as that. Prof. Gorus, evaluates their amount to 80.000, 100.000 at the best. [25 September 2009 Meeting of the NCEA with Professor Jan Gorus, Vrije Universiteit Brussel, manager of the project: TF MIRECA: « Bonne Gouvernance et Transparence dans le secteur minier”; initiator of CEDEMOL (UNILU)]

- All persons that the NCEA has met, consider craft mining as a problematic issue: this activity is synonymous with illegality, insecurity, disrespect of fundamental worker’s rights and children’s rights; they indicate that in some parts of Katanga, craft mining finances armed factions; globally, it supplies the illegal export of raw minerals. Moreover, they indicate that craft mining is the opposite of efficient use of natural resources and of care for the environment.

- Inversely, the NCEA observes that craft mining ‘feeds’ an important amount of people who could at least in part add to the ranks of thieves and criminals if they were impeded to exerting their job and have no alternative job offers.

- Most of the people met, think that craft digging should continue to be authorised, but that it must be formalised, integrated in the global mining sector and monitored; also, workers must be guaranteed the respect of their rights and of security rules. A minority thinks craft mining should be prohibited and suppressed, as far as people are encouraged to (re)invest in classical production activities (farming, fishing). The same minority expresses doubts about the results of any
plan aimed at formalizing craft mining: “Quand on organise, on détruit”.

- The NCEA observes that entities like EMAK and SAESSCAM, that were created to protect and defend the craft miner’s interests are in competition one with the other and do not necessarily fulfil their mandate.
- The NCEA questions whether the transformation of the informal sector into a formal one is realistic. It doubts that it is really possible to create a feasible formalised shattered informal sector respecting rules and laws concerning social justice, health and safety, environment, sustainable use of mineral recourses?

**Recommendations for the PCIA**

In response to the above, the NCEA recommends to study the consequences of a fading out of the informal mining sector as it is today, along two different lines of thinking: (i) the development of sustainable alternative ways of livelihood and, (ii) the improvement of the actual situation.

In this regard the NCEA recommends to study, amongst projects identified, the results of those three projects, that seem to offer pragmatic and original outcomes to the issue:

1. Pact Congo and USAID: support private companies in their commitment into social (and environmental) responsibility; creation of an Extractive Industries Network.
2. BIT: reinforcement of the craft mining sector through relying on cooperatives issued from the base, more representatives of its members.
3. Miréca: creation of a mixed (public and private) enterprise (“Entreprise publique d’économie mixte”) where private invest, but have a say (seat in the advisory board) and a tight control on finances.

Furthermore, the NCEA has the opinion that a coherent and integral policy towards craft mining is urgently needed. Therefore NCEA suggests the PCIA to make a thorough study of all the work already done in this field, studies, projects, observations etc. On that basis and taking into account the objectives to be achieved (health & safety, social justice, environment, good stewardship of the natural resources etc.) a coherent and integral national policy could be formulated and implemented.

In this context, the NCEA recommends to consult, amongst others, the work done by SAESSCAM and the way it is perceived by craft diggers; consider results attained by former projects aimed at organising the craft diggers.

The PCIA should explore the options for:
- establishing a local mineworkers union statute;

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44 An example: “In the context of its socially oriented actions, the company « RUASHI Mining Sprl has framed craft miners working on its site in the project of finding alternative economic activities generating income” [Ministère des Mines, RDC, Commission de re-visitation des contrats miniers, novembre 2007 : “Rapport des travaux” #2: Partenariats conclus par la Gecamines”, p1- 246; p 153]

45 Check the study that Pact-Congo is going to do: the analysis of (i) conflicts between diggers and private sector and (ii) between cooperatives (such as SAESSCAM) and diggers (information: François Philippart).
providing to union representatives and shop stewards recognised training on this statute (collective agreement on the substance of this raining to be signed by all stakeholders).

The PCIA should also develop plans for sustainable, alternative ways of income generation for the craft miners in agriculture, farming, fishing etc.

4.4.3 Illegal Exploitation and Commercialisation of Uranium

Context Analysis

The NCEA concludes that it appears that no account has been taken from past experiences in illegal uranium mining, whatever the consequences for workers or surrounding residents these imply.

In literature, this is substantiated as follows:

1. Shinkolobwe mine, a past experience symptomatic of the disorganisation of artisanal mining sector and lax shown by state agents:

2. Despite recommendations made by experts, nothing has changed: “Uranium stays an issue in the region, to which too little attention is paid. Around Kolwezi alone, 8 sites contain minerals with a disturbing level of radiation. Some of these sites are exploited by ‘majors’, others by ‘minors’ and three of them are even run by individuals” [S Spittaels & F Hilgert, 2008: Mapping Conflict Motives: Katanga Update: May- September 2008, IPIS Report; p 8]

In addition to literature analysis, the NCEA has interviewed Mr. Armand Foster who has personally seen the evidence that there is illegal mining of Uranium in the Shinkolobwe area (a 10 square kilometer area is uraniferous). He has shown evidencing pictures. He claims that the mining product is evacuated by lorry and that the product is bought by Chinese. He shows pictures of dangerous situation: trapped, a lorry has dumped bags of uranium ore in a river. Villagers, who were told that the bags are worth US$ 2000 each, have collected bags and stored them in their houses. MONUC has started to inform villagers of the risks of uranium ore.

According to Prof. Gorus, some measurement made in the past have been done in a non professional way and resulted in alarming irradiation rates (hence the necessity to dispose of a serious measurement unit).

**Recommendations for the PCIA**

The NCEA recommends to:

1. Study the project at the provincial level, to create a unit in charge of all measurement scheduled by the law (information to be obtained from Prof. Gorus, see footnote 48).
2. Study ways and means to divulge the information given by Mr Foster and use it as a means for awareness raising amongst populations living next to uranium sites.

**4.4.4 Social Infrastructure : Education, Health, etc.**

**Context Analysis**

The NCEA concludes that, contrary to practice in the sixties and seventies, the majority of mining companies no longer satisfy social duties. Amongst companies who do fulfil social engagements, it is nonetheless hard to distinguish to what extent costly achievements respond to the companies obvious needs (human resources, fair road access) or to actual social expectations of the surrounding populations. Besides this, companies engage locally in small supports, that seem to be decided case by case and out of any global plan.

From literature, the NCEA concludes that:

1. Gécamines has provided top quality social, educational and health services, until the seventies.
2. Since Gécamines collapsed in the nineties, nothing was done by the state to replace or even maintain what existed. Today, such services are dilapidated or do not function anymore.

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46 Civil affairs Officer at Monuc
47 Prof J Gorus, University of Vrije Universiteit Brussel, manager of the project: TF MIRECA: « Bonne Gouvernance et Transparence dans le secteur minier"; initiator of CEDEMOL (UNILU); personal communication
48 Personal experience of one of the NCEA team members
a. “The real motor of the Congolese economy, the UMHK and later Gécamines has been recognised as providing the inhabitants of Katanga with one of the highest standards of living in the country, through job creation and significant investments in educational, medical and sporting infrastructure for company employees and their families. For example, Gécamines runs its own hospitals. Until 2005 the Swende hospital, located in Lubumbashi, was the most important hospital in Katanga province. Based on what has been described as a ‘paternalist management model’, widespread in Africa (Hernandez, 2000), the UMHK and later Gécamines played a major role in providing access to basic services, developing the economic and social structure in the provinces where it was operating. For this reason, the ‘bankruptcy’ of Gécamines at the beginning of the 1990s created major socio economic transformations in the region” [M Mazalto, 2009: Chapter 5 “Governance, Human Rights and Mining in the Democratic Republic of the Congo”, in Bonnie Campbell Ed.: Mining in Africa, Regulation and Development, Pluto Press/IDRC (online publication, p 1-41, p 16)]


c. « Contrairement à de nombreux districts de la RDC, la zone de santé de Kilwa compte un hôpital et 10 cliniques. MSF travaille dans ces structures médicales en partenariat avec le ministère de la Santé congolais. Ce dernier prend en charge le personnel, les infrastructures et les salaires, tandis que MSF apporte son expertise spécifique, fournit des médicaments et du matériel et verse au personnel une prime en fonction du travail accompli. C’est du moins la théorie. En réalité, le personnel peut s’estimer heureux lorsque le ministère de la Santé verse plus d’un mois de salaire par an. Une grande partie des fonds disponibles disparaît Dieu sait où avant d’arriver sur le terrain. Ainsi, même si le personnel continue à faire acte de présence à l’hôpital, dans l’espoir vain de recevoir un jour ce qui lui est dû par le ministère, il n’est pas suffisamment motivé pour se donner à fond » [Médecins sans Frontières Belgique, septembre 2004 « Actualités : La problématique des soins au Katanga, RDC 49]

d. The re-visitation commission has checked the existence or inexistence of a social plan for each contract, as well as when such plan existed- if social achievements are scheduled or actually implemented or achieved. But no information is given

concerning the nature of those plans, or on their adequacy with the legal requirements.

e. In any case, a social plan is merely mentioned in less than 50% of the revisited contracts (signed between Gécamines and foreign partners). When mentioned, it has to do most often with ‘creating jobs’ and ‘rehabilitating or building roads’; one also find achievements such as: providing access to drinking water, support to local health infrastructures or schools (Ministère des Mines, 2007). A minority of larger companies offer their workers a health coverage extended to the nuclear family and punctual financial support (to cover school registration costs, for instance). d. and e. : [Ministère des Mines, RDC, Commission de re-visitation des contrats miniers, novembre 2007 : "Rapport des travaux" #2: Partenariats conclus par la Gecamines", p 1-246 p]

No visit was organised for the NCEA in this realm, nor were meetings held with people having responsible jobs in the fields of education, health or social affairs. Still, in interviews that the NCEA has held, some representatives of mining companies have mentioned support given in matter of health and/or education to local or surrounding populations that is beyond the circle of their own workers.

**Recommendations for the PCIA**

The NCEA recommends the PCIA to review the social plans made by mining companies, when they exist, collect information on the precise nature of this support and check, in each case, its adequacy with the socially correct expectations. In addition, the NCEA recommends to assess the sustainability of social realisations: will they finish the day the company will close its doors?

The NCEA further recommends the PCIA to assess possibilities for partnerships between mining companies and locally recognised development partners who could help them define which the local priorities are, and what use could be reasonably be made of the budget devoted to social achievements.

With regard to education, the NCEA recommends the PCIA to explore options (for mining companies) to:

- prepare with priority collaborative in-company programs for Vocational training;
- create possibilities for artisanal miners to follow such training;
- establish and support practical apprentice training run by joint venture partners;
- standardise health, safety and rescue courses;
- explore for and widen avenues to promote research cooperation projects between DRC Universities and foreign institutes.
APPENDICES

With the advice for pre-terms of reference for the Post Conflict Impact Assessment for the Reconstruction of the Mining Sector in Katanga, Democratic Republic of Congo

(appendices 1 to 14)
Letter from UNEP of 16 July 2009 in which the Commission has been asked to submit pre-terms of reference.

Netherlands Commission for Environmental Assessment (NCEA)
BP 2345
3500 GH Utrecht
The Netherlands

Geneva, 16 July 2009

Dear colleagues,

We would like to thank the Netherlands Commission for Environmental Assessment (NCEA) for its interest to collaborate with the United Nations Environment Programme (UNEP) and to contribute to its project for the Post Conflict Environmental Assessment of the Democratic Republic of Congo.

It is our pleasure to invite the below nominated NCEA staff for the environmental assessment mission led by UNEP in Katanga, DR Congo on 10-30 August 2009:

Mr. Adrienus van der Velden
Mr. Reinhoud A.M. Post
Mr. Piet Hein Van der Kleijn
Mr. Sergio Cogala.

We are confident that the above-referred joint mission will add value to the overall environmental assessment of DR Congo.

Looking forward to our close continued cooperation.

Yours sincerely,

Hennik Stolze
Chief
Post-Conflict and Disaster Management Branch

The United Nation Environmental Programme, more specifically its Post-conflict and Disaster Management Branch has decided to assist the DRC in its post conflict reconstruction planning and sustainable development by providing a Post Conflict (environmental and social) Impact Assessment (PCIA). UNEP has decided that this assessment will address four aspects related to post conflict reconstruction:

- rebels in the national parks
- resettlement of refugees
- the environmental problems of Kinshasa and its surroundings
- reconstruction of the mining sector (base elements) in Katanga.

The present advisory report relates to the fourth component of the PCIA: the Assessment of the Katanga mining sector.

The specific objective of this component is to define the conditions and modalities in which the development of the mining sector in Katanga can contribute to poverty reduction and to political and civil stability. An important additional objective is to identify approaches that can be useful for the development of the mining sector in RDC as a whole. Primary focus of the assessment is on industrial mines of the base metals: copper, cobalt, zinc, while small scale mining will also get attention. The study will be mainly geared towards assessing the development perspectives for the sector, the conditions for management of the sector so that it contributes to sustainable development, to improvement of environmental governance, to poverty reduction and to peace.


Project numbers: I086

Progress: Pre-Terms of Reference.

Composition of the working group of the Commission for EIA:

Mr. Aad van der Velden (Chairman)

Mr. Serge Cogels

Mr. Piet Hein van de Kleijn

Resource person: Mr. Fernando Fahl

Technical secretary: R.A.M. Post
APPENDIX 3

The Tax Gap

The tax gap is partly explained by the fact that some mining companies transport their ore or concentrate for further treatment out of Katanga by road into Zambia or in transit from Zambia to South Africa.

The Zambian Internal Revenue Service considers income derived from refined or smelted copper or from traded concentrate as taxable income independent from the mineral deposit's origin. According to Global Witness, there are no export duties charged or border crossings registered. Global Witness mentions, based on interviews, that a significant proportion of DR Congo's ore is processed at various smelters along the Zambian copper belt, however without quantification or providing specific evidence. It is uncertain if the finished product after processing in Zambia is re-exported back to DR Congo. [Global Witness, juillet 2006. Rapport : « Une corruption profonde : Fraude, abus et exploitation dans les mines de cuivre et de cobalt du Katanga », Washington; p 1-55, section X p 46]

It must be said that the DR Congo Mining Code, article 85 : "Sale of mining products", states that export of unprocessed ores for treatment outside the National Territory is permitted, subject to the Minister's authorisation. Authorisation is granted based on cost considerations and indication of advantages for DR Congo. There is mention of an agreement signed in 2005 between Zambia and DR Congo aiming at toll arrangements. It seems unlikely, however, that carrying the ore back into DR Congo is more favourable above export to South Africa, unless the recent levied Zambian windfall tax is a driving force. [LOI N° 0072002 DU 11 JULIET 2002 PORTANT Source : Journal Officiel n°spécial du 15 juillet 2002 Fait à Lubumbashi, le 11 juillet 2002. Joseph KABILA; p 1-137, p 64] 1

Within this context First Quantum Minerals Ltd should be mentioned with their Frontier mining property, located within 2 kilometres of the Zambian border (see map). First Quantum's Frontier is advantageously located, relatively close to the Mopani smelter facilities at Mufulira in Zambia. Frontier commenced production late 2007 and has an estimated mine life of 25 years. Installed concentrate mill capacity is 75 kilotons copper per annum from a sulphide copper resource at an average grade above cut off of 1.16 % copper. The total resources are defined to contain 2.1 m tons of copper. First Quantum holds a strategic interest of 16.9 % in Mopani smelter. In 2008 the minister granted shipments of concentrate to Zambia. For the first six months in 2009, First Quantum reports for their Frontier mine a production of 43.3 kilo tons of contained copper, concentrated from a feed grade of 1.3 % copper.

First Quantum Minerals Ltd projects in South Katanga and Zambia (2009)
APPENDIX 4

Tenke Fungurume Mine EIA Components

In addition to the ESIA Socioeconomics study: (Socio economic impact assessment: 24 p.; Macro economic assessment: 14 p.; cultural heritage: 11p.), socio economic studies were conducted by an international consultant (anthropologist) and five university graduates from Lubumbashi.

A. The baseline study comprises:

• Inform the population about the project and its impact in terms of:
  – land needs and compensation of the population;
  – opportunities and limits of access to available jobs;
  – participation of the mining project in the development of the region.
• Gather opinions, expectations and fears of the population about the project.
• Establish the priorities of the local population on development.
• Describe and understand the local economy.
• Conduct an extensive census and map the population.
• Conduct a baseline study to use the results to evaluate the socioeconomic impact of the project.

The baseline study relies on:

• demographic data collected in 40 villages in the project area, as well as in Tenke and in Fungurume: 704 households interviewed (403 in the villages and 301 in Tenke and Fungurume);
• data collected during 45 consultation meetings held in villages and hamlets with PAP: 1100 persons participated (of which 40% women).

B. A Resettlement Action Plan was submitted for three villages situated in the immediate direct production zone. In these villages a resettlement committee was set up (composed of men and women, locals and recent migrants). The consultation committees visited seven resettlement sites proposed in the RAP, and ten sites proposed by the villages. Four sites have been retained for resettlement.

C. Market studies have been conducted: prices of goods and services have been (and are still being) monitored each month, i.e. agricultural crops, meat and fish, housing rent, building materials.

D. An employment policy was set out (local employment was put forward as one of the main issues during consultations) by drawing up a list of job seekers in neighbouring villages: 12,000 registered in April 2007. Unqualified jobs have been chosen from these lists using a lottery system; qualified jobs were attributed following individual competences: in case of equal qualification, locals were preferred to outsiders.

E. Implementation of a grievances tracking system (compensation issues, eligibility for resettlement; damages to agriculture land).

F. Monitoring of use made with compensation money (sample of 10% of farmers).
APPENDIX 5

Historic overview of development of the mineral industry

1960 - 1965 On 30 June 1960, the country became independent and was named the Republic of Congo. The independence was followed by, what is known as, the “Congo Crisis”. During this crisis, the rich province Katanga, under leadership of Moïse Thombe, created the secession of the province. Under influence of international communities the secession was overruled and the previous situation was restored not long after.


1977 – 1978 Katangan rebels based in Angola, launched a series of invasions into the Shaba (Katanga) region. The rebels were driven out with the aid of Belgian paratroopers.

1990-ties After the end of the “Cold War” in Europe Mr Mobutu’s position became weaker by lack of support from Western Governments. As a counter action he declared the Third Republic agreeing to a constitution and to elections. This period is marked by strong economic decline demonstrated by an annual hyper-inflation rate of 1,200 % in 1993, social unrest, corruption rebellion and looting by militia. Belgian and French troops were flown in to evacuate a large number of endangered foreign nationals.

1996 - 2003 Late 1996, a first conflict started as a result of the Rwanda and Burundi Hutu-Tutsi genocide and large numbers of refugees crossed the border into Zaire. The Tutsi militia in Zaire formed a coalition joined by various opposition groups and was led by Laurent-Desire Kabila. The militia, became known as the Alliance des Forces Démocratiques pour la Libération du Congo-Zaïre (AFDL). AFDL made significant military progress against Mobutu in early 1997. In May 1997 Mobutu left the country, and subsequently, after an unopposed march to Kinshasa, Kabila named himself president and consolidated power around himself and the AFDL. He renamed the country to Democratic Republic of Congo.

2001 In January 2001 Laurent Kabila was assassinated and succeeded by his son Joseph.

Inter Congolese discussions were coordinated to indicate the route for transition to democracy with financial backing from the World Bank.
A transitional constitution was approved and a government of national unity was formed.

After a new constitution was adopted by referendum, elections followed, held mid-2006. Joseph Kabila was elected as president. Early 2007, a new Government was formed.

**Mineral Industry**

1966

Mobuto took over the Belgian mining trust ‘Union Minière de Haut Katanga’, established in Congo since 1906, and founded the government owned Générale des Carrieres et des Mines, *(Gécamines)*.

In the following years the output of Gécamines declined, as did the country’s economy. Installations and equipment of the company could not properly be maintained and/or replaced and became obsolete. From 1978 onward, the output of the mineral industry in Shaba (Katanga) declined dramatically and the contribution from mining to the national income diminished by more than 80%. At the same time, unfortunately, international mineral commodity and oil prices were subject to market movements. In 1989 the company started to decline and mine output fell from 500,000 tons of contained copper to 21,000 tons in 2001.

In terms of assets, however, Gécamines is remote from being bankrupt, holding rights of world class low cost, high metal grade mineral resources. Considering the cost curve for world copper mining, the copper belt deposits in Africa are found in the lower part of this curve, with estimated average cash cost less than 45 ct/Lb copper, including credits from by-products and corrected for realisation cost, treatment and refining charges. Compared to over 100 ct/Lb at the upper end of the curve. Treatment and refining charges are subject to supply and decreased considerably since 1997. Simultaneously, a depreciating exchange rate (29% CDF per USD in 2008) balanced an increasing domestic rate of inflation (26 % in 2008).

In order to revitalise the mining industry, it was decided to attract foreign investors. During 1996 and 1997, the Government, at first Zaire and later DR Congo, was successful in attracting a number of foreign investors, particularly Australian and Canadian junior mining and exploration
companies. Joint venture agreements were made (with the Gécamines) for new grassroots exploration and to rehabilitate various known metal mining properties. Government owned operations (through the Gécamines) aiming at venture redevelopments included more than 20 copper cobalt and zinc mines and processing facilities. In compliance with the mining code of 1980, over one hundred exclusive exploration licenses were granted to foreign investors in high potential areas.

Shortly after, however, in 1998 the Government started to question the validity of the joint venture agreements and cancelled a number of these agreements, referring to lack of transparency on the company level, uncertainty on the legal authority of witnessing signatories at both sides or a lack of clear development strategy at the level of the Government.

Under the new agreements, foreign investors would retain up to 49% equity interest in the joint venture; most equity interests ranged from 20% to 45%. By the beginning of 1998, Gécamines had established 23 cooperative projects, which included development of the Tenke-Fungurume deposits, hoping it would restore annual production levels of copper to 400,000 t and cobalt to 25,000 t. Between 2000 and 2002, however, most of these projects were either on force majeure hold or proceeding cautiously with feasibility work.
Overview\(^1\) of mining resources and economic value

Mineral resources\(^2\) are very abundant and very diversified in the Democratic Republic of Congo (DRC) of which copper, cobalt and diamond deposits are considered as world class deposits. The various resources are located in the following regions:

- **Katanga province** hosting important deposits of copper and cobalt. And separate -or associated smaller deposits inter alia of zinc, silver, germanium, gold uranium. Large area’s covered by disposed tailings of copper and cobalt mining are waiting for cleaning and extraction of remaining metals.

- **Eastern regions** in the provinces North-Kivu, South-Kivu, Maniema, along the borders with Uganda, Rwanda and Burundi occur important deposits of gold, tin, columbite/tantalite, tungsten.

- **Kasaï provinces** rich in diamond deposits.

Coastal area’s Off shore oil and gas reservoirs, as well as on shore reservoirs in a zone parallel to the coastline.

In 2008, the mining, minerals processing and quarrying sector of the DRC accounted for 14.1 per cent of the GDP, representing 1,768 m US\$, compared to 8.5 per cent in 2006. Exports of mineral commodities, including oil and gas, contribute to over 70 per cent of the total official exports. Of the total registered minerals export, diamonds account for 38 per cent of the GDP, crude for 25 per cent, cobalt for 16 per cent and copper for 11 per cent. Other minerals exported include zinc, manganese, gold, niobium (columbium), tantalum, tin, tourmaline, and tungsten. The figures, however, are only a fraction of the total mineral exports because of uncontrolled trading and border crossing of non registered ship-

\(^1\) for a concise history of Katanga and its mining industry, see Appendix 5

\(^2\)http://www.kfw-entwicklungsbank.de/DE_Home/Service_und_Dokumentation/Online_Bibliothek/PDF-Dokumente_Diskussionsbeitraege/AMD_50_Rohstoffe_Kongo25236.pdf
ping’s through Dar es Salaam, Durban and Angola sea ports, apart from the minerals produced by the large army of uncontrolled artisanal miners.

[OECD, African Economic Outlook, Congo, Democratic Republic, 2009, Chapter Democratic republic of Congo p 179-193]

The most important trade partner countries (2008) are Peoples Republic of China (47.3%), Belgium (15.4%), Finland (9.6%), US (8.1%), Zambia (4.4%). Trade between DRC and China e.g. jumped in 2008 with 45 per cent. The increased global demand for metals since 2006 led to a considerable price rise, which has benefited Congolese mining production. Katanga copper production increased by 2.5 per cent, cobalt production by 3.5 per cent and zinc production by 8.1 per cent.

Coal deposits are likely to represent a considerable source of energy in DRC.

Hydrocarbon reserves in DRC are small compared to the neighbouring countries as represented in the following table.

Table 1
DR Congo Oil and Gas reserves compared to neighbour countries, 2008.

<table>
<thead>
<tr>
<th>Oil and Gaz</th>
<th>Nigeria (Brazaville)</th>
<th>Congo (Brazaville)</th>
<th>DR Congo</th>
<th>Angola</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil Proven Reserves b.bbl</td>
<td>36,2</td>
<td>1,6</td>
<td>0,2</td>
<td>904,0</td>
</tr>
<tr>
<td>Oil production k.bbl/d</td>
<td>2,169,0</td>
<td>239,9</td>
<td>20,0</td>
<td>2.015,0</td>
</tr>
<tr>
<td>Gaz Proven Reserves b cum.</td>
<td>5,215,0</td>
<td>90,6</td>
<td>1,0</td>
<td>269,8</td>
</tr>
<tr>
<td>Gaz production m cum/d</td>
<td>32,820</td>
<td>180</td>
<td>-</td>
<td>680</td>
</tr>
</tbody>
</table>

[Source : USA Central Intelligence Agency. CIA - The World Factbook³]

Expected life of remaining oil reserves may be confined at current level to an odd 30 years and this calls for prudent revenue distribution.

**Ore Deposits**

**Introduction**

The Katanga Province is part of the Central African Copperbelt, arc shaped and extending for over 600 km and 50 km wide from Zambia through Katanga into Angola. The Copperbelt is one of the world’s richest base metal mining area’s containing high class resources of copper and cobalt as well as hosting important deposits of zinc, uranium and less abundant deposits of tin and minor occurrences of nickel, gold, silver, germanium, gallium, cadmium, and vanadium.

Copper and cobalt are the most important metalliferous commodities produced in Katanga. Up to date identified copper resources existing in Katanga are estimated at 51 million tonnes, and, currently, cobalt resources are estimated at 3.4 million tonnes, representing 9 percent and 48 percent respectively of total estimated world resources. Average metal grades of 3.5 per cent copper and 0.35 per cent cobalt exceed 2 to 8 times grades reported from the American continent.

Table 2 DR Congo overall Mineral Resources and 2007 Mine Production

<table>
<thead>
<tr>
<th>Metal</th>
<th>Resources (k.metric tons)</th>
<th>Mine output (k.metric tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cobalt</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DR Congo</td>
<td>3.400 48%</td>
<td>25.3</td>
</tr>
<tr>
<td>World total</td>
<td>7.100</td>
<td>65.5</td>
</tr>
<tr>
<td><strong>Copper</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DR Congo</td>
<td>51.000 9%</td>
<td>148</td>
</tr>
<tr>
<td>World total</td>
<td>550.000</td>
<td>15.400</td>
</tr>
<tr>
<td><strong>Zinc</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DR Congo</td>
<td>2.843 2%</td>
<td>18.5</td>
</tr>
<tr>
<td>World total</td>
<td>180.000</td>
<td>10.900</td>
</tr>
<tr>
<td><strong>Silver</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DR Congo</td>
<td>1.9 1%</td>
<td>0.08</td>
</tr>
<tr>
<td>World total</td>
<td>270</td>
<td>20.80</td>
</tr>
<tr>
<td><strong>Manganese</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DR Congo</td>
<td>270 0.1%</td>
<td>-</td>
</tr>
<tr>
<td>World total</td>
<td>460.000</td>
<td>11.600</td>
</tr>
<tr>
<td><strong>Uranium</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DR Congo</td>
<td>3.5 0.1%</td>
<td>-</td>
</tr>
<tr>
<td>World total</td>
<td>5.470</td>
<td>-</td>
</tr>
</tbody>
</table>

Sources: USGS (United States Geological Survey) Mineral Commodity Summaries 2009\(^4\) a and b; Zincongo Ltd (2003); MBendi information Services 2009\(^5\)

Systematic strategic exploration programmes initiated by the state do not exist and successful private initiatives employing modern techniques so far have lagged behind. Recently however new interesting Canadian and Australian projects, for gold in the eastern provinces and for copper in Katanga, have been announced in the press. Political risks, doubts with respect to licence tenure, the opaque deal with the Chinese government (high value infrastructure support in exchange for access to mineral resources), and licences uncertainty, however discourage potential investors.

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Copper and cobalt deposits in the Copperbelt

The belt in which the mineral deposits occur has a folded and thrust structure and is composed of predominantly sedimentary rocks, less abundant metamorphic crystalline formations and locally intruded by magmatic and volcanic rocks. Age determinations indicate a geologic evolution that took place between 880 million and 550 million years ago. The copper-cobalt occurrences are classified as sedimentary stratiform Cu(-Co) deposits, laterally extensive for several hundreds of meters, and vein type deposits. The nature of the mineralisation is rather complex as a result of multiple mineralisation and remobilisation phases and producing ores with different metallurgical qualities.

The first, and likely main phase of mineralisation occurred after sedimentation during setting (diagenesis) of the sediment. In a following phase of mineralisation, a mineral assemblage of various sulphidic iron-copper and cobalt minerals where formed in various shapes and also finely disseminated sulphides in nodules and lenses.

The sedimentary basin at greater depth underwent tectonic deformation and, simultaneously, an elevated heat flow and increased lithostatic- and compressive pressures. Locally magmatic intrusions occurred into the sedimentary host rock.

Under these conditions a second mineralisation took place by remobilisation of copper- and cobalt sulphides, precipitating in different forms of rock like dolomite and quartz veins. At some locations copper-silver mineralisation originated.

Weathering of the primary sulphide deposits at surface created a secondary enrichment zone with different mineral assemblages of copper –and cobalt hydroxides, -oxides,-silicates or -carbonates that occasionally reach up to 300 m of depth from present surface. The secondary enrichment of this so called oxidised zone, in general resulted in higher copper and cobalt metal grades.


Copper and cobalt mining

Copper cobalt deposits are generally mined from large surface mines. The operations are characterised by removal, transport and dumping of waste (which is not processed), and by extraction of the metal containing ores. The blasted ores from the mine are loaded into trucks and hauled to the primary crusher. The copper ore is crushed and ground to a size, such, that an acceptably high degree of liberation has occurred between the copper sulphide ore minerals and the gangue minerals. The gangue minerals are disposed to the tailing area.

As mentioned before, basically two distinct ores occur: the sulphide ores and the oxide ores. The sulphide ores, after crushing-grinding and classifying, are beneficiated in froth flotation cells requiring special kerosene based chemicals. The gangue material which has not floated off in the flotation cell is discarded as tailings. An upgraded concentrate is produced with between 20 per cent and 30 per cent copper.

Copper concentrates can be sold to smelters and refiners who treat the ore and refine the copper and charge for this service via treatment charges (TC’s) and refining charges (RC’s). The customer in this case can be a smelter, who resells blister copper ingots to a refiner, or a smelter-refiner which is vertically integrated. Concentrates produced in the DRC are exported to Zambia or South Africa for further treatment with special approval from the Congolese authorities. The realisation cost, TC’s plus RC’s, are transferred abroad and thus are the returns from sale of the final product on the world market.

Realisation cost, TC’s plus RC’s, may amount up to 20 percent of the total cash cost, excluding penalties (arsenic, bismuth, lead) or credits (cobalt, silver, gold). Smelter contracts in general include deductions to cover smelter risks and, pricing of the concentrate is often based on future, hedging conditions. Optimised profits can be achieved by considering concentrate efficiency (grade selective mining, dilution control, improving recovery and ratio of concentration), but also by looking at alternative integration of concentration with treatment and refining. Efficient electric power supply herewith is a pre-requisite.

The oxide ores are, as described above, treated with hydrometallurgical processes: leaching by sulphuric acid to liberate the copper minerals into a solution of sulphuric acid, laden with copper sulphate in solution. The copper sulphate solution is then stripped of copper via a solvent extraction and electro winning (SX-EW).

The coarser ore goes to the heap-leach, where the copper is subjected to a diluted sulphuric acid solution to dissolve the copper. Subsequently, the leach solution containing the dissolved copper is subjected to a process called solvent extraction (SX). The SX process concentrates and purifies the copper leach solution, so the copper can be recovered at a high electrical current efficiency by the electro-winning cells.

There are around 45 open pit mines in the Katanga Province (active and inactive sites) and 2 underground mine operations: Kipushi Mine, mining zinc and copper and Kamoto Mine, mining copper and cobalt.

Graph 1 Katanga mine output in k.metric tons between 1993 and 2007

Yearly mine output in the early seventies of the previous century amounted to over 600 kilotons of metal.
**Zinc deposits**

The Kipushi Mine is a copper-zinc mine located adjacent to the border with Zambia, about 30 kilometres southwest of Lubumbashi within the Democratic Republic of Congo. The mineralisation was discovered in 1894. Underground mining started in 1925. The mine became 100 per cent property of Gécamines in 1967 and - after 68 years of continuous production - was put on care and maintenance in 1993 because of lack of financial resources.

Mining arrived at a depth of 1,195 m. The ore zone stretches out over the Zambian border to a reported depth of 1,800 m. Over the duration of production, Kipushi raised 60 million tons of ore at an average grade of 6.8 per cent copper and 11 per cent zinc. Currently United Resources AG from Switzerland and First Quantum Minerals Ltd of Canada hold options to participate in the project with Gécamines subject to the outcome of reserve definitions and technical - economic assessments.

For the year 2007, USGS (2008) reports a production of 18,000 m tons zinc oxide dust by La Société pour traitement du Terril de Lubumbashi (STL). Gécamines owns a leach plant, refinery and smelter at Kolwezi but no productions are reported.


**Uranium deposits**

Uranium deposits in the Katanga Copperbelt occur at approximately 25 different localities (see Meneghel,1981). The deposits are found at the same stratigraphic level as the main copper-cobalt mineralisations. Uranium minerals are disseminated within the sedimentary sequences adjacent or below to the copper mineralisations or, appear as fracture fillings in these sediments. The latter type carry the highest concentration. The most common uranium minerals are thorium-free pitchblende and secondary uranium minerals. There is no consensus in literature about the origin of the uranium deposits. Most likely they are the result of remobilisation, however without understanding the source of supply of the metal. No correlation between the presence of copper/cobalt and uranium could be proven.

The Shinkolobwe deposit was discovered in 1915 at 35 km south west of Likasi. It is the main existing uranium deposit in the Katanga Province. Mining started in 1925. In 1940, approx. one thousand metric tons were shipped to the United States as raw material for the production of nuclear explosives. Since then, several thousands of tons have been extracted and utilised as energy fuel. Operations were ceased and abandoned in 1960, when Congo became independent. However, in the fall of 1990 and early 2000, mining resumed for copper and cobalt, this time by artisanal activities.

In 2004, the mine was permanently closed after fatal caving accidents and because of unstable wall conditions. At that time, Shinkolobwe's population reached approximately 15,000 people, including 6,000 artisanal miners [PNUE/DAH (Programme des Nations Unies pour l’Environnement et Département des Affaires Humanitaires de l’ONU), novembre 2004 : « Mine Uranifère de Shinkolobwe (RDC) : Mission d’évaluation de la situation humanitaire » ; p 1-17]

So far, no figures of reserves and grades, normally expressed in ppm, have been sighted. The majority of occurrences must be considered as having no economic potential and the potential of uranium in the Katanga Province is uncertain. The few available refer-

ences that describe the uranium metallogenesis in the area, indicate a potential resource between 3,500 [International Atomic Energy Agency, 2001]8 and 30,000 tonnes of uranium. [Task Force “MIRECA” – Mineral Resources in Central Africa, Ministère belge des Affaires Étrangères; Bonne Gouvernance & Transparence dans le secteur minier, Traçabilité des flux de matières et des flux financiers dans le commerce des minerais de Cu et de Co en RDC Description synthétique du projet Avril 2008 ; p 1-111, p 3 – Milesi et al]

**Manganese**

The Kisenge mine, located in the south west of the Katanga Province adjacent to the Angola border, produced manganese until 1993, when the Minière de Kisenge Manganèse, the company that used to exploit the DRC’s only manganese deposit, closed its operations due to financial problems. The company still has a stockpile of 540,000-t of manganese carbonate ore at a grade of 47% to 50% manganese (M Bendi - Information Services, 2009b).9

**Silver**

The Dikulushi mine, located in the eastern part of the Katanga Province, is the only copper - silver mine in the Province. This mine is not a typical stratiform disseminated deposit as found in the Katanga Copperbelt; instead, the ore is concentrated in veins of massive to semi-massive sulphides, hosted in faults that cut sedimentary lithologies [Anvil Mining Limited, 2006]10. Additional Cu-Ag occurrences are described in the region, showing a potential for the development of new mines of copper and associated hydrothermal minerals (Ag, Zn and Pb) outside of the Katanga Copperbelt.

**Tailing Resources**

In addition, there are many large tailing areas containing still commercial interesting metal grades and toxic residues, sealed by tailing dams in various states of maintenance (in particular downstream the mining operations of Kolwezi, Kipushi and Likasi). At least 3 tailing deposits in the Kolwezi area were subject of feasibility studies for Cu-Co extraction and show considerable potential for further development.

**Coal deposits**

Coal deposits seem to represent a considerable source of energy in DRC. Coal occurs in Katanga near Lukunga in the north east and in Luena near Kolwezi. Reserves of 88 million tons are reported (BGR, 2006), without going into details. USGS reports a production of 800,000 metric tons per annum of a bituminous tar coal by Gécamines from a surface mine at Luena. The coal properties indicate steam coal which is not suitable for coking. The mine is in production since 1920.

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8 http://www.iaea.org/
9 http://www.mbendi.com/indy/ming/cppr/af/zr/p0005.htm#5
10 http://www.anvilmining.com/
APPENDIX 7

Mining Code of July 2002, an Introduction

On 11 July 2002, the new Mining Code was adopted by the transitional Parliament of Mr Joseph Kabila. This was in line with global developments in the mining sector since 1989, to reduce State participation and open up roads to private investors prepared and equipped to participate in uncertain risk bearing ventures. This shift needed new legislation providing a legal framework to a broad spectrum of interest as trade, environment, local communities, labour, health and safety, education, training etc. Modern States who want to create a favourable investment regime have to offer a stable tax regime with incentives and fair windfall measures, banking infrastructure, currency exchange, financial services like insurances, lease, outsourced services to contractors including the transfer of operational responsibility, and a competent mining authority to guarantee stability.

A sound investment climate also requires loan financing based on asset security of which mining titles are part, transferable ownership under democratic control and local incorporated operating companies with articles making clearly distinction between A- and B share interest, controlled free carried interests and government share participations. The operating companies need freedom to operate efficiently, having control over their own operation. They also need the right to market the minerals or metals produced both by long term contracts and spot market, the freedom to controlled transfer into accounts abroad, the right to control access and security at the granted surface area’s, in compliance and with respect for valid civil legislation, contributing to the country by creating employment and improving social welfare.

Environmental issues related to mining are to be regulated by both mining and environmental laws, the executive and controlling authority not necessarily residing in one and the same ministry, as long as competences and organisational structures are well defined. The environmental base-line needs to make clear distinction between residual “inherited” disposals and new disposals and needs to be accepted by all stakeholders, prior to commencement of operations. Secured water rights and authorised pollution control of disposals, emanations of gases, noise, dust and visual disturbance, reclamation already during the operation phase, the development of a strategy for abandonment and mine closure need also to be regulated and post operational financial resources need to be assured.

The mining and metals sector is inherently risky. External project finance requires sound risk analysis and risk mitigation. Projects in the mining sector carry their own exclusive uncertainty and risks, like mineral resource/reserve and metallurgical risk, completion an technological risk, economic and market and certain environmental and social risks along with country risk and threats from war or terrorism. The new mining code is certainly up to date for these challenges

With assistance of the World Bank, the new mining code was drafted and passed by Parliament on July 11, 2002. A manual that implements the modality and conditional applications was released by decree on 26 March, 2003. The new code and regulations are intended to promote mineral development by the private sector with the principal role of the state to promote and regulate the development of the mining industry by the private sector. The law governs the prospecting, exploration, exploitation, processing, transportation, and sale of mineral substances, which include the artisanal exploitation and sale of these mineral substances. Mining rights are vested with the State.
**Business structure**

Companies that carry out mining activities need to be locally incorporated. Incorporation may be in the form of:

- Private limited company (SPRI), with a minimum of two shareholders. No tax deductions for interest on shareholder loans.
- Company limited by shares (SARL), with a minimum of seven shareholders and corporation only after approval by the President.

The major sources of finance are equity, shareholder loans and loans from local and foreign banks. A domestic stock exchange is non-existent.

There are no import restrictions. There are restrictions on employment of the number of foreign employees. Maximum 5 per cent for management staff and a maximum of 10 per cent for other positions. Work permits are valid for two years and renewable.

There are no restrictions or limitations on marketing and exportation mining products from company’s own mining licensed area. To export non processed ore however, exemption is needed from the Minister of Mines provided processing within DRC is economic not attractive and export carries economic advantages for DRC. There is an incentive tax rate on the revenue tax rate if ores are locally treated within the joint venture structure.

The holder of an Exploitation License may transfer to a third party the right to exploit artificial surface deposits, such as tailings or slag, that are located within his mining perimeter while retaining his underground rights.

Provisions for taxation and customs duties, included selected exemptions, are spelled out in the Code. Corporate tax on profits is set at 30 per cent. The mining royalties on sales, less sales and transport cost, are set at 4 per cent for precious stones, 2.5 per cent for precious metals, 2 per cent for non-ferrous metals, 1 per cent for industrial minerals, 0.5 per cent for iron or ferrous metals, and 0 per cent for standard construction materials. Royalty payments are to be distributed to the central government (60 %), to the provincial government (25 %) and to the township (15 %) where mining takes place.

Currency is fully convertible and transferable, and foreign currency accounts are allowed. The mine or quarry installations cannot be compulsorily expropriated by the State except in exceptional circumstances set by law, in exchange for fair compensation paid to the holder concerned at least six months prior to the compulsory execution of the decision to expropriate. The law also spells out terms for compensation to those landowners affected by mining and penalties for noncompliance with License requirements and for illegal sales of minerals. Provisions for dispute settlement by domestic and international arbitration are included.

DR Congo is a member of the World Trade Organization (WTO), the World Bank Multilateral Investment Guarantee Agency (MIGA) and the Convention for the Creation of the International Centre for Settlement of Investment Disputes (ICSID). All conditional to attract foreign loans, equity, bank guarantee and insurances. DRC is accepted in 2008 as an candidate country for the Extractive Industries Transparency Initiative (EITI). However there are currently no yet international tax treaties in place.
APPENDIX 8

Attribution of powers

The Code attributes the powers as follows:

*The President of the Republic* has jurisdiction over enactment of the Code and Mining Regulations.

*The Minister of Mines* is responsible for day-to-day implementation of the law.

*The Governor of the province and the Head of the Provincial Mining authority of mines* have jurisdiction over the issuing of artisanal miners’ cards and the granting of exploration and exploitation rights for quarry products for standard construction materials.

He also has jurisdiction over the granting of surface rights. According to the Land Law of July 1973, the state has the exclusive property of the land. The state can grant surface rights to private or public parties: this has to be distinguished from mining rights since surface rights do not entail the right to exploit the mineral substances of the soil or subsoil and, conversely, a mining right does not entail any surface occupation right over the surface. However, subject to any rights of third parties over the surface concerned, the holder of an exploitation mining right has, with the authorisation of the Governor of the province concerned, and on the advice of the Administration of Mines, the right to occupy within his mining perimeter the land necessary for his activities and associated industrial activities, including the construction of industrial plants and dwellings, to use the water, dig canals and channels, and establish means of communication and transport of any type. Nevertheless, any occupation of land depriving the rightful surface right holders from using the surface, or any modification rendering the land unfit for cultivation, will entail the obligation for the holder of the mining rights to pay fair compensation.

1. The following main sources of public information and services are available:

   - Mining Registry (CAMI) [www.cami.cd](http://www.cami.cd)
   - Network of information on geology and prospecting in the DRC [www.drcmining.com](http://www.drcmining.com)
   - Technical Cell of Co-ordination and Mine Planning (CTCPM) [www.miningcongo.cd](http://www.miningcongo.cd)
   - Service d’Assistance et d’Encadrement de Small Scale Mining (SAESSCAM) [www.miningcongo.cd](http://www.miningcongo.cd)
   - Centre of Evaluation of Expertise and Certification of precious-and semi precious stones (CEEC) [ceecgroup.com/](http://ceecgroup.com/)
   - University of Lubumbashi [www.unilu.ac.cd](http://www.unilu.ac.cd)
   - Ministry of Mines [www.minigcongo.cd](http://www.minigcongo.cd)
The mining right holder is also liable for damage caused to the occupants of the land in connection with his mining activities, even if they are authorised. The Mining Code provides for judicial and arbitral recourses in case of disputes.

*The Mining Registry (Cadastre Minier, CAMI)* is a public entity with legal status and financial autonomy under the supervision of the Mines and Finance Ministers. The articles, organisation and operation are determined by Presidential Decree. In order to cover operating cost, CAMI is authorised to charge filing applicants and to collect the annual surface duties. CAMI is in charge of processing applications for mining and/or quarry rights, coordinating the technical and environmental evaluation of applications for mining or quarry rights, and certifying the minimum financial capacity of the applicants who apply for the mineral and quarry exploration rights.

CAMI issues official certificates and titles to applicants in accordance with the provisions of the Mining Code for exploration, mining including tailings and small scale mining activities. Prospecting Certificates are available for a 2-year maximum but convey no mineral rights. Mining and quarrying exploration and exploitation rights can only be granted through an authorised mining and quarrying agent domiciled in the country. The granting is based on “first-come, first-served” principle and in exceptional cases the Minister of Mines may submit a tender open or by invitation to a specific deposit. Granting is based on judgment of submitted technical data, development schedule, exploitation plans and environmental protection plans. Moreover, CAMI judges and is responsible for certification of applicants' financial capacity, authentication of loans, lease deeds and deeds of transfer of rights to third parties.

Proof of minimal financial capacity to perform exploration is required. Mining Exploitation Licenses are valid for 30 years, and are renewable several times for a duration of 15 years each. Exploitation Licenses are approved after submittal of proof of an economic mineral deposit, a feasibility study, construction plan, and source of financing. Prior to approval, the EIS and EMP must be approved, and 5% of free carried interest company capital shares, transferred to the Government.

*The Geology Directorate* is responsible for the promotion of the mining sector through basic geological research and the dissemination of public information. The Directorate conducts research and studies also with the sole purpose of improving geological knowledge of the National Territory or for scientific purposes which do not require obtaining any mining- or quarry rights. The mining regulations set forth the organisation and operation of the Directorate.

The Department is part of the Ministry of Mines. It is not clear on what grounds the private parties that wish to engage in mining activities is given access or not to relevant data held by this department.

*The Mining Directorate* of the Ministry of Mines is responsible for inspection and supervision of mining activities and quarry works with regard to safety, health, work procedures, production, transport, sale, and social matters and to compile and publish statistics and information about the production and sale of products from mines and quarries.
The Department in charge of the Protection of the Mining Environment, located within the Ministry of Mines.

The Department defines and implements the environmental regulations protection according to the mine regulations:
- that govern exploration,
- that govern artisanal mining,
- the guidelines for mining and quarrying,
- the conditions to supervise the obligations with regard to environment.

The department is charged with the technical evaluation of environmental impact statements (EIS) and environmental management plan (EMPP) submitted by applicants for mining or quarry rights. Exploration operations are subject to the approval of a Mitigation and Rehabilitation Plan for mines and quarries (MRP) subsequent to the delivery of the research permit. Prospecting and small-scale exploitation permits are only subject to codes of conduct. The Department is charged with the technical evaluation of the MRP.

The Code gives a maximum of 47 calendar days to obtain a research permit, max 24 calendar days for the approval of the (MRP) and an exploitation permits takes max 252 calendar days from the date the request is filled.
APPENDIX 9

Diggers experiences\textsuperscript{1}

“Officiellement, tout creuseur est supposé se faire connaître auprès de l'inspecteur des mines : ce dernier lui délivre le ‘jeton’, qui l'autorise à exercer ce métier sur les sites artisanaux officiels (anciennes concessions abandonnées de la Gécamines, mises provisoirement à la disposition de l'EMAK\textsuperscript{2}). Pour s’approvisionner dans ces mêmes sites, les ‘négociants’ doivent obtenir une ‘fiche de négociant’ auprès de l'inspection des Mines, également.

Toutefois, une écrasante majorité d’entre eux ne s’y plie pas, mais préfère passer un arrangement individuel avec un creuseur plus ancien de la carrière, qui y possède une ‘grotte personnelle’, soit un accès aménagé à un filon d’une teneur jugée profitable. Ce dernier est supposé s’acquitter, auprès de la Direction de Mines, d’un ‘Certificat d’exploitation’. Souvent, les négociants sont aussi exploitants : ils paient même d’avance les creuseurs pour qu’ils leur fournissent une quantité convenue de minerais. Enfin, les négociants doivent en principe s’acquitter du ‘Bon de sortie’ des minerais de la carrière, établi par l’inspection des mines (au niveau des carrières) et contresigné par la police des mines ainsi que de la ‘Quittance’ (même tarif), délivrée par l’inspecteur du territoire de Kipushi. En pratique, ils ne le font pas, invoquant le fait que les quantités qu’ils sortent équivalent à 10 tonnes ; en outre, selon leurs dires, le fait de posséder ces documents ne les exonèreraient pas des ‘tracasseries’ (de la part de la police des mines) qui les attendent à l’entrée de Lubumbashi, donc où est l’utilité de s’en acquitter ? Aussi les stratégies habituelles sont-elles de bénéficier de l’intercession d’un gradé de la police ou de l’armée pour faire passer les produits en paix ou, alors, d’évacuer les minerais très tôt matin à bord d’un taxi bus.

Outre les creuseurs que nous venons de décrire, il faut aussi mentionner ceux qu’on nomme les ‘clandestins’ : il s’agit surtout d’enfants (âgés de 9 à 20 ans) qui, de nuit, vont dérober les minerais extraits par Forrest (dans sa carrière située sur le mont Lukuni), avec ou sans la complicité des gardiens (police des mines et gardes privés de Forrest). L’arrangement passé avec ces derniers est le suivant : ils payent 15.000 CDF pour qu’on les laisse remplir 25 sacs de 50 kg (d’une valeur à la revente de 62.500 CDF). Les clandestins entreposent ces minerais dans leurs maisons, puis les revendent à des négociants de Lubumbashi.

Tous sont la proie des éléments du service de renseignements militaires : ces derniers sont envoyés par leurs chefs pour patrouiller autour des carrières artisanales ou des concessions privées afin d’arrêter les clandestins ou les voleurs des produits : tout voleur appréhendé devra payer une amende de 8000Fc ; s’il est en règle, il paiera quand même 5.000 Fc pour être libéré.

Pareillement, nombreux sont les ‘négociants’ hors la loi, qui bénéficient de faveurs, par le biais d’employés de Forrest (accès libre aux minerais), ou de passe-droits parce qu’ils sont sous la protection d’une autorité militaire, de la police, de l’inspecteur des mines.

\textsuperscript{1} Data collected in 2004-2005 in the village of Kawama, 15 km from Lubumbashi)

\textsuperscript{2} Carrières Karajipopo, Shamitumba et Kampina de Kambove ; Karoano et Karukuruku de Kipushi ; Tombolo de Mutshatsha
ou encore du chef coutumier. En bout de chaîne, les négociants revendent le minerai
en ville aux ‘preneurs’ (comptoirs) » (Trefon & Cogels, 2005).

| Documents officiels autorisant l’exploitation des ressources minières (prix en 2005) |
|---------------------------------|---------------------------------|-----------------------|
| **Documents**                   | **Service ou agent délivreur**  | **Bénéficiaire/objet** |
| Permis d’exploitation (200$/an) | Ministère des mines             | Gros exploitant minier |
| Certificat d’exploitation       | Division des mines              | Moyen et petit exploitant minier |
| (50$/an)                        |                                 |                       |
| Fiche de négociant (10$/an)     | Inspection des mines au niveau des carrières | Négociant (qui est souvent aussi petit exploitant) |
| Jeton (1500Fc/an)               | Inspection des mines au niveau des carrières | Creuseur |
| Bon de sortie des minerais de la carrière : 5.000 Fc pour charges = ou > à 20 tonnes | Etabli par l’inspection des mines au niveau des carrières ; Contresigné par la police des mines | |
| Reçu                            | Inspection des mines au niveau des carrières | |
| Carte de membre (20$)           | EMAK                            | Pour faciliter l’accès aux ressources minières aux membres de l’EMAK |
| Quittance (sortie des carrières) : 6000 FC pour charges = ou > à 20 tonnes | Inspecteur du territoire (administration du territoire à Kipushi) | |

**Ponctions non officielles**

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<th>Documents</th>
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<th><strong>Bénéficiaire/objet</strong></th>
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<tr>
<td>‘Droit d’entrée ’ : 2.500-3.500 Fc</td>
<td>Inspection des Mines</td>
<td>Dessous de table exonérant les plus creuseurs les plus pauvres de leur dû officiel ; concédé ‘pour les aider’</td>
</tr>
<tr>
<td>Tribut coutumier : 2.000 Fc par chargement</td>
<td>Au représentant du chef coutumier</td>
<td>Chef coutumier</td>
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<tr>
<td>Achat de la bienveillance : 15.000 Fc pour 25 sacs*25 kg</td>
<td>Gardes privés et/ou police des mines</td>
<td>Vol de minerais dans concessions privées sans être inquiété par gardes</td>
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<td>---</td>
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</tr>
<tr>
<td>Motivation : 15.000 Fc/chargement</td>
<td>Police des mines</td>
<td>Passer sans encombre le contrôle d'entrée de la ville</td>
</tr>
<tr>
<td>Bon de sortie : motivation de 1000 Fc</td>
<td>Réclamés par l'inspecteur des mines en sus des 5.000 Fc réglementaires</td>
<td>Pouvoir sortir avec un chargement de la concession</td>
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<tr>
<td>Quittance : 1000 Fc</td>
<td>Payés à la police des mines</td>
<td>Échapper au paiement de 6.000 Fc du à l'inspecteur du territoire</td>
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<tr>
<td>Amende pour vol avéré : 8.000 Fc ou suspecté : 5.000 Fc</td>
<td>Sécurité présidentielle/service des renseignements militaires</td>
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APPENDIX 10

Recommended obligations for mine closure

Introduction

Sustainable development in mining, as defined by the International Council on Mining and Metals (ICMM), means that the projects should be technical appropriate, environmentally sound, financially profitable and socially responsible.

Long term integrated care for the natural environment and social habitat however, continues beyond the extraction phase and requires a timely and comprehensive mitigation of disturbances, looking forward, and planning for recovery and reclamation or replacement, and a social and economic transition from sometimes a dominant extractive industrial society into a society based on different livelihood and scope for developments.

“The real challenge comes when the mine closes and the local community is faced with potentially large environmental liabilities and possible socio-economic collapse. Until recently, mine decommissioning and closure activities were not obligatory in most countries. Many decades and even centuries of inadequate and non-existent mine closure practice, have left a huge legacy of derelict mine sites and often impoverished communities”

Reclamation, where possible as a concurrent integrated part of the extraction, subsequent mine closure, site abandonment and decommissioning are nowadays recognized as responsibility of the mining industry and host government.

Guidelines for sustainable development in mining are widely accepted and defined in international context.

World Bank, IFC (International Finance Corporation), EITI (Extractive Industries Transparency Information), OECD, the Equator Principles as leading voluntary standard for managing environmental risk in project financing by financial institutions, Euromines (the European Association of Mining Industries), ICMM (International Council on Mining and Metals), bringing together nineteen of the world’s leading mining and metals companies as well as thirty national and regional mining associations.

The Democratic Republic of Congo is in the process to join EITI and, within this context, the mission is of the opinion that there is strong need to develop a strategic framework in which Mine Closure and Decommissioning is an essential component to Katanga’s extractive industry.

Strategic Framework for Mine Closure and Decommission (MC&D)

A large number of mining countries have developed strategies, guidelines and amended legislation-regulations for MC&D. Amongst these countries are South Africa, Ghana, Australia, Sweden, Romania, Peru, Chili, Canada, US etc., and the above mentioned councils and international organisations.

The NCEA proposes to prepare a strategic framework for MC&D in two steps:

- Step 1. Reconnaissance
- Step 2. Guidelines and Instruments

Step 1. Reconnaissance.

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1 Quote from website of Postmining Alliance (Cornwall, UK) http://www.postmining.org/index.php
2 http://www.icmm.com/members/member-companies
Objective is to analyse and define a detailed vision for integrated rehabilitation, mine closure, decommission and post decommissioning maintenance viable in the Katanga situation.

“Integrated” also means sound environmental and socio-economic care during exploration, project planning and feasibility assessment, during project implementation and planning for post MC job creation and continuation of existing health and social aspects.

The NCEA suggests to assemble a Reconnaissance International Working Group made up of reputed experts from DRC government, industry, NGO’s, mining consultant firms and academia to:

- Review and analyse relevant available literature and reports regarding mine closure. Make use of experiences derived from other mining countries.
- Map in detail existing mining projects in operation and projects in the permitting phase. Analyse annual reports and legal frameworks. Classify according to size, ownership distribution, etc.
- Define a vision for mine closure and decommission plans to be viable in Katanga. Make distinction between large mining ventures, small scale mining and indicate if measures can be developed to have artisanal mining participating in such a scheme.
- Identify and indicate area’s for which guidelines and toolkits are required for all phases of the implementation of a mine closing and decommissioning project, including relinquishment of a mining title.
- Consult local stakeholders representatives.
- Plan Step 2 in detail, including timing and cost estimation.

**Step 2. Guidelines and Instruments**

Objectives are to develop guidelines and instruments to create new opportunities in Katanga for financial resources to invest profitable and, to attract qualified investors to participate in -and develop sustainable exploitation of mineral resource projects; to contribute to long term socio-economic growth and to foster stability in the region.

Step 2 is within this context intended to integrate MC&D.

Each decommissioning programme is unique because no two mining operations are equal. Moreover because of size and method of mining, complexity of operation, surface installations, beneficiation plant, refining/smelting plant, disposal areas and heritage of previous industrial disturbances it is not always desired to rehabilitate baseline situation.

Decommissioning is complex and is subject to “mine life planning” and even beyond when maintenance is going to be involved. There is a shared involvement between many stakeholders where mine owners, operating companies, local-, federal- and state governments care responsibilities.

The NCEA suggests inter alia the following items for guidelines to be prepared:

- **Planning for mine life.** MC&D should be taken into account during the full life of mine and beyond. Develop guidelines for *Exploration*, drilling and limited earthmoving; *Mine design and planning*, considering when possible rehabilitation of worked out and depleted area’s as part of mining operation and requires optimising of the ore reserve block model; *MC&D planning* as part of feasibility study and to fulfill permission and licence application requirements; *Socio-economic developments*, stakeholder platforms, unions and collective agreements, social benefits like health services and insurances-pension funds-redundancy deposits-workers provident savings-recruiting and redundancy schemes-contractors, farmed out general services-, local supply companies-vocational training- primary schools etc...require planning of timely measures because of mine closure.
- **Construction and Operation.** To improve overall project efficiency reclamation should be carried out, where technical possible, integrated with the production scheme with the objective to reduce costs for mine closure in the future. The increase of operating cost, being direct tax deductible, will be compensated by
smaller contributions to a mine closure sinking fund. Such a planning requires year to year adjustments and revisions.

- **For Environmental Management System (EMS)** services it’s absolute essential that larger mining operations run an Environment-Health and Safety department (EHS) in house. Smaller operations should rely on external services for this matter. Guidelines need to be developed for disclosure of an environmental audited Annual Environment Report including adjusted MC&D plans and updated cost estimates. In this context the NCEA advises to consider commitment to ISO 14000 standards.

- **Detailed MC&D plan.** Guidelines have to be developed for a wide range of issues in MC&D plans. The guidelines need retroactive authorisation by the Mine Regulations, and have to be prepared in a flexible way allowing adjustments for distinct projects. Separate sets of guidelines however for surface mines, underground mines, strip mines and tailing re-working operations are recommended. Separate guidelines for long and short lives operations too need to be prepared. In compliance to legislation part of the cost are also due to post closure monitoring and maintenance for a number of years to be defined in advance for each situation.

- **Financial assurance and guarantees.** The DRC Mining Code and Appendix II of the in forced Mining Regulations sets out in generic terms the obligation of a “mining company” to lodge an assurance deposit in an account with a multilateral or bilateral financial institution, conditional to recognition and approval by the DR Congo National Central Bank.

The legislation is not specific in amounts, criteria, management of the deposited funds and future balance required to cover all liabilities related to decommissioning and post abandon liabilities. The NCEA mission is uncertain if the legislator also takes special tax incentives and allowances into consideration.

Total MC&D expenditures can reach 5-10 % of total capital expenditures for larger complex operations. At times the mineral deposit almost becomes depleted, cash flows from operations will decrease and likely the operations are ceased once cash cost are exceeding net operating income. Income expected from salvage is probably to be neglected compared to cost for dismantling, rehabilitation and social and additional liabilities. Bankruptcy and subsequent winding up of a local registered company without having free disposition to funds allocated for MC&D has to be prevented.

Therefore the NCEA recommends inter alia the following actions during Step 2:

- Mining Code, Regulations and Company Code need to be investigated and tested for relevance to such a situation and if required proposals for supplementary amendments suggested for submission to parliament.

- Legal and financial instruments have to be designed and developed to foster accruing funds adequate and accountable for MC&D expenses.

- A regulatory setting and organisational structure needs to be put in place to manage these funds.

- Develop guidelines for financial guarantee agreements like there are Trust Funds, Surety Bonds, Letter of Credit or Irrevocable Letter of Credit, Bank Guarantee, Insurance Policy, Corporate Guarantee and Share Holder Loan, etc…These saving instruments are certainly not free of risk and need a prudent and profitable financial management over the entire period of deposit. When payments are deposited outside the host country, instruments are to be developed to mitigate currency exchange rate risk. Consider instruments to relate annual assurance fund contributions to height of annual operating margins (EBITDA) and e.g. incentives like depreciation allowances in accordance with market value.

- Fund ownership and fund management, transparency and annual financial reporting standards, implications for internal revenue, transfer of shares and majority ownership should be considered as well.

- **Relinquishment of mining title and legal aspects.**
Mine closure and subsequent decommission, rehabilitation of the environment and incorporation of social plans are complex and are of concern to all stakeholders. Mineral resources are property of the State. Licences and permits for exploration and exploitation are granted by the government for a by jurisdiction restricted duration. The Government within the context of protection and sustainable development has the most direct responsibility for defining and ensuring all aspects for mine closure.

The NCEA is of the opinion that relinquishment of a mining licence needs a clear definition and criteria to be met before mandated authorities can give a formal sign off.

Part of the criteria may be post-closure or post-relinquishment commitments or a transfer of responsibilities like there are:

- control of public access;
- long term maintenance of abandoned mine sites;
- control of ground and slope stability;
- control of acid and polluted mine water;
- maintenance of waste and tailing disposal areas;
- tailing dam, sanitation of watercourses draining from old mine sites, etc...

Complementary legislation and regulation is required for mine closure and relinquishment. This includes non-compliance enactment, premature mine closure, interim transfer of shares, bankruptcy and winding up, closure planning conditional to granting of titles, tax incentives, etc...

References:


APPENDIX 11

Map of study zone
APPENDIX 12

List of Interviews

In chronological Order

19 August 2009
Interview granted by CMSK (Compagnie Minière du Sud Katanga)
Interview granted by ONG Kanyundau
Interview (1st) granted by MONUC

20 August 2009
Interview granted by Gécamines
Interview granted by ASADHO (Association Africaine pour la Défense des Droits de l’Homme)
Interview granted by Congo Equipment / Caterpillar

21 August 2009
Interview granted by NGO PACT-Congo (Private Agencies Collaborating Together)
Interview granted by Anvil Mining
Interview granted by UNILU
Interview granted by Gécamines
Interview granted by KML (Katanga Mining Ltd.)
Interview (2nd) granted by CMSK

22 August 2009
Interview granted by UNILU, representative Ba in Political Sciences, collaborator within Cedemol
FEC (Federation des Entrepreneurs de Congo)
Interview (2nd) granted by MONUC
Interview granted by STL (Société pour le Traitement du terril de Lubumbashi

25 September 2009
Interview granted by VUB (Vrije Universiteit Brussel), manager of the project: TF MIRECA: “Bonne Gouvernance et Transparence dans le secteur minier”; initiator of CEDEMOL (UNILU)
APPENDIX 12

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Ministère de l'Agriculture, de la Pêche et de l'Elevage en RDC & Ministère de la Coopération au Développement, Belgique (CTB RD Congo), octobre 2009 :
Projet de Développement de la Pêche Artisanale et de l'Aquaculture au Katanga « Etude socio-économique et environnementale du lac Tshangalele; p 1-37


World Economic Forum, the World Bank and the African Development Bank, The Africa Competitiveness Report 2009; p 1-162; Online publication:

PNUE/DAH (Programme des Nations Unies pour l’Environnement et Département des Affaires Humanitaires de l’ONU), novembre 2004 :
« Mine Uranifère de Shinkolobwe (RDC) : Mission d’évaluation de la situation humanitaire » ; p 1-17

Radio Okapi, Jeudi, 29 Septembre 2008

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### APPENDIX 14

**Acronyms and Abbreviations**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACIDH</td>
<td>Action Contre l’Impunité pour les Droits Humains</td>
</tr>
<tr>
<td>Asadho</td>
<td>Association Africaine de Défense des Droits de l’Homme</td>
</tr>
<tr>
<td>ASM</td>
<td>Artisanal and Small Scale Mining</td>
</tr>
<tr>
<td>BIC /ED</td>
<td>Bank Information Centre / Executive Director</td>
</tr>
<tr>
<td>BIT ACT MINES</td>
<td>… Amélioration des Conditions des Travailleurs dans les Mines au Katanga</td>
</tr>
<tr>
<td>BIT</td>
<td>Basic Information Technology</td>
</tr>
<tr>
<td>CAMI</td>
<td>Cadastre Minier (Mining Cadastre)</td>
</tr>
<tr>
<td>CHEMA</td>
<td>Chemaf SPRL is a subsidiary of Shalina Resources Ltd, a privately owned company that has been operating in the Democratic Republic of Congo (DRC) for nearly thirty years (<a href="http://www.shalinaresources.com">http://www.shalinaresources.com</a>).</td>
</tr>
<tr>
<td>CMKK</td>
<td>Coopérative Minière Madini Kwa Kilimo</td>
</tr>
<tr>
<td>CNCC</td>
<td>Société Nationale des Chemins de Fer du Congo</td>
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<tr>
<td>CPI</td>
<td>Corruption Perception Index</td>
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<tr>
<td>CTB-BTC</td>
<td>Belgian Technical Cooperation</td>
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<tr>
<td>DFI</td>
<td>Direct Foreign Investments</td>
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<tr>
<td>EITI (initiative)</td>
<td>Extractive Industry Transparency Initiative</td>
</tr>
<tr>
<td>EMAK</td>
<td>Exploitant Miniers Artisanaux du Katanga</td>
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<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
</tr>
<tr>
<td>FEC</td>
<td>Fédération des Entreprises du Congo</td>
</tr>
<tr>
<td>Gécamines</td>
<td>Générale des Carrières et des Mines)</td>
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<tr>
<td>GPS</td>
<td>Global Positioning System</td>
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<tr>
<td>HDI</td>
<td>Human Development Index</td>
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<td>HRW</td>
<td>Human Right Watch</td>
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<tr>
<td>ILO (guidelines)</td>
<td>The International Labour Organisation (ILO) is the tripartite UN agency that brings together governments, employers and workers of its member states in common action to promote decent work throughout the world</td>
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<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
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<td>IPIS</td>
<td>International Peace Information Service</td>
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<td>MCK</td>
<td>Mining Company Katanga</td>
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<td>TF MIRECA</td>
<td>Task Force Mineral Resources in Central Africa (task force)</td>
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<td>MONUC</td>
<td>United Nations Organization Mission in the Democratic Republic of the Congo</td>
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<td>MSF</td>
<td>Médecins Sans Frontières</td>
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<td>NCEA</td>
<td>Netherlands Commission on Environmental Assessment</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>OCHA</td>
<td>(United Nations) Office for the Coordination of Humanitarian Affairs</td>
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<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
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<tr>
<td>ONG / NGO</td>
<td>Non Governmental Organisation</td>
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<tr>
<td>PAP</td>
<td>Person Affected by the Project</td>
</tr>
<tr>
<td>PAR (fr)</td>
<td>Mitigation and Rehabilitation Plan</td>
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<tr>
<td>PCA</td>
<td>Post Conflict Impact Assessment</td>
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<tr>
<td>PGEP (fr)</td>
<td>Environmental Management Plan</td>
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<td>PRODEPAK</td>
<td>Développement de la Pêche Artisanale et de l'Aquaculture au Katanga</td>
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<tr>
<td>RAID</td>
<td>Rights and Accountability in Development</td>
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<td>RDC</td>
<td>Republic of Congo</td>
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<td>RMCA</td>
<td>Royal Museum for Central Africa</td>
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<td>RRC</td>
<td>Resource Rich Countries</td>
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<td>SAESSCAM</td>
<td>Service d'Assistance et d'Encadrement du Small Scale Mining</td>
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<tr>
<td>STL</td>
<td>STL (Société pour le Traitement du terril de Lubumbashi)</td>
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<td>TFM (project)</td>
<td>Tenke Fungurume Mining (Project)</td>
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<td>ToR</td>
<td>Terms of Reference</td>
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<td>UMHK</td>
<td>Union Minière de Haute Katanga</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Program</td>
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<tr>
<td>UNEP / PNUE</td>
<td>United Nations Environmental Program</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>VUB</td>
<td>Vrije Universiteit Brussel</td>
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<tr>
<td>WB</td>
<td>Worldbank</td>
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<td>WRM</td>
<td>World Rain Forest Movement</td>
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