Ethical Mineral Sourcing: Opportunities and Challenges

Nicolaas C. Steenkamp and Breton N. Scott

Bowline Professional Services, Johannesburg, South Africa

e-mail: Nicolaas@bowlineps.co.za, Breton@bowlineps.co.za

Keywords: Minerals, Ethical Souring, 3TG, Diamonds, Consulting, Audit, Due Diligence, Blockchain, Dodd-Frank

Abstract

The rise in ethical souring awareness led to a number of processes being developed to regulate the minerals and mining industry that could potentially be affected by conflict minerals and gemstones. The Kimberley Process has been around for years, but the passing of the Dodd-Frank act placed a renewed urgency on the matter. The DRC and surrounding countries, referred to as Africa's Great Lake region is the focus of this legislation, but all other regions of the World were mining is used to fund conflict is subject to some form of regulation. The London Bullion Market Association and Responsible Jewellery Council have taken measures to ensure ethical sourcing from mine to refinery to fault. The London Metals Exchange is also implementing measures for their members. A number of reporting organisations, structures have been called into being to aid in documenting and auditing of the process. Standards has been developed by the Organisation for Economic Cooperation and Development, which covers diamonds, gold, tin, tungsten and tantalum. The main concern however is the high costs associated with the process that destroys the profits of the primary sources from the artisanal miners. The most popular methods to legally buy minerals and gemstones from the informal sector to enter into the formal sector is to either aid the artisanal miners to establish a cooperative or to establish a purchase centre at a mine. Blockchain platforms have been suggested as the most effective method to trace these sensitive minerals and gemstones and to be a more cost effective option. The gold and diamond industry has taken the lead by developing a number of proof-of-concept blockchain platforms, although eventually a single platform would have to be used worldwide. Guidance and audits are performed by independent consultants.

Introduction

In recent years there has been an increase in the requirements of sourcing ore from artisanal and informal small scale miners. This mostly relates to ensuring that the material was not obtained through child labour or forced mining to fund conflicts. The passing of the Frank-Dodd Act relating to tin, tungsten, tantalite and gold (3TG) mined in the Great Lakes region of Central African States increased scrutiny by the London Metals Exchange (LME) focussing on tin, cobalt and potentially copper sourced from the DRC and hence broadening of the definition of "conflict" or "blood" diamonds by the Kimberly Process (KP).

Background

The Democratic Republic of the Congo (DRC) suffered a long period of conflict and unfortunately became infamous for the production of conflict minerals and gems, leading to coining of terms such as "blood diamonds" and "conflict minerals". In recent years the concern has moved from gemstones to critical metals, specifically cobalt and the use of forced and child labour. The other minerals produced in the so-called Great Lakes of Africa: tin, tungsten, tantalum and gold became the focus of social awareness groups.

Conflict in the Central African Republic exposed widespread smuggling and links to conflict and Zimbabwe's diamonds documented hidden links that have funnelled significant diamond revenues to the partisan army and intelligence services.

South American countries such as Peru and Columbia have also been cited as sources of conflict gold. The Southeast Asian region in turn is known for conflict gemstone smuggling.

Photo 1: Artisanal Diggings

Industry Requirements

Section 1502 of the Dodd-Frank Act addresses conflict minerals by setting requirements for due diligence, reporting, and public disclosure, and is designed to ensure accountability and discourage companies from doing business in ways that ultimately support exploitation and financing conflict. It affects the DRC and all its neighbours including: Angola, Burundi, Central African Republic, Republic of Congo, Rwanda, South Sudan, Tanzania, and Zambia.

All parties that are subject to the act are required to file a Specialized Disclosure Report (Form SD) and depending on the origin of their conflict minerals or level of determination, issuers may need to submit a Conflict Minerals Report (CMR). This reporting can be a complementary output of a third-party audit process.

The Independent Private Sector Audit (IPSA) of CMRs must be conducted in accordance with the requirements of the Generally Accepted Government Auditing Standards (GAGAS) as established by the U.S. Government Accountability Office (GAO).

The London Bullion Market Association (LBMA) has issued the LBMA Responsible Gold Programme based on anti-money laundering principles as well as the OECD Due Diligence Guide's five step framework for risk-based due diligence. The London Bullion Market's "Responsible Gold Guidance Sourcing Program" is mandatory for all of its accredited refiners. The companies are audited annually under the program, and required to report publicly.

It requires the companies to securely record data on brand, origin, custody and location on a global platform, with blockchain seen as a possible solution. The new LBMA guidelines now also call for regulation of the safety and environmental factors associated with the sourcing of the gold from small scale or artisanal sources.

The Responsible Jewellery Council, (RJC) an international, not-for-profit organization established to reinforce consumer confidence in the jewellery industry, initiated its Chain-of-Custody (CoC) Standard and supporting documents for the precious metals supply chain. This call for two main requirements: conflict-free as a minimum and responsibly produced at each step of the supply chain.

The Kimberley Process (KP) is a binding agreement that prevents conflict diamonds from entering the mainstream rough diamond market. The current format of the KP applies to only rough diamonds, allowing stones that are fully or partially cut and polished to fall outside the scope of the initiative.

The LME is reviewing its requirements to ensure that no metal traded on the bourse has links to child labor, conflict or corruption. Copper producers that buy from Congo will be categorized as higher-risk suppliers alongside manufacturers of tin and cobalt, said the people, who asked not to be identified because the changes have not been made public. The designation will mean copper producers could be removed from the LME's list of deliverable brands unless a third-party auditor signs off on their sourcing standards. While there are no LME-listed copper brands originating from Congo, smelters in neighbouring Zambia that import semi-processed ores, known as concentrates, from the DRC may need to carry out audits.

The United Nations Guiding Principles on Business and Human Rights make it clear that companies have a responsibility to ensure that they do not finance conflict or human rights abuses.

Supply chain due diligence is the internationally accepted way through which companies can meet this responsibility.

A practical standard has been developed by the Organisation for Economic Cooperation and Development, which covers diamonds, gold, tin, tungsten and tantalum. The five step process can basically be summarised as:

1) Establish strong company management systems,
2) Identify and assess risks in the supply chain,
3) Design and implement a strategy to respond to identified risks,
4) Carry out independent third party audits of refinery/smelters due diligence practices and
5) Report annually on supply chain due diligence

Independent Auditing

As regulatory deadlines approach, organizations need to ensure that their conflict minerals due diligence systems are effective and meet requirements. A review of due diligence systems to identify any gaps between organizations' existing systems and the recommendations outlined in the OECD Due Diligence Guidance (discussed in the previous section) or a specific industry framework, such as the EICC CFSI Checklist.

Impartial audits and certification ensure consistency, accuracy, and reliability and demonstrate the highest level of commitment

Associated Costs

ITSCI was introduced after the 2010 Dodd Frank legislation was drawn up in response to the global financial crisis and required US companies to vet their supply chains. The scheme has provided a way for companies to continue to use minerals from the designated countries.

These initiatives however come with a price tag. The current cost associated with a mine being a member of the scheme is that the costs range between US$130 and US$180 per ton, depending on the mineral. Small scale or artisanal miners incur about US$3.5 per kilogram. It is also the main criticisms against the current system used by the ITSCI, that it does not review the traceability cost, becoming an increasing burden to the participants. The only concern that stops some of the Rwandan miners from joining other traceability programmes, for example, is whether or not the end buyers will recognise those schemes.

The industry has expressed concerns that the responsible-sourcing efforts could result in a disconnect in pricing between audited and unaudited brands. The industry is also keen to avoid a mass delisting if producers are not able to complete the reviews before a planned deadline.

The introduction of the concept of the value stack will have a significant impact on the industry in the affected countries. The value stack will distribute the cost for implementing and operating the system, the lowest cost being incurred by the primary producers of the ore and increasing the contribution to higher end users that want to ensure that their product is certified as conflict-free.

Practical Application

The process combines ground visits and spot checks to “assess and verify” the responsible practices of counterparties. This can be done by the independent consultant and substituted by the use of drone based monitoring.

Firms will use a platform to tag and trace minerals and gemstones mined in conflict areas as it goes through the supply chain as opposed to manual tracing systems that rely on paperwork. Unique tags are electronically generated from various mining sites which will act as an online record tracing the minerals from the source to refinery. The system of bagging and tagging metals is designed as a guarantee that the minerals in question are unconnected with conflict, child labour or other human rights abuses.

The system can be supplemented with technology such as facial recognition and a database that captures geographical longitudes and latitudes, geochemical characteristics among other aspects. This type of system, based on blockchain platforms generates an open, distributed ledger that can record transactions along the value chain. User friendliness is another consideration, such as smartphone applications to record the tag and trace the minerals or gemstones as it progresses through the system. Companies can trace metal even as it is processed into intermediate products and mixed with other raw materials.

Blockchain

A number of proof-of-concept blockchain platforms are being developed by the minerals and mining industry. A global standard platform still needs to be developed, accepted by industry and the use thereof implemented. The diamond and gold industry is taking the lead in this regard.

De Beers has developed a blockchain platform that is intended as a digital certificate, created by *Tracr* for each diamond registered on the platform and storing its key attributes and transactions, will enable retailers to provide consumers with confidence that the diamond is natural and conflict free, and has been tracked across the value chain.

The main advantage touted for the use of blockchain platforms is that it will change the current model of incurring traceability costs shifting it from miners to the end users. Provisional surveys and studies conducted have shown that there is more demand for traceability higher in the value chain among users of the minerals and that end consumers would be willing and able to pay to ensure that the product is conflict-free. This will have a major impact on small scale and artisanal buyer companies downstream that to date have had to shoulder a larger portion of the cost with little value added for them.

Purchasing from Artisanal Miners

There are several models for the purchase of minerals and gems for artisanal miners, the two most popular options are: establishing cooperatives for the artisanal miners that can sell to the larger companies or establishing purchase centres at mines.

The cheapest option is done by organising artisanal miners into legal business entities, such as cooperatives, and providing them with the required training. It is beneficial to cluster these operations geographically into units of five to ten operations and assign an engineer and a health and safety officer to each cluster. This is followed by creating a central buying agency that will legally buy from these miners and offer them market related prices.

Incentives related to enlisting artisanal miners into cooperatives, will also facilitate compliance with regulations. As a case study: In La Llanada, Colombia, members of the Coodmilla mining cooperative are paid the equivalent of $8 for a gram of guideline-compliant gold and $6 for a non-compliant gram in 2018. With the premium, they have been able to fund health, nutrition and work training programs.

The second option is to establish a purchase centre and buy directly from the artisanal miners, it is a more reliable system, but entails additional start-up costs. These costs include, but are not limited to: the security (both active and passive), the registration system of the accredited artisanal miners, testing and weighing equipment, shipping package material and tags along with computers and internet connection. Running costs are related mainly to staff and transport.

Photo 2: Artisanal product purchase centre at a mine.

Consultation Services

Bowline Professional Services offer auditing and consulting services to meet industry requirements. Auditing of sourcing ore can be done to demonstrate compliance with the Organisation for Economic Cooperation and Development's responsible-sourcing guidelines. Bowline Professional Services also offer consulting services to meet industry best practices and standards to establish provenance of purchases of ore concentrates or gems from artisanal or informal small scale miners.

Consultation service includes, but is not limited to:

- *In-loco* inspections and audits of mining and purchase sites,
- Guidance on passive and active monitoring of mining activities,
- Trade-off's for identification systems, including biometric, for registration of artisanal sellers,
- Scrutiny on selection of security measures and companies for buyer centres and stockpiling warehouses,
- Evaluation of active and passive infrastructure security,
- Selection and training in use of geochemical testing instruments to determine grade of ore material or concentrates and sorting as well as determining potential provenance of ore,
- Assistance on selection of applicable blockchain platform and databases,
- Guidance on monitoring methods from stockpile and packing area and along the transport route to final destination,
- Selection of tamper-proof seals and RF tags and
- Periodic audit and monitoring reports.

About the Authors

Breton Scott has over two decades of post-qualification experience in the mining and project engineering industry. He has been involved in a variety of activities ranging from mine operations, project management, mining and rock engineering, mineral asset valuations, due diligences, EPCM contracts and related feasibility studies.

Nicolaas Steenkamp has a decade and a half of post-qualification experience in the geological and geotechnical industry. He has been involved in a variety of activities ranging for exploration, geochemistry, geological and geotechnical, desktop studies, due diligence, EPCM contracts and related feasibility studies.