COBALT RESPONSIBLE SOURCING RISKS

TECH UK RESPONSIBLE MINERAL DIALOGUE

29 APRIL 2019, LONDON
RCS Global Group: Key Facts

- Global leaders in responsible sourcing mine to market assurance with an unrivalled position working constantly at every stage of the value chain.
- Proven, highly respected team with presence in Africa, Asia, Americas, EU, US.
- World’s leading responsible sourcing auditor in raw materials.
- Key driver of a responsible low carbon future with a full coverage of battery metals through advisory, knowledge and training (AKT) products.
- Co-founder and validator of the globally leading responsible sourcing blockchain network - RSBN (incl. Ford Motor Co, Volkswagen, IBM, LG Chem and other major international companies)
- Implementor of the only data driven upstream due diligence industry schemes (Better Sourcing, Better Cobalt) in 3TG and cobalt, supported by the Responsible Minerals Initiative (RMI).
- Existing clients include the biggest brands in auto-, electronics, downstream manufacturing, smelting/refining and mining, companies and key industry bodies
- Established partners include the Responsible Minerals Initiative (RMI), Responsible Business Alliance (RBA), Cobalt Institute, International Copper Alliance, OECD, CCCMC, RJC, WEF - Responsible Battery Alliance.
- Impeccable reputation and proven demand from industry
On-site upstream audits, monitoring, traceability and certification

On-site downstream and midstream audits

Supply chain advisory work

Industry engagement

Stakeholder engagement

In-house systems team
Key driver for demand will continue to be EV sector in addition to ICT brands.

Limited prospect of diversification away from cobalt lithium-ion battery tech or away from DRC focused supply.

Responsible sourcing issues cannot be wished away but must be tackled.

Opportunities exist to do so.

**World Demand for Cobalt seen rising sharply**

**Production of Cobalt by Countries**

<table>
<thead>
<tr>
<th>Country</th>
<th>% World Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democratic Republic of Congo</td>
<td>58%</td>
</tr>
<tr>
<td>United States</td>
<td>&gt;1%</td>
</tr>
<tr>
<td>New Caledonia (France)</td>
<td>2%</td>
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<tr>
<td>Zambia</td>
<td>3%</td>
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<tr>
<td>Russia</td>
<td>5%</td>
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<tr>
<td>Philippines</td>
<td>4%</td>
</tr>
<tr>
<td>Cuba</td>
<td></td>
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<tr>
<td>Canada</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>7%</td>
</tr>
<tr>
<td>Other countries</td>
<td></td>
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</tbody>
</table>

TYPICAL BATTERY SUPPLY CHAIN FOR COBALT

Refiner, e.g. China

Mined Cobalt Ore

Crude smelter / Treatment unit, DRC

ASM

Trader

LSM

Intl' trader

Intl' trader

Intl' trader

Precursor

Recycling Company

Battery

Cathode

Battery

Cathode

Battery

Cathode

Battery

Cathode

Battery

Cathode

Battery

Cathode

Battery

Cathode

Battery

Cathode

Battery

Automotive, Consumer Technology, Medical Equipment, Defence, Aerospace etc
## KEY RESPONSIBLE SOURCING RISKS AND HR ISSUES: COBALT, LITHIUM AND NICKEL

<table>
<thead>
<tr>
<th>Level of reporting</th>
<th>Cobalt</th>
<th>Lithium</th>
<th>Nickel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human rights abuses</strong></td>
<td>ASM (DRC)</td>
<td>Indigenous rights Argentina, Chile, Bolivia</td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>Child labor</strong></td>
<td>ASM (DRC)</td>
<td>Recycling and contamination</td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>Provenance from conflict-affected/high-risk countries; political insecurity (excl. China)</strong></td>
<td>DRC, Papua New Guinea</td>
<td>Bolivia, DRC</td>
<td>Philippines, Indonesia, Russia</td>
</tr>
<tr>
<td><strong>Environmental impact</strong></td>
<td>Water Pollution DRC</td>
<td>Water poor regions, Argentina, Chile, Bolivia, Overlap protected areas, Peru</td>
<td>Water pollution Brazil, Air and water pollution Russia, Colombian, Slag disposal Australia,</td>
</tr>
<tr>
<td><strong>Community impact</strong></td>
<td>LSM evictions DRC</td>
<td>Indigenous eviction, Argentina</td>
<td>Indigenous eviction, pollution impact on indigenous, Air pollution Health, Colombia</td>
</tr>
<tr>
<td><strong>Occupational Health and Safety (OHS)</strong></td>
<td>ASM accidents DRC</td>
<td>Labor standards China</td>
<td>Labor standards Indonesia, Brazil</td>
</tr>
<tr>
<td><strong>Corruption</strong></td>
<td>DRC</td>
<td>Bolivia, Argentina</td>
<td>Indonesia, Russia, Philippines</td>
</tr>
<tr>
<td><strong>Modern slavery</strong></td>
<td>Forced labor ASM DRC</td>
<td>Recycling</td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>Priorities</strong></td>
<td>Supply chain transparency, corruption, community impact, human rights, child labor, environmental impact</td>
<td>Supply chain transparency, recycling and contamination, OHS</td>
<td>Supply chain transparency, corruption, community impact, environmental impact</td>
</tr>
</tbody>
</table>

### Level of reporting:
- **Upstream**
- **Midstream**

### Key Issues:
- **Human rights abuses**: ASM (DRC) in Cobalt, Indigenous rights in Lithium, Unknown in Nickel.
- **Child labor**: ASM (DRC) in Cobalt. Recycling and contamination in Lithium. Unknown in Nickel.
- **Provenance**: DRC, Papua New Guinea in Cobalt and Lithium. Unknown in Nickel.
- **Environmental impact**: Water Pollution DRC in Cobalt. Water poor regions in Lithium. Russia in Nickel.
- **Community impact**: LSM evictions DRC in Cobalt. Indigenous eviction, Argentina in Lithium. Unknown in Nickel.
- **Corruption**: DRC in Cobalt. Bolivia, Argentina in Lithium. Indonesia, Russia, Philippines in Nickel.
- **Modern slavery**: Forced labor ASM DRC in Cobalt. Recycling in Lithium. Unknown in Nickel.

### Impact Levels:
- Not affected
- Affected with medium impact
- Affected with important impact
- Affected but geographically limited
- Affected but limited to a sector of the supply chain
ASM: Largely informal mining done without little organization and equipment

- Child labour
- Military presence
- Poor Occupational Health & Safety (OHS)
- Legality issues (dynamic migration of miners)
- Corruption (potential cooperative elite capture)
- Environmental damage

→ Not only child labour!
→ BUT: cobalt ASM not a ‘conflict mineral’!

Est. 20% (ca. 12,800 mT in 2017) of DRC’s production from artisanal production → difficult to avoid
KEY BATTERY METALS RISKS  INDUSTRY RESPONSES

- Consolidation of scrutiny in 3TG and cobalt supply chains.
- Rise in scrutiny of other supply chains, incl. copper, lithium, graphite, nickel, manganese.
- Consumer awareness of conditions under which products they consume are produced, traded and transformed.
- Companies move to demonstrate responsible supply chains as a result of ‘hard’ and ‘soft’ law.
- Increasing corporate expenditure on responsible sourcing - for cobalt alone reaching over 25 million US$.
- Companies spend ~ half a million USD p/a and upwards leading companies ~ 1 - 3 million USD p/a.
- Growing company level action (mapping and auditing) in line with market expectations (OECD, RMAP).
- Industry-wide cobalt treatment unit and smelter audit program developed under the RMI and now in pilot.
- Downstream companies secure offtake in return for mine site responsibility investment. Can be between several 100k to millions of US$.
- Pressure building on companies for little reporting.
- Growing support for tech-based solutions that offer superior data quality, e.g. Better Cobalt, Better Sourcing and which provide incentives for downstream engagement upstream, e.g. RCS Global/IBM’s RSBN Blockchain (members include Volkswagen, Ford Motor Co, IBM, and others).

1. Monitoring and Engagement
   Increase in number of companies engaging in industry initiatives and undertaking general risk research and monitoring.

2. Mapping and Auditing
   Individual downstream brands instigating mapping and auditing programs especially across battery metals and 3TG.
   Proof that a battery supply chain can be mapped is increasing and compelling more companies to act.

3. Technology backed solutions
   2018 has seen the beginning of several tech-led solutions delivering validation, monitoring and traceability in battery metals, most notably in cobalt, with RCS Global Group leading the way.
**MARKET OVERVIEW**

**KEY STANDARDS SETTERS**

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**The Responsible Cobalt Initiative (RCI)**
- China led + Brand Electronics (6vs3)

**Core Activities**
- Sponsored research in DRC
- Developed audit and due diligence protocol for cobalt

**Status**
- CCCMC lead
- Registered in Hong Kong
- Refiner audit in 2018

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**The Cobalt Institute (CI)**
- LSM Miner + Refiner

**Core Activities**
- Developing the CI Responsibility Assessment Framework
- Surveying members for material issues
- Developing self-assessment and self-reporting tools
- Cooperating with other industry bodies

**Status**
- 2 pilots in 2018
- Launched in January 2019

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**Responsible Minerals Initiative (RMI)**
- US – Electronics + Auto + Manufacturing

**Core Activities**
- Launched refiner audit program that will identify and impose requirements on refiners including audits
- In 2019 expanding focus to upstream include crude treatment units
- Risk Readiness Assessment (RRA) tool

**Status**
- Refiner audits in 2018
- Crude treatment audits in 2019

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**Global Battery Alliance (GBA)**
- World Economic Forum led – Electronics + Auto + Manufacturing + Mining + Energy + NGOs

**Core Activities**
- Launched in September 2017
- Driving action towards a sustainable and innovative value chain for lithium-ion batteries

**Status**
- Completing fundraising and finalizing consensus on an initial work program
Cobalt Institute

What the CIRAF is and isn’t...

Provides a good practice management framework on how to respond to 9 material risk areas.

Consolidates due diligence action being taken by companies to demonstrate good practice and meet expectations of the market, civil society and media.

Provides a unified yet flexible approach towards sustainable cobalt production and sourcing.

Not a Certification, Audit program, or Standard.

CIRAF is a reporting framework and management tool.

Individual companies must demonstrate responsible production and sourcing.

Companies will be able to reference the CIRAF conformance level achieved in their public reporting.
The Framework is designed to be applied at a global level

It provides a management framework:

1. For identifying risks linked to both production and sourcing from high-risk countries as well as not operating in or sourcing from high-risk countries.

2. To respond to and manage 4 risk categories and 9 risk areas.

<table>
<thead>
<tr>
<th>Risk Categories</th>
<th>Risk Areas</th>
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</table>
| 1. Environment                                      | • Air/ water / soil environmental impacts
                                                          • Biodiversity impacts |
| 2. Occupational Health and Safety (OHS)             | OHS and working conditions                           |
| 3. Human Rights (as defined in Annex II of the OECD DDG) | • Conflict and corruption
                                                          • Human rights impacts
                                                          • Child labour |
| 4. Community                                         | • ASM
                                                          • Livelihoods
                                                          • Resettlement |
Implementing the CIRAF

- Participants **identify material risks** in their cobalt production and/or sourcing based on the CIRAF decision tree or a credible mechanism.

- For the identified material risks CIRAF **participants undertake an annual assessment of their operations and supply chain**.

- Participants should then **prove/publicly report on the presence of a policy and due diligence management system and its application as well as existing responsible production / sourcing standards they are already applying**.

- CIRAF participants must also **publish a summary of the assessment and related activities on an annual basis**.

- **Implementation based on continuous improvement**:
  - At entry stage, conformance with Human Rights category is a baseline requirement and requires 3rd party assurance of policy and management systems.
  - Participants are expected to demonstrate within a year of committing to the CIRAF that they have this category in place.
## CIRAF Conformance Levels

### Level 1 - General Requirements & Human Rights

<table>
<thead>
<tr>
<th>Step 1: General Requirements</th>
<th>Step 2: Human Rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Agreement with the CIRAF Statement of Commitment, to be signed by senior management.</td>
<td>• Evidence of risk-specific policy</td>
</tr>
<tr>
<td>• Provide a Statement of Legal Compliance (or equivalent document such as a business or mining licence) in country of operation.</td>
<td>• Evidence of risk-specific management system aligned with OECD Due Diligence Guidance, 3rd party assurance of the management system</td>
</tr>
<tr>
<td>• Materiality assessment of the risk categories. Review through a credible mechanism is only required if material risks are different from stated material risks in the CIRAF decision tree. Public disclosure of the material risks is required.</td>
<td>• Evidence of public reporting</td>
</tr>
</tbody>
</table>

### Level 2 – Three Additional Priority Risks

<table>
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<tr>
<th>For three material risk areas:</th>
</tr>
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<tbody>
<tr>
<td>• Evidence of risk-specific policy</td>
</tr>
<tr>
<td>• Evidence of risk-specific management system</td>
</tr>
<tr>
<td>• Evidence of public reporting</td>
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</tbody>
</table>

### Level 3 – All Risks

<table>
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<th>For all risk areas:</th>
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<td>• Evidence of risk-specific policy</td>
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<td>• Evidence of risk-specific management system</td>
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<tr>
<td>• Evidence of public reporting</td>
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</table>
WHAT IS BETTER COBALT?

Digital upstream monitoring mechanism for artisanal and small scale mining (ASM) of cobalt in the Democratic Republic of Congo (DRC) in alignment with the RMI’s Pilot Cobalt Refiner Due Diligence Standard and the OECD Due Diligence Guidance for Responsible Mineral Supply Chains from Conflict-Affected and High-Risk Areas
HOW BETTER COBALT WORKS IN THE FIELD

Supply Chain Evaluation

Permanent Mine Site Monitoring

Data Verification

Data Reporting Platform
THE NEED TO MAKE DUE DILIGENCE DATA MORE RELEVANT FOR BROADER IMPACT

• Better Cobalt born out of the Better Sourcing approach of shipment validation for 3TG
• However, increased downstream interest in upstream conditions in cobalt

→Need to adapt the way in which digital due diligence data is shared to focus on upstream impact and downstream interest

• Comparability of conditions at mine sites (integration with industry audit programs)
• Ability to quickly identify areas for improvement
• Use of data for impact reporting

• Proposed solutions
2. Development of the Better Cobalt mine scorecard
DATA REPORTING PLATFORM: CURRENT USE

Type of data captured:
- Risks and incidents as per OECD Annex II risk categories
- Production data
- Socio-economic context data
- ASM community data

Example of data on current demo dashboard

This dashboard is updated in real time and accessible to exporters and purchasers permanently.
Examples of data points based on Better Cobalt monitoring between July and December 2018 (sample size: 462 incidents)

**Figure 1:**
Total incidents by category in the Kolwezi area

- Conflict: 6%
- Environment: 0%
- Human rights: 22%
- Legality: 21%
- Safety: 39%
- Traceability: 12%

**Figure 2:**
Incidents by category over time in the Kolwezi area

- Conflict
- Environment
- Human Rights Abuses
- Legality
- Safety
- Traceability
An industry consortium of essential supply chain partners working together to meet market expectations and compliance with responsible sourcing best practice

Implemented by:
Volkswagen
Ford Motor Co
IBM
LG Chem
Huayou Cobalt
and growing

- Building on RCS Global’s leading audit operations from mine to market
- Industry co-led solution using the world-class Hyperledger Fabric framework. Engineered by the IBM blockchain solutions team

Read coverage in
Forbes
FINANCIAL TIMES
REUTERS

RCS/IBM RESPONSIBLE SOURCING BLOCKCHAIN NETWORK
RCS – IBM RESPONSIBLE SOURCING BLOCKCHAIN TECHNOLOGY PLATFORM

Platform Benefits for Global Companies

Reputational Benefits

- Integration of responsibility audit data across the stages of the supply chain
- Ability to differentiate and validate supply chain as responsible and compliant

Compliance Benefits

- Instant, secure access to end-to-end responsibly sourced minerals asset provenance information
- Data driven compliance with market expectations

Operational Benefits

- Reduction in compliance costs and audit savings
- Improved collaboration with supply chain participants
- Supply chain transactions from source to brand recorded on a distributed blockchain ledger
- Permissioned members of a supply chain network, helps build trust and efficiency

Supply Chain Validation Includes:

- Environment, Social, and Governance criteria
- Conformance w/ international standards

Clients onboarded to the platform to efficiently share knowledge products and access communication services

Most companies do not have ability to see their supply chain beyond tier 1 partners. This platform will radically change their level of understanding.
Alice Valvodova
Head of Advisory, Knowledge and Training
alice@rcsglobal.com
RCS GLOBAL APPROACHES TO VALIDATE MINERALS SUPPLY CHAINS

DISSENTERS SAY: DATA DRIVEN RESPONSIBLE SOURCING FAILS BECAUSE OF DATA QUALITY. **WRONG!**

RCS Global Group has proven time and again over the last decade that good quality responsibility and traceability data generation is possible at EVERY tier of the supply chain, including in the artisanal sector in remote, high-risk areas.

The principal aspect that has slowed data driven responsible sourcing is the fact the hardly anyone was willing to pay for data generated in the upstream – where it matters the most. This is now (slowly!) changing because our clients can see the opportunity for impact.
The responsible OEMs in auto-, electronics-, and medical - and their suppliers - rely on RCS Global Group's responsible sourcing audit program.

- Map out full supply chains from OEM to mine to establish a map and database of suppliers and sources along with an assessment of risk exposure.
- In scope are all 30+ OECD designated high-risk raw materials, inc. cobalt, 3TG, lithium, nickel, rare earths and others.
- Audit criteria are flexibly defined with the clients utilising a risk based approach ensuring all current compliance expectations across key commodities are met or exceeded.
- Consistent supplier audit program focused on monitoring and scoring supplier responsible sourcing performance.
- Corrective action management and monitoring.
- Analyse supplier scores to support corporate reporting on supply chain improvement over time.
- The expert auditors clients value the quality of our audits and the depth of the learning experience during the process.