

2016 PROGRESS REPORT ON RESPONSIBLE COBALT SUPPLY CHAIN

April 2017

Samsung SDI Co., Ltd.



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Samsung Value System

Samsung Philosophy, justification of existence, ultimate goal and mission

Samsung employs a simple business philosophy: to devote its talent and technology to create superior products and services that contribute to a better global society. To achieve this, Samsung sets a high value standard on its people and technologies.



Leverage Human Resources and Technologies

Extend human resource development and technical superiority with our management principles
Increase synergies that exist between human resources and technologies



Create the Best Products and Services

Create products and services that delight our customers and provide them with superior satisfaction
Retain our #1 position in the world in the same line of business



Contribute to Society

Actively contribute to common interests & rich life
Perform our mission statement by being a valuable member of the community

Figure [1] Samsung Philosophy

Samsung Business Principles and Guidelines

Samsung applies a strict global code of conduct to all employees, in addition to its commitment to comply with all local laws and regulations.

It believes that ethical management is not only a tool for responding to the rapid changes in the global business environment, but also a vehicle for building trust with its various stakeholders including customers, shareholders, employees, business partners and local communities.

With an aim to become one of the most ethical companies in the world, Samsung continues to train its employees and operate monitoring systems, while practicing fair and transparent corporate management.



We comply with laws and ethical standards



We maintain a clean organizational culture



We respect customers, shareholders and employees



We care for the environment, safety and health



We are a socially responsible corporate citizen

Figure [2] Samsung Business Principles

Samsung Identity and Core Values

Samsung believes that living by strong values is the key to good business. That's why these core values, along with a rigorous code of conduct, are at the heart of every decision the company makes.



People

Quite simply, a company is its people. At Samsung, we're dedicated to giving our people a wealth of opportunities to reach their full potential



Excellence

Everything we do at Samsung is driven by an unyielding passion for excellence and an unflinching commitment to develop the best products and services on the market



Change

In today's fast-paced global economy, change is constant and innovation is critical to a company's survival. As we have done since our foundation, we set our sights on the future, anticipating market needs and demands so we can steer our company toward long-term success



Integrity

Operating in an ethical way is the foundation of our business. Everything we do is guided by a moral compass that ensures fairness, respect for all stakeholders and complete transparency



Co-prosperity

A business cannot be successful unless it creates prosperity and opportunity for others. Samsung is dedicated to being a socially and environmentally responsible corporate citizen in every community where we operate around the globe

Figure [3] Samsung Core Values

Introduction

Why a Progress Report on Cobalt?

Samsung SDI is one of the world leading manufacturers of Lithium-Ion batteries, and Cobalt is present, even if in tiny quantities, in many of our products. Several reports have been published over the past months^{1,2}, underlining issues connected with Cobalt sourced through Artisanal Mining (ASM³) in the former Katanga region (the “copper belt”) of the Democratic Republic of Congo (DRC). Regrettably ASM is largely an informal⁴ sector, operating outside national legal frameworks that should protect workers of any age and gender, as well as the environment. Concurrently, ASM is a big provider of jobs and much-needed income for people living in rural areas of the DRC. So tackling these challenges requires a broad and inclusive approach, aimed at progressively formalizing the sector through a human rights lens⁵ and at supporting the current DRC government’s own efforts to legalize and supervise the sector. It is with this premise that we have decided to be transparent and publish a report on what progresses have been reached since this problem was brought to Samsung SDI’s attention.

Samsung SDI is committed to responsible sourcing

Our relationship with customers, shareholders, employees and suppliers (which we collectively call "our partners") is what characterizes the sustainability of our value creating activities, and it is in virtue of this relationship that Samsung SDI is committed to responsible sourcing. Samsung SDI's responsible sourcing due diligence practices apply to all the raw materials purchased from our suppliers with no exception, Cobalt included.

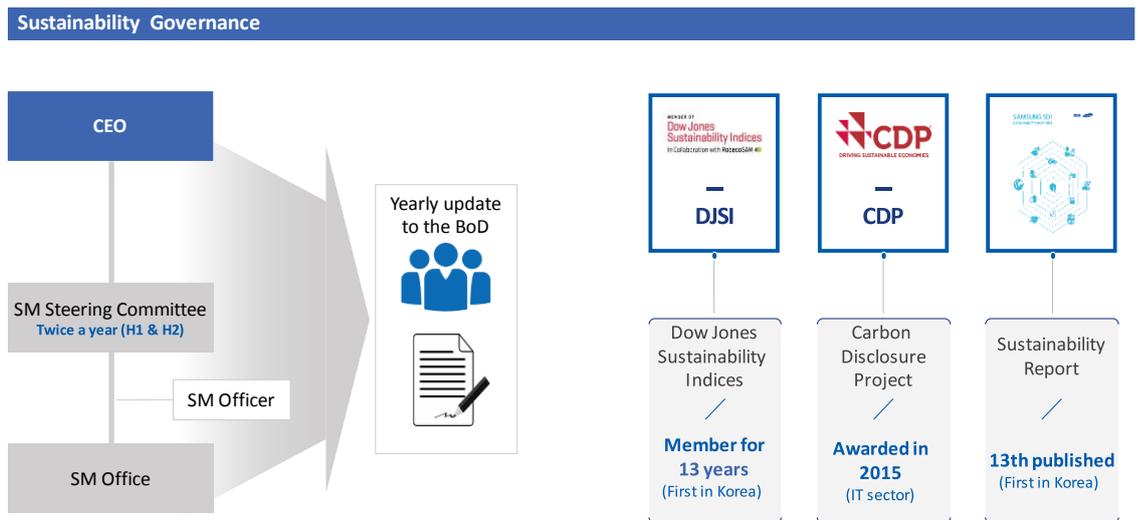


Figure [4] Samsung SDI Sustainability Governance Structure

Sustainability Governance

Samsung SDI Sustainability Management (SM) office reports directly to our Board of Directors on an annual basis, and to the CEO through its Steering Committee twice a year. Our purchasing department is accountable for responsible procurement and is highly scrutinized by our SM office on a regular basis through our S-Partner⁶ management programme. For more information on how we deal with sustainability at Samsung SDI please have a look at our annual Sustainability Report⁷.

¹ Amnesty International Report <https://www.amnesty.org/en/documents/afr62/3183/2016/en/> and Amnesty International Article <https://www.amnesty.org/en/latest/news/2016/09/electric-cars-running-on-child-labour/>

² Washington Post Article <https://www.washingtonpost.com/graphics/business/batteries/congo-cobalt-mining-for-lithium-ion-battery/>

³ This is mining carried out by individuals, using artisanal hand tools and basic extraction methods. Mining outside authorized ASM areas (ZEAs) is illegal in DRC

⁴ See <http://www.cifor.org/fileadmin/subsites/proformal/PDF/RIPIS1212.pdf>

⁵ See http://scholarship.claremont.edu/cgi/viewcontent.cgi?article=2361&context=cmc_theses

⁶ S-Partner Programme will be described in detail in Paragraph 1 of this report.

⁷ See <http://www.samsungsdi.com/sustainable-management/sustainability/report/sustainability-report.html>

Grievance Mechanism

Currently any concern regarding our sustainable practices can be addressed to the corporate e-mail address sustainability@samsung.com. However, given the importance that we are giving to the responsible procurement of Cobalt, we have decided to setup a unique mailbox for any grievance or feedback related to this report, that is cobalt@samsung.com.

Cobalt from DRC is not a conflict mineral

Cobalt is not a “conflict mineral”, and as such is not highly regulated. Also Cobalt is not subject to the Dodd-Frank act⁸. Cobalt is by nature "conflict free", and therefore it doesn't contribute to finance armed conflicts. Thus Cobalt supply chain risks have been severely overlooked by the entire industry until its demand has been rapidly increasing in the most recent years, mainly due to its abundant application into Lithium-Ion batteries for portable devices. At Samsung SDI we have identified three major issues related to Cobalt supply chain that deserve to be investigated further:

1. Child labour & human rights abuse
2. Health & safety protection
3. Environmental pollution risk

Samsung SDI is in principle against any illegal practice that is directly and/or indirectly connected with any of these 3 risks, and considers its direct responsibility to source its cathode material from reliable partners.



Figure [5] Samsung SDI Policy for Responsible Cobalt Supply has been tailored around the 5 steps of the “OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas”

OECD and CCCMC guidance are the de-facto standard for Cobalt

The reliability of our partners is measured against OECD⁹ and CCCMC¹⁰ due diligence guidance (hereafter the "OECD/CCCMC Guidelines"). These due diligence guidelines, originally developed for 3TG conflict minerals (Tin, Tantalum, Tungsten and Gold) have recently found their applicability in the context of Cobalt, and represent de-facto the only available standard that clearly addresses such practices and proposes a structured approach to the problem.

⁸ Dodd-Frank Section 1502: Conflict Minerals <http://www.pwc.com/us/en/audit-assurance-services/conflict-minerals.html>

⁹ OECD (Organization for Economic Co-operation and Development) - [OECD Due Diligence Guidance for Responsible Mineral Supply Chains](#)

¹⁰ CCCMC (China Chamber of Commerce of Metals, minerals & Chemicals Importers & Exporters) - [Chinese Due Diligence Guidelines for Responsible Mineral Supply Chains](#)

**OECD 5-step
risk-based supply
chain due diligence
framework**

According to the UN Guiding Principles¹¹, company due diligence to address adverse human rights impacts should include “assessing **actual** and **potential** human rights impacts, integrating and acting upon the findings, tracking responses, and communicating how impacts are addressed”. The OECD defines due diligence as “an on-going, proactive and reactive process through which companies can ensure that they respect human rights and do not contribute to conflict”. In summary, **the OECD/CCCMC Guidelines recommend that upstream and downstream companies involved in mining and trade in minerals from conflict-affected and high risk areas implement a comprehensive supply chain due diligence risk framework in order to respect human rights** and not contribute to conflict through their sourcing decisions. The framework proposed by the OECD/CCCMC guidelines is basically composed of 5 simple steps, but over the years it has proved, in its simplicity, to be quite effective¹² in the management of conflict minerals, and at Samsung SDI we believe that these steps can have a long-term impact to eradicate these 3 issues also in the context of Cobalt mining. The 5 steps are summarized in Figure [5]. As you may have noticed already, this progress report is structured to mirror the 5 steps, as a reminder that Samsung SDI fully endorses OECD/CCCMC Guidelines, and uses them as a reference to measure the reliability of its partners.

**Third-party audits
are necessary
but not sufficient
alone**

Unfortunately the due diligence process is only as strong as its weakest link. Specifically Governments should step up and make these requirements mandatory. Samsung SDI recognizes that a third party audit program participation alone is necessary but not sufficient to label a product or a partner "reliable". A disengagement with the root causes of these practices would be irresponsible, (especially if a principle of “zero tolerance” is adopted) and must be considered only as a last resort, should all of our other efforts fail.

**Targeted
intervention
on the ground
requires an industry
widespread
initiative**

Despite third-party audits play a significant role in providing long-term assurance that smelters and refiners have systems in place to make sure that their operations and sourcing are reliable, enabling action on the ground is needed in parallel, enforcing the local legislation by supporting capacity building, and exploring alternative livelihoods for the people that are currently affected by these issues. Regardless of who is employing the miners¹³, we have the collective goal to remove as many children as possible from the mines, let the miners work in safe conditions, and respect the environment surrounding these mines. In order to be more effective, and not be scattered and dispersed, actions should be the result of the harmonized contribution of many different stakeholders. Accordingly, Samsung SDI will keep on pursuing its efforts to collaborate with like-minded companies, engage with key government organizations, as well as institutions and other stakeholders to address these issues sustainably and to their root. There is a lot of work to do and we very much welcome the feedback and the contribution of anyone who cherishes the interests of some of the most undefended people in DRC.

¹¹ United Nations (2011): Guiding Principles on Business and Human Rights: Implementing the United Nations ‘Protect, Respect and Remedy Framework, II.B.17’

¹² On the effectiveness of the application of OECD Guidelines see <https://friendsoftheoecdguidelines.wordpress.com/tag/oecd-due-diligence-guidance-for-responsible-supply-chains-of-minerals-from-conflict-affected-and-high-risk-areas/>

¹³ Often times these miners are “self-employed” and they act unknowingly against the current DRC legislation

1. Due Diligence Policy and Management System

Supply Chain Management: S-Partner Programme

Samsung SDI operates a supply chain management programme called S-Partner, which aims at continuously monitoring and certifying all its raw materials and equipment suppliers, against social responsibility topics such as ethics, labour, environment, health and safety, as well as compliance management. All partner companies that have a direct contractual relationship with Samsung SDI are subject to self-initiated diagnoses and field inspections by Samsung SDI at least once every two years. Samsung SDI S-Partner programme has been designed in accordance to EICC (Electronic Industry Citizenship Coalition) guidelines, in alignment with the UN Guiding Principles on Business and Human Rights, the provisions in this Code are derived from key international human rights standards including the ILO Declaration on Fundamental Principles and Rights at Work and the UN Universal Declaration of Human Rights.



Figure [6] Samsung SDI S-Partner evaluation criteria

Cascade a culture of responsibility along our supply chain

Through its S-Partner program Samsung SDI aims at cascading its supply chain management principles to all its partners, with the expectation that they would do the same with their sub-suppliers and so forth.

Steps taken towards Samsung SDI direct suppliers

Our S-Partner suppliers’ audit programme is designed to engage with all of our suppliers, including those who have smelters operations. Our company has always had a transparent and open policy with our customers regarding our supply chain. Thus we regularly disclose to them the identity of our suppliers, our sub-suppliers, as well as all the findings from our due diligence process.

In February 2016 Samsung SDI conducted a thorough internal records survey of direct suppliers for cathode material to check and review their supply chain and relevant human rights policies. Since the publication of Amnesty’s report, we have carried out a number of additional audits through our S-Partner programme on those cathode material suppliers specifically if the cathode material contained cobalt mineral, such as LCO (Lithium-Cobalt-Oxide), NCM (Nickel-Cobalt-Manganese), and NCA (Nickel-Cobalt-Aluminum). Subsequently, between May and August 2016, Samsung SDI officials performed on-site visits of four sub-suppliers of cobalt precursor and seven direct suppliers of cathode material, and conducted due diligence in compliance with the internal check list based on S-Partner Programme as well as OECD/CCMC guidelines on responsible mineral supply chain.

Notwithstanding the results of the investigation, after consulting with all the stakeholders, Samsung SDI has decided to update its Code of Conduct to make it explicit for the Cobalt supply chain, that it follows a strict policy towards child labour, health & safety and environmental issues. Our newly amended Code of Conduct and our Suppliers’ Declaration of

Compliance require (by contract) all our partners to be compliant with OECD guidelines regarding the identification of all the smelters, and with respect to transparency in accessing documentation and records (including chain of custody or traceability documentation, risk assessment and management documentation for red flagged sources).

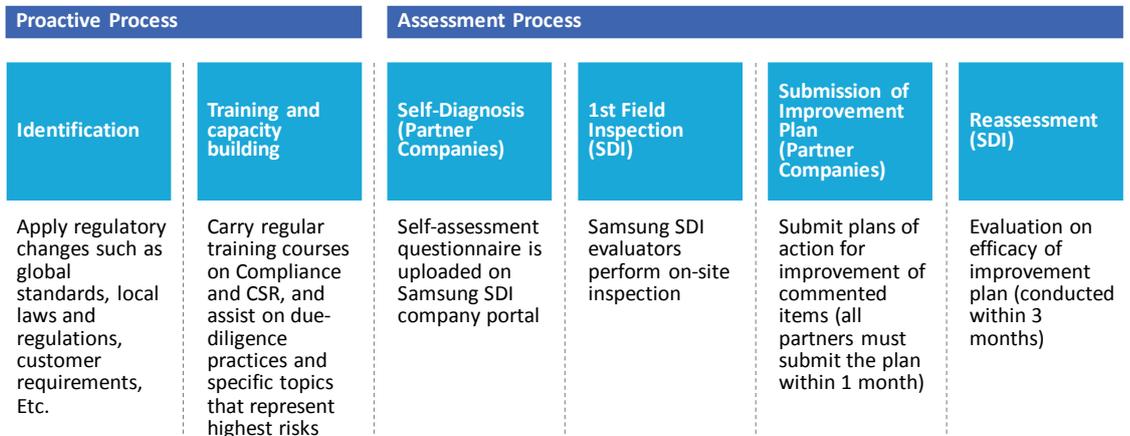
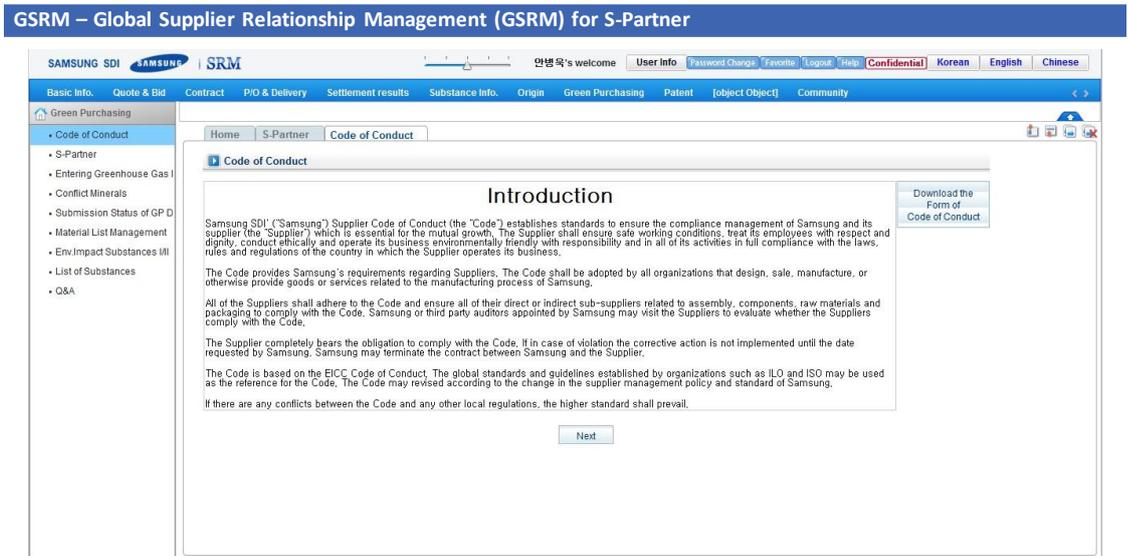


Figure [7] Samsung SDI S-Partner certification process

SDI communicates such policies, together with due-diligence’s expectations, to all our suppliers as they are incorporated into contracts. The policies are also publicized on our Global Supplier Relationship Management (GSRM) website for S-Partner.



Source: Samsung SDI GSRM Website

Figure [8] Global Supplier Relationship Management (GSRM) Website

We have seen already several suppliers/sub-suppliers adjusting their policies accordingly and urging their refiners/smelter to undergo a third party due diligence process, and we sincerely hope that this effort will be affecting everyone across the Cobalt supply chain, not only *downstream*, but also *upstream*.

Supplier Code of Conduct extract

[D. Ethics] 7) Responsible Mineral Sourcing

- The Supplier shall maintain a responsible policy of transparency, especially when dealing with relevant minerals including Tantalum (Ta), Tin (Sn), Tungsten (W), Gold (Au), **as well as Cobalt, that are: (i) sourced from countries at risk, such as the Democratic Republic of Congo (DRC)**

and adjoining countries, or (ii) in any way sourced from or connected to child labor, unsafe/unhealthy work environment, and human rights issues.

▪ To determine any use of such minerals, the Supplier shall have an appropriate management system to conduct due diligence, so that the origin and supply chain of these minerals, including smelters, can be tracked. **The Supplier shall comply with, and cause its sub-suppliers to comply with, the obligations and requirements of this Code, and submit relevant due diligence documentation to Samsung SDI upon Samsung SDI's request.**

**Suppliers'
Declaration of
Compliance extract**

▪ **1 [Compliance with CSR Code of Conduct]** The Supplier shall comply with Samsung SDI Supplier Code of Conduct (hereinafter called the "Code") and continuously improve its management systems to comply with the Code. **The Supplier shall also inform all of its direct and indirect sub-suppliers of the Code, and ensure that all of its direct and indirect sub-suppliers shall comply with the Code.**

5 [No Usage of Conflict Minerals and Minerals Having Links with Human Right violation]. The Supplier acknowledges and agrees to Samsung SDI's policy of not dealing with certain minerals, namely, (i) Conflict Minerals - Tantalum (Ta), Tin (Sn), Tungsten (W), Gold (Au), (ii) Cobalt, (iii) Lithium, (iv) Graphite, and (v) any other additional minerals notified to Suppliers by SDI, if sourced from high risk regions such as the Democratic Republic of Congo (DRC) and adjoining countries, to the extent such minerals are in any way connected to child labor, unsafe/unhealthy work environment, and human rights issues ("Policy"). The Supplier shall ensure that the Supplier has not and will not supply such minerals to Samsung SDI's domestic/overseas production sites and facilities if the Supplier cannot reasonably demonstrate that it has a due diligence management system and has performed the required due diligence activities. **The Supplier shall fully inform its direct or indirect sub-suppliers of Samsung SDI's Policy and its goals, and encourage dissemination of the Policy. If the Supplier is required to conduct any assessment of its sub-suppliers, it shall do so pursuant to the "OECD Due Diligence Guidance for Responsible Supply Chains of Minerals", and shall submit evidence thereof to Samsung SDI. Alternatively, if it is impracticable to submit such evidence, the Supplier may obtain a third party certification of its compliance with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals.**

6. [Violation of Samsung SDI's Conflict Minerals and Cobalt Policy] If the Supplier violates the Code or this Declaration or its direct or indirect sub-suppliers are considered at risk of violating the Code or this Declaration, Samsung SDI may, in its sole discretion, request the Supplier to **implement corrective actions until a date reasonably determined by Samsung SDI.** As risk prevention, mitigation, and resolution systems are still being developed as an industry effort, Samsung SDI will provide timelines for a phase-in period in order for the Supplier to prioritize efforts to prevent, mitigate, and influence the resolution of violations on an ongoing basis, requiring corresponding supply chain actors to address identified risks. If such violation of Supplier is not fully cured in accordance with such request of Samsung SDI, Samsung SDI may, in its sole discretion, terminate the whole or any part of the contracts, agreements, purchase orders or any other arrangements between Samsung SDI and the Supplier. Further, **Samsung SDI has the right to terminate the whole or any part of the contracts, agreements, purchase orders or any other arrangements between Samsung SDI and the Supplier, if the Supplier or its direct or indirect sub-suppliers utilize child labor or violate human rights and they refuse to implement a risk mitigation plan.**

2. Risk Assessment

Cobalt smelters & refiners are key choke points

Samsung SDI has already committed, upon request of its customers, to identify products containing Cobalt and used best faith efforts to identify the key *upstream* actors in its Cobalt the supply chain. According to OECD/CCMC Guidelines, companies at identified points in the supply chain should have their due diligence practices audited by independent third parties.

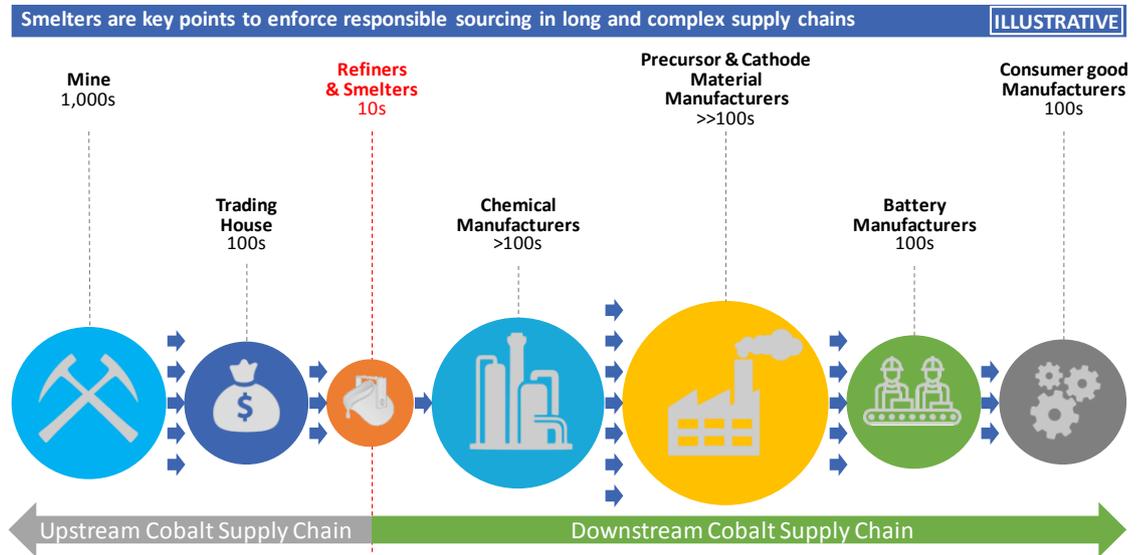
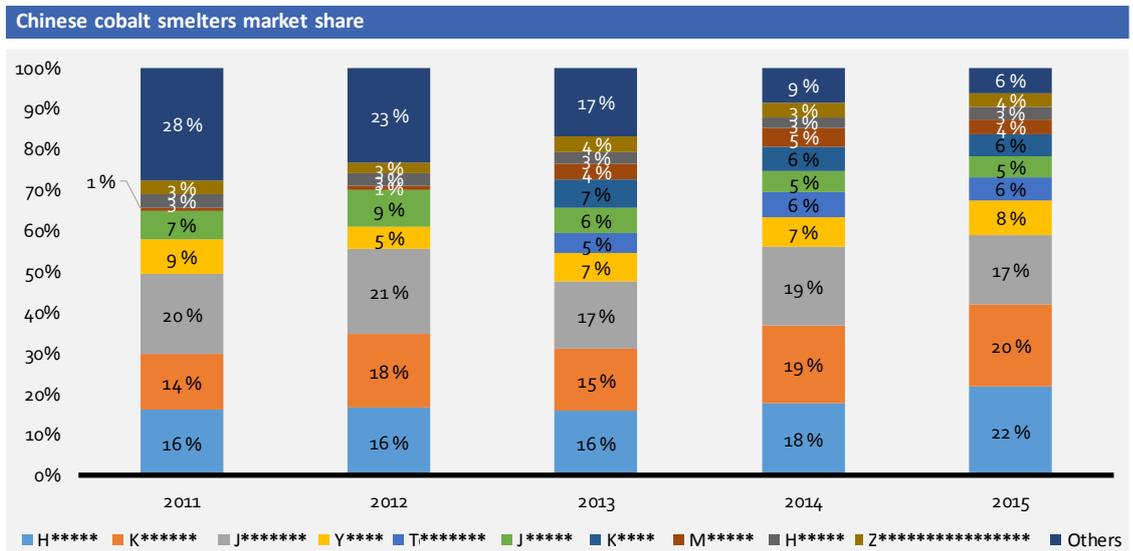


Figure [9] Smelters and Refiners as key choke points along Cobalt supply chain

While companies are expected to identify those points through a thorough and demonstrated risk assessment of their own supply chains, they may take into account industry-wide and resource specific choke points.



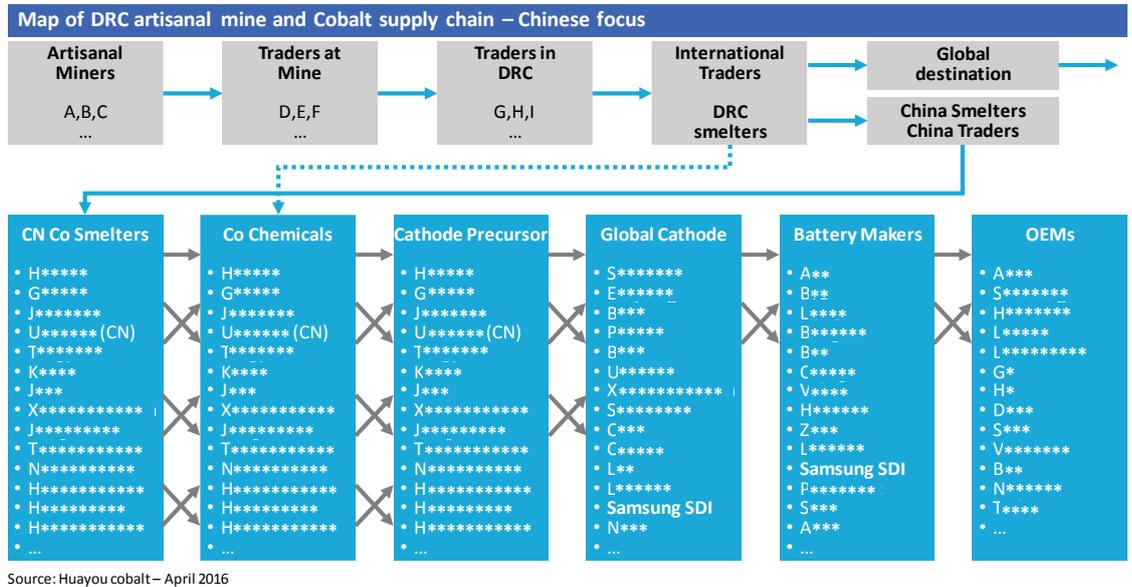
Source: Antaike CNCB 2016

Figure [10] The Chinese Cobalt smelters industry is fairly concentrated: the top 10 players accounted for 94% of the total in 2015; the top 3 combined have ~50% of the market

Complexity of the Cobalt supply chain

Samsung SDI does not purchase raw Cobalt mineral directly from mines nor from smelters. Our company typically purchases different cathode materials that contain Cobalt (for example LCO – Lithium Cobalt Oxide based, NCM – Nickel Cobalt Manganese based, NCA –

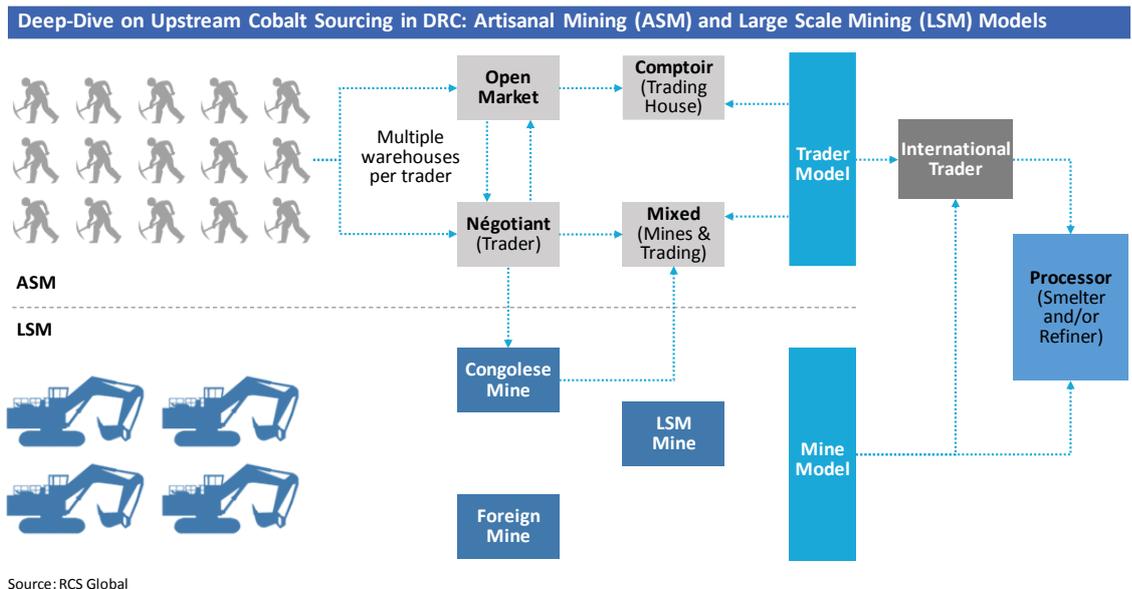
Nickel Cobalt Aluminum based, etc.) from different and multiple sources (precursor or cathode suppliers), for strategic and commercial reasons.



Source: Huayou cobalt – April 2016

Figure [11] Despite the limited number of smelters, there are still several “cross feed” points that could pose a short term potential threat to the due diligence approach: until 100% of the smelters will be audited, the problems on the ground will not be solved

Cathode material is then composed of precursor material (Oxide), which is in turn composed of Cobalt Sulfates in its most basic chemical compound. Typically, each of these *downstream* steps in the Cobalt supply chain are performed by different *downstream* actors (cathode suppliers, precursor suppliers, chemical companies, smelters, refiners, etc.). Once you get to the refiner/smelter, there are at least other 3/4 tiers of metal/mineral suppliers *upstream* (including simple refiners, international traders, local traders, traders on the mines/mine concentrators see Figure [11] and Figure [12]).



Source: RCS Global

Figure [12] Two main models of upstream cobalt sourcing can be observed in the DRC: the “Trader Model” and the Large-Scale Mining (LSM) sourcing model

The “Trader Model” involves traders (Négociants) purchasing Cobalt production on the open market, which includes material from the ASM sector and some mid-sized and large-sized

mines¹⁴. When the local traders (Négociants) sell to medium-sized industrial mining companies, the latter are basically purchasing ASM produced Cobalt to complement their own Cobalt production, thereby contaminating what is otherwise perceived as cleaner industrially mined cobalt supply chain. Typically, largest industrial mines in the DRC try to disincentivise ASM operators on their concessions and therefore as a rule do not purchase ASM mined material. However, as part of their actions to reduce ASM activities, LSM companies employ private security providers (non-uniformed armed guards) to guard their concessions but this in itself can result in human rights risks relating to the appropriate use of force¹⁵.

The intrinsic nature of Cobalt mining, as a small/seasonal byproduct of copper and/or nickel, as well as the intricate spider web of cross-feeds across the many intermediate steps of the cathode material supply chain (Figure [11]) should be conscientiously accounted when analyzing the root causes and possible sustainable and long-lasting remedy actions. In fact, the risk of such a reductionist approach would be a blanket ban of artisanal mining from DRC that would in turn affect the very unarmed people in the mines that hardly have the opportunity to take a decision in their life.

Identified Risks in the Cobalt supply chain

Given all of the above, and as stated in the introduction of this document, based on our initial investigation (which is by no mean exhaustive), Samsung SDI has identified at least 3 major risks in the Cobalt supply chain:

1. Child labour & human rights abuse

Such as worst forms of child labour, informal mining incursions by ASM (undertaken against LSM company will) and violent deaths in the concessions, ongoing clashes between private security and ASM miners, well as the use of excessive force by mine police guarding the concessions

2. Health & safety protection

For example, the lack of the most basic personal safety devices, such as masks, gloves and in most cases even helmets and shoes, but also employees and communities' and large scale public health risks linked to carrying heavy loads or regular exposure to dust and/or noxious chemicals

3. Environmental pollution risk

Such as the contamination of water courses caused by the mismanagement of mining effluent, with consequences for the population and the environment

Several audits and NGOs have reported other risks, such as the payments of illegal "taxes and fees" at the traders' level and the misrepresentation of minerals' origin: since these risks do not pose an irreparable damage, we have preferred to give the utmost priority to the first three above. Nevertheless, we hope in the process of targeted interventions, to try to have an impact also on other risks.

Link between smelters and identified risks

Samsung SDI downstream investigation has gone as far as the smelters' due diligence policies and practices (as per OECD Guidance). As the industry is still exploring chain of custody for Cobalt, it is very difficult to reveal an association with specific human rights risks connected with particular DRC mine sites, transport routes or trading relationships, let alone ties with artisanal sources. Samsung SDI identified the risks outlined above through a combination of grievance mechanism and putative origin risk indicators. It is out of question that not all risks will be fully identified adequately until all subjects across the Cobalt value chain (*downstream and upstream*) will adopt similar standards. Rather than pursuing a "name and shame"

¹⁴ See <https://www.rcsglobal.com/wp-content/uploads/2016/11/rcsglobal-cobalt-briefing-paper.pdf>

¹⁵ On security and human rights, see http://www.cidse.org/publications/business-and-human-rights/download/552_bff1b577c709feef04c0d7d47c53ad82.html

approach (whose immediate consequence is an irresponsible blanket ban of ASM without remediation/alternative livelihood), our company has chosen to try to incentivize transparency.

**Samsung SDI
Risk Assessment
Protocol**

Samsung SDI has created an ad hoc risk assessment protocol specific to Cobalt, which is applied to all suppliers (see Figure [13]). This protocol is based on “Red Flags” and “Orange Flags” to create a risk map of all the suppliers. Based on this risk assessment Samsung SDI decides to revise its contractual obligations towards its suppliers, or together with the suppliers prepares a mitigation plan.

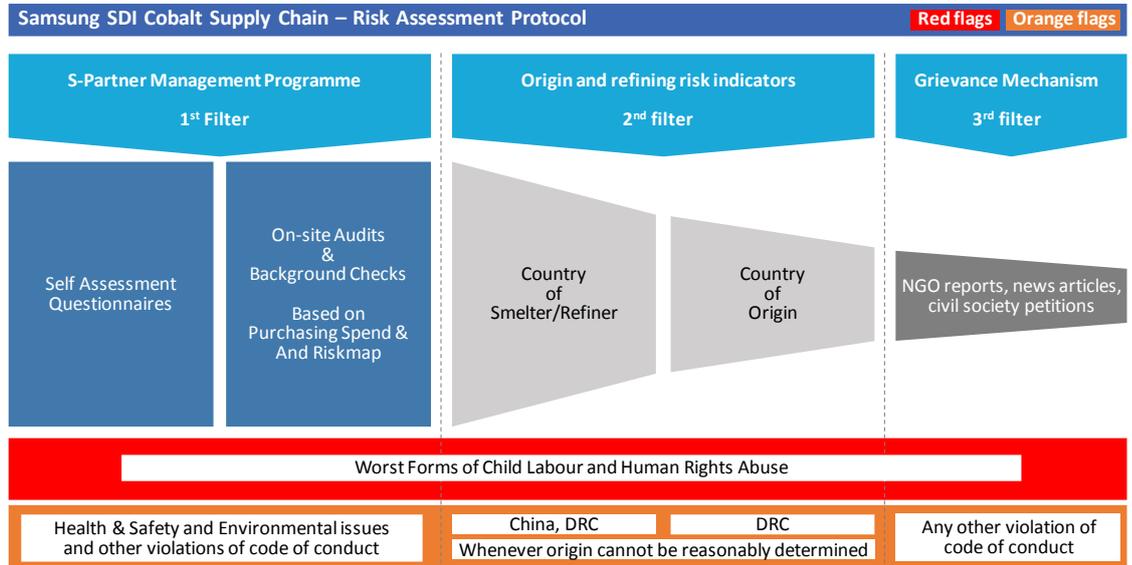


Figure [13] Samsung SDI Cobalt Risk Assessment Protocol

Red Flags

Red flags are raised whenever a supplier or sub-supplier conducts practices that are against Samsung SDI Code of Conduct and that are so severe that cannot be tolerated or accepted as a matter of urgency. Red flags are carefully evaluated and assessed based on the collected and all available information, and can be summarized with findings of connections with *worst forms of child labour* and *human right abuse*. Red flags can result in the discontinuing of the supply related to the violation, *provided that stopping the business relationship does not cause further harm* to the impacted stakeholders.

Orange Flags

Orange Flags are typically isolated violations of the code of conduct for which a quick remedy can be found through a dedicated action plan and within an agreed timeline, which is usually rapidly worked out through the cooperation of Samsung SDI and its suppliers/sub-suppliers on a case-by-case basis. Examples of Orange Flags are isolated health and safety violations, temporary environmental issues and other violations of the Code of Conduct.

**A baseline
report was
commissioned**

Samsung SDI supported an independent academic research project conducted by the Center for Effective Global Action (CEGA) at the University of Berkeley together with several other companies. The research of the UC Berkeley aims to provide rigorous empirical data on households engaged in artisanal mining, and it involves collecting survey data from households, children, village leaders, and local mineral traders in 150 communities that are representative and cover the full geographical extent of the DRC Copper Belt (see Figure [14]). The study was published¹⁶ on May 6th and provides evidence on the prevalence, the forms, and on the root cause of child labor in artisanal mining in the region.

¹⁶ The study is available for download at this link: <http://escholarship.org/uc/item/17m9g4wm>

The baseline report is an integral part of our risk assessment process, with the hope that it will help us to better understand the root causes of these issues and to implement a more effective response plan.

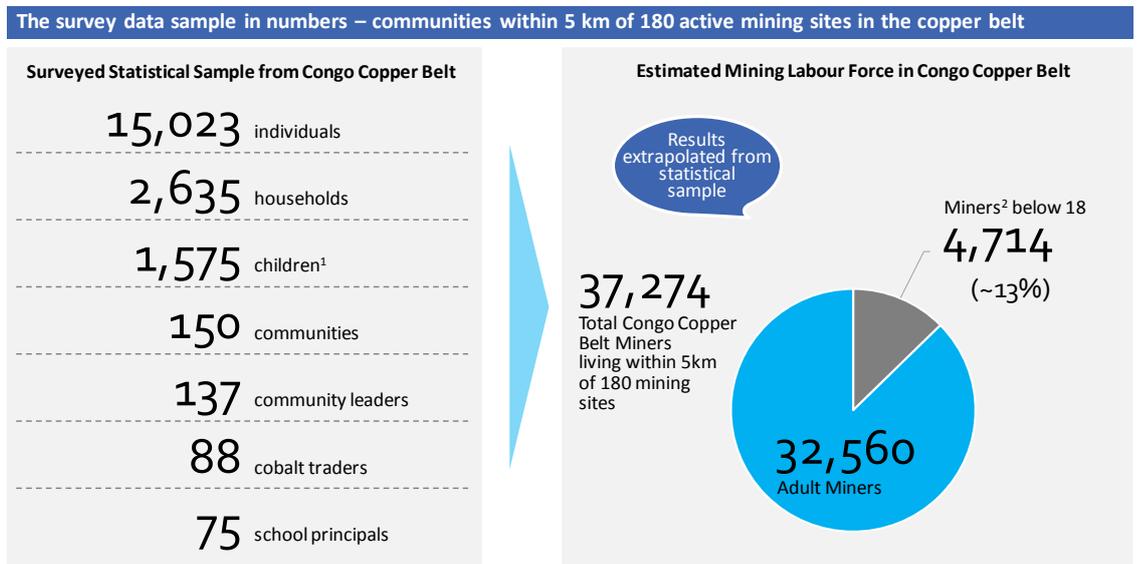


Figure [14] CEGA estimates that ~13% of mining workforce in the copper belt is < 18

Inclusive engagement with ASM

If the objective is to eradicate child labour from the supply chain, perhaps one the most effective solution could be to incentivize ASM households to commit to a no-child labour policy near the mines without hurting their source of livelihoods (Figure [15]).

Summary of CEGA baseline report			
Main message	Hypothesis formulated	Supporting evidence	Baseline measure
1 Temporary reduction in demand for DRC ASM Cobalt could cause great harm	Households extremely vulnerable to sudden shocks	Low income	<\$20 monthly per capita
		Low savings	<\$12 per capita
		Concerns on enough to eat	64% worried not enough food for the week
2 Temporary or permanent ban of DRC ASM Cobalt is counter productive on CL	Ban will harm livelihood of households not involved in CL The poorer the household the higher the chance of CL	ASM widespread practice in copper belt (regardless of CL)	87% of miners are >18 90% of miners work in ASM
		Children miners come from poorest families	<\$20 assets per capita vs. \$113 average
3 "Responsible sourcing" cannot be immediately "CL free": collaborative approach is needed	Inclusive engagement with ASM works best	Targeted interventions to design incentives for ASM to commit to no-CL policy near the mines can work	Objective of Phase II of CEGA study

Source: CEGA – UC Berkeley 2017

Figure [15] Preliminary findings of CEGA baseline report

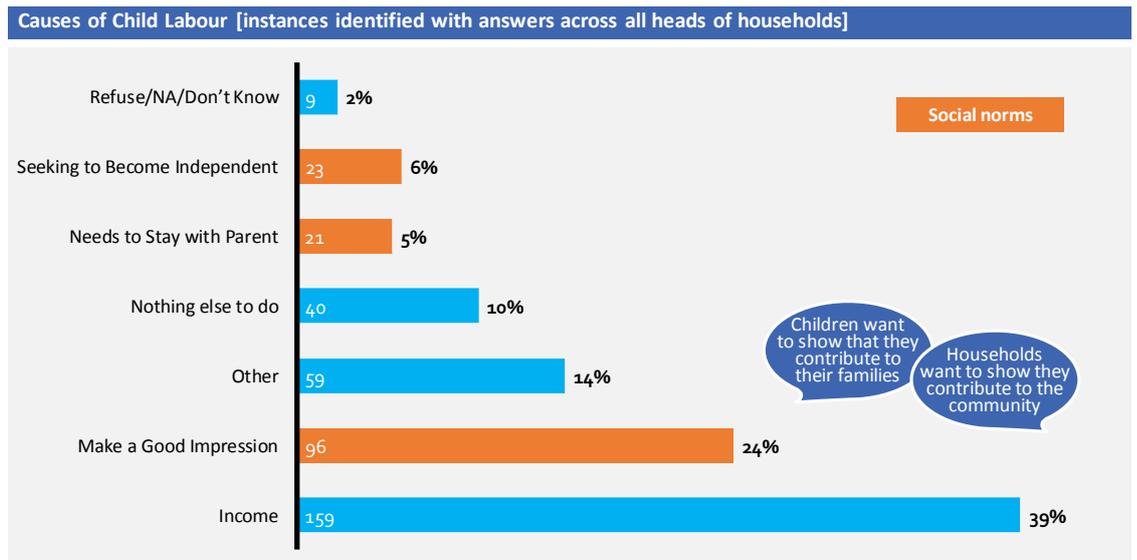
Getting the policy wrong can be VERY costly, and "zero tolerance" policies should be carefully evaluated against their outcomes (Figure [16])

Comparison among different policies' approach and potential outcomes			
Approach		Measurable Evidence on Outcome	
Wrong Policy	Ban ASM completely	<ul style="list-style-type: none"> • Stop sourcing from ASM • "Zero Tolerance" for CL • Unintended harm on households where livelihoods are at risk • No risk remediation in place 	<ul style="list-style-type: none"> • >90% of the mining workforce in DRC copper belt is in artisanal mining (~33,546 people potentially affected) • ~50% of mines have private security agencies other than mining police (potential human right abuses at the mines) • 65% of mining sites have weak labor organizations
Minimum Policy	Top-down guidelines for responsible sourcing	<ul style="list-style-type: none"> • Enforce requirements along supply chain • Third party audits publicly available • Follow minimum international standards • Minimum cost/involvement required 	<ul style="list-style-type: none"> • Uncertain until all actors along supply chain comply • The due diligence is only as strong as its weakest link • Root causes are not addressed • Could potentially lead to ban ASM
Effective Responsible Policy	Inclusive engagement with ASM	<ul style="list-style-type: none"> • Providing incentives to comply • Roll-out targeted intervention pilots • Scale-up most effective interventions • CEGA/PACT/RCS working with RCI 	<ul style="list-style-type: none"> • Impact of targeted interventions can be evaluated scientifically: <ul style="list-style-type: none"> –Bringing market price to miners (conditional/unconditional) –Direct Income support (conditional/unconditional) –Stand Alone Information campaigns • Voluntary compliance (no child labor) leads to welfare improving outcomes

Source: CEQA – UC Berkeley 2017 and Samsung SDI Internal Analysis

Figure [16] Wrong and effective responsible policies

As expected, poverty is the major cause of child labour (CL), followed by social norm and lack of better alternatives (Figure [17]).



Source: CEQA – UC Berkeley 2017

Figure [17] The majority of the children mining Cobalt in the copper belt come from the poorest households, work due to social norms and lack of better alternatives

We hope that the CEQA report will initiate a constructive dialogue with all the stakeholders and would serve as a basis for measuring the impact of future interventions on the ground.

3. Risk Mitigation and Response

A blanket ban of DRC region is not a responsible solution

Samsung SDI is one of the biggest lithium-ion battery manufacturer in the world, and as such not only it cannot turn its eyes away from the risks related to Cobalt mining, but it carries a shared responsibility to leverage its market position to drive even the smallest players along the supply chain to comply with basic international standards and human rights principles.

This is the reason why, irrespectively of single companies' wrongdoing, or of their presence or non-presence in our Cobalt supply chain, Samsung SDI is deeply committed to take concrete steps in collaboration with many other players that actively take part into the overall Cobalt supply chain (*upstream* and *downstream*, globally) in a combined effort to take the children off the mines (without harming the livelihood of the miners' communities), and to make sure that everything and everyone is treated with the dignity and respect they deserve.

60% of global Cobalt supplies are sourced in DRC

It is a fact that ~60% of global Cobalt supplies are sourced in DRC. We are, therefore, quite aware of DRC informal artisanal mining (ASM) sourcing inherent risks, given that DRC is politically unstable and given the extreme poverty of its population. Most, if not all, Cobalt growth within the next 10 years will come from this region. **Samsung SDI recognizes that asking for a certificate that the Cobalt does not originate from the DRC creates incentives for misconduct and falsification given the substantial majority of Cobalt comes from the DRC anyway. There is no assurance that any brand's Cobalt will never come from the DRC or that a certificate would protect the massive system of Cobalt material value chain from ever having DRC material come into their product.** Any attempt to do so will leave unaddressed our concerns with the livelihoods of those who currently depend on ASM and that have drawn our attention in the very first place.

More of Samsung SDI's investigation is letting understand the incapacity of the government as well as incapacity of several *upstream* players to keep an effective chain of custody on Cobalt, as well as guaranteed minimum health and safety standards together with minimum employment age and respect for the environment, especially, but not limited to when informal artisanal mines are involved.

ASM should be formalized

Based on preliminary findings from the CEGA baseline report, and after having consulted with virtually all kind of stakeholders along the cathode supply chain (including international institutions such as OECD, NGOs, representative from DRC cabinet and even ASM associations), **Samsung SDI believes that ASM (specifically of Cobalt), if properly formalized, institutionalized, and recognized by the government and the local authorities, and regulated and supported for guaranteeing basic health and safety practices as well as for removing the worst forms of child labour, could potentially become a source of decent income for the local communities and hopefully could guarantee a better future for the weakest subjects of this chain.** The inclusive engagement of ASM is of course a complex process that will need the careful contribution of all the stakeholders to effect long-lasting change.

Since Samsung SDI has the determination to not tolerate, to not profit from, contribute to, assist with or facilitate any form of child labour and health and safety issues for the people working within the entire supply chain, we have initiated a series of actions together with key stakeholders in order to guarantee a responsible Cobalt supply chain.

Responsible Cobalt Initiative

Under an invitation from CCCMC and OECD, an informal group of players in the Cobalt supply chain (including Samsung SDI) gathered in Beijing on April 2016 and discussed **how to systematically identify and analyze the root causes, address problems and meet the challenges in global Cobalt supply chains and work towards identifying measures that are appropriate and tailored for *upstream* and *downstream* companies in the supply chain.** The

objective was to set up an initiative of joint actions to improve conditions of Cobalt mining in the Democratic Republic of Congo.

3 High Level Goals and Guiding Principles - Recap		
High Level Goal	Guiding Principles	
	Specific	General
1 Transparency & Risk Assessment Align downstream & upstream requirements to CCCMC/OECD Guidance to increase transparency in RCI members' supply chains, assess the supply chain risks and address/account for due diligence	<ul style="list-style-type: none"> • Improve transparency throughout the supply chain • To stay focus, higher priority given on child labour, with an eye on other relevant risks such as H&S and Environmental 	<ul style="list-style-type: none"> • Each action should have a measure for success • Members need to see action/results starting from Q1 2017
2 Actions on the Ground Take actions in DRC based on risks found in the supply chain to address adverse impacts. Actions to be taken with DRC inter-ministerial commission, local and international stakeholders and civil society	<ul style="list-style-type: none"> • Beneficiaries to be first & foremost children and families • Members agree to remedial and preventative actions to address immediate needs & the systemic issues • Make sure local DRC communities are fully engaged (government agencies, NGOs & local social services) • Action based on evidence & data, with shared metrics to ensure no double counting, duplication, or contradictions 	
3 Effective & efficient Communication Develop effective internal communication mechanism and a common strategy to communicate progress and results effectively to impacted communities, miners and the public	<ul style="list-style-type: none"> • Create an effective internal communication mechanism • Achieve a common external communication strategy 	

Source: RCI Meeting in Shanghai – September 29th 2016

Figure [18] Responsible Cobalt Initiative (RCI) high level goals

Samsung SDI is confident that the joint initiative that was initiated in Beijing is headed towards the right direction. On its last meeting in Shanghai, this initiative decided to call itself “**Responsible Cobalt Initiative**” (RCI). Companies involved currently include Apple Inc., Beijing Easpring Material Technology Co., Ltd., HP Inc., Huawei Device Co.,Ltd., L&F, Samsung SDI, Sony Corporation, Tianjin B&M Science and Technology Joint-Stock Co., Ltd., Zhejiang Huayou Cobalt Co., Ltd. and others. RCI was officially launched¹⁷ in November 14th in Geneva at the UN Forum on Business and Human Rights, also attended by Samsung SDI. Such strong involvement of the Chinese industry, together with the active engagement of OECD and the coordination of the Government of the DRC, is seen by Samsung SDI as a positive and powerful sign. Samsung SDI fully endorses and supports RCI’s main objectives:

- **Goal 1: Align downstream and upstream companies’ supply chain policies to OECD/CCMC Guidelines to increase transparency in the Cobalt supply chain and improve supply chain governance capacity** (identify, assess and address risks, propose Cobalt specific audit protocols and account for due diligence/report publicly on actions)
- **Goal 2: Take and/or support actions on the ground based on the risks found in the supply chain to address adverse impacts** (regardless of the fact that the supply management system in place is clean and well laid out) **in cooperation with local stakeholders such as the DRC government, implementing agencies, impacted stakeholders, local communities and civil societies.** Three specific short term activities have been already planned and more long term activities are being identified as we speak:
 - A baseline research on the prevalence of child labour in the former Katanga province, for which we have approached an academic institute that had experience surveying and conducting research in the DRC, and could provide unbiased quantitative rigor (already ongoing – see last paragraph of section 2 Risk Assessment)
 - Liaise (through the strong support of PACT¹⁸) with a DRC inter-ministerial commission on child labour in mining. Also, pending on the Congolese government elections,

¹⁷ See <https://www.ft.com/content/a695b9eb-01ba-36fc-8f1b-1a7ef7191917>

¹⁸ PACT is a nonprofit international development organization founded in 1971, with operations in 30 countries

- commission a study on governance and capacity building feasibility in order to engage with key Congolese governmental organizations to sensitize them to the problem of formalizing Cobalt artisanal mines
 - Regardless of who is employing them, we have the short-term goal to remove as many children as possible from the mines without hurting their families’ livelihoods, and to this extent we are creating a child protection model toolkit and in parallel, we are setting up a funding mechanism to provide immediate source of income to a charitable organization that has shown a successful track record on these issues
- **Goal 3:** Develop a communication strategy to **communicate progress and results effectively to impacted communities, miners, and the public; to harmonize working objectives and plans with other stakeholders**

3 High Level Goals Action Plan		
1 Transparency & Risk Assessment	2 Actions on the Ground	3 Effective & Efficient Communications
1.1 Supply Chain Mapping	2.1 Increase RCI understanding of DRC context	3.1 Development of internal communication mechanism
1.2 Risk Assessment	2.2 Child Labour Remediation	
1.3 Risk Management	2.3 Support to DRC Government	3.2 Strategy to communicate with external stakeholders Identification
	2.4 Work with Suppliers / Traders	
1.4 Reporting	2.5 Funding Mechanism	3.2 Strategy to communicate with external stakeholders Communication Plan

Source: RCI Internal

Figure [19] RCI action plan for 2017

As you can see, the RCI has included transparency and communicating progress as one of its pillars of work, so consumers and the public can stay informed.

“Zero” presence of children in the mineral supply chain in DRC by 2020

Mission

- Ensure the coordination and facilitate the actions of the different initiatives to put an end to child labour in mines and on mine sites in DRC;
- Work as the government advisor, follow-up and monitoring body alongside competent Ministries and Services in charge of issues regarding child labour in mines and on mine sites
- Conduct advocacy work among third parties (OECD, CCCMC, UNICEF, ILOs (International Labour Organization and International Labour Office), CFSI, etc...)

Organizations and/or implementing actors

- Ministry of Mines
- Ministry of Employment, Labour, and Social Planning;
- Ministry of Gender, Family and Children;
- Ministry of Social Affairs
- National Committee for the fight against the worst forms of child labour (CN-PFTE)
- Provincial authorities and their provincial governments
- Inter-ministerial Commission/Child labour monitoring
- Chamber of mines/Congo Business Federation (FEC)

Source: Triennial Action Plan of the Interministerial Commission responsible for addressing the issue of child labour in mines and on mine sites in DRC (2017-2020)

Figure [20] DRC inter-ministerial commission to stop child labour in mining by 2020

***DRC Government
inter-ministerial
commission***

It's important to mention that the DRC government is working closely with RCI members (through PACT) and has setup an inter-ministerial commission that, through a triennial action plan, has 5 specific objectives to reach its mission to eradicate child labour from ASM in the DRC copper belt:

1. Monitor and evaluate the implementation of actions to eliminate child labour in the mines and on mine sites in DRC
2. Understand the situation regarding the presence of children in mines and on mine sites
3. Strengthen the application of measures to remove children from mineral supply chains, with priorities being within the 3T and Copper and Cobalt sectors
4. Implement corrective measures suggested on the ground by competent ministries and services
5. Develop a strategy to promote communication

The RCI initiative thus far has been endorsed by the DRC inter-ministerial commission through an official "ordre de mission" (a mandate). It has also been supported by automotive OEMs, electronics companies, battery companies, cathode suppliers, precursor suppliers, smelters, refiners, formal artisanal miners' associations, OECD, CCCMC, and has received praise by several inter-governmental organizations. We hope this initiative will extend to as many interested participants as possible, as soon as RCI will be properly formalized with a regulation chart and an official funding mechanism.

4. Smelters and Refiners Third-Party Audits

Third Party Audits Programme

Since sustainable responsible sourcing cannot be achieved by pressure alone, Samsung SDI is committed to offer support and assistance for audit preparation to smelters and refiners, as well as suppliers.

Samsung SDI recognizes that Cobalt due diligence necessitates having all smelters and refiners in its supply chain participating in a third-party audit program, and priority should be given to those smelters that supposedly source Cobalt from DRC. For the sake of avoiding any ambiguity, third party audits typically involve an examination of individual purchasing transactions on a sample basis to assess the reasonableness and effectiveness of mineral sourcing practices at the particular smelter or refiner.

As already stated in Section 1 Due Diligence Policy and Management System of this report, **Samsung SDI is urging all its suppliers to conform to the newly amended Code of Conduct which explicitly refers to OECD guidelines for responsible mineral supply chain.** Whenever smelters cannot provide substantial and credible evidence of the chain of custody, nor of the traceability documentation, or of the risk assessment and management policies for red flagged Cobalt sources, we urge and support them to undergo a full third party audit. If failing to undergo a full third party audit as recommended, SDI will start waving flags for possible termination of contracts, as per our internal policy.

Samsung SDI could shift all of its cobalt supply towards companies with trusted responsible sourcing programs and circumvent any relationship with the challenging issues that the cobalt industry is facing, but that would not have any good impact, and it could potentially worsen the situation. Therefore, we have intentionally decided to approach inclusively the mines and smelters that are not yet meeting our requirements and will work with them to develop responsible practices.

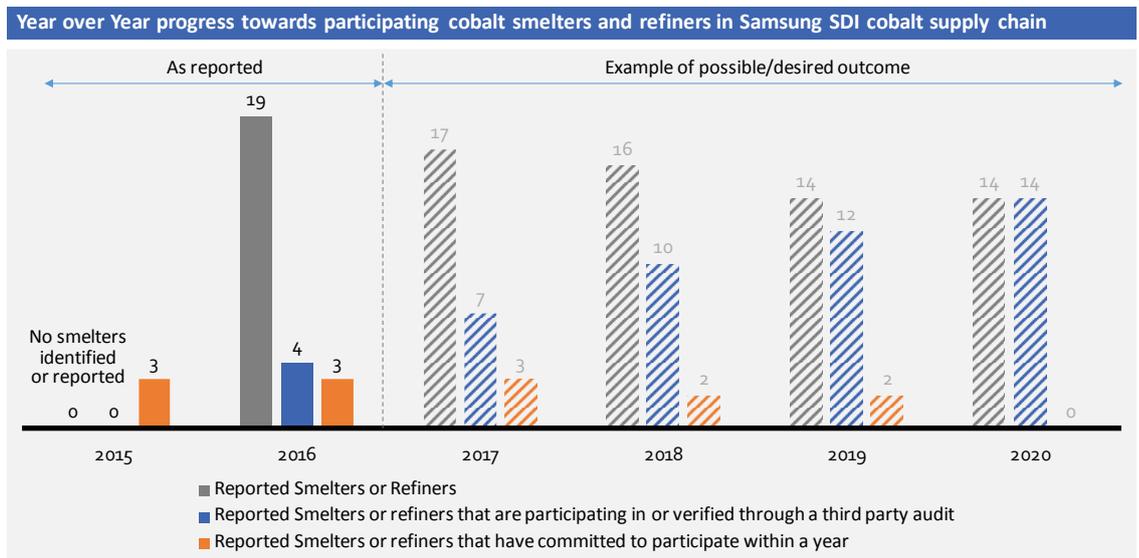


Figure [21] Samsung SDI reported Cobalt smelters and refiners as of December 2016

For those smelters/refiners that, despite the pressure and the incentives, will ultimately not intend to take advantage of Samsung SDI assistance/training programs or refuse to take part in any third party audit entirely, Samsung SDI will have no choice but to remove them from its supply chain, as we respect ignorance and lack of capacity, but we do not tolerate the unwillingness to comply to international standards and to Samsung SDI values, as well as the values of our customers, our investors, and of our employees.

Why audit results haven't been fully disclosed yet?

Since the Cobalt industry is still at a very early stage in this due diligence journey, even though we understand the urge of publishing the full audit results, in the spirit of an inclusive approach, we would like to preserve the privacy of our customers as well as of our suppliers, and give everyone the time to understand the complexity of the situation and incorporate our policy requirement accordingly. We envision a day not too far from today where every Cobalt smelter will take pride in seeing its audit records being published.

19 Reported smelters/refiners in 2016

Based on the information provided by Samsung SDI's suppliers and its own best faith due diligence effort from January 1, through December 31, 2016, Samsung SDI believes that the facilities that may have been used to process the Cobalt contained in Samsung SDI's products include the smelters and refiners listed in the Annex III of this Report¹⁹ (Figure [21]).

Despite this is the first year that Samsung SDI urges third party audits to the Cobalt smelters/refiners, we can say that already 21% of them have performed such audits, while another 16% is planning to do so within a year from now.

Countries of origin

Based on the information provided by Samsung SDI suppliers, smelters and refiners, as well as from other sources, Samsung SDI reasonably believes that the countries of origin of Cobalt contained in its products include the countries listed in Annex IV of this Report, as well as recycled and scrap sources, which depending on the battery products, may vary between 3% and 13% of Cobalt content as of December 2016.

¹⁹ Please be aware that not all the products include the same smelters/refiners. Our company has a management system in place that is able to trace for each product the quantity of material contained per each supplier: our transparency policy is to disclose to our customers the specific smelters and the countries of origin that pertain to detailed products only under confidentiality agreements, and this is to respect the privacy of our suppliers and of our partners.

5. Reporting and Next Steps

Transparency is key

Samsung SDI was the first company in Korea to ever publish a sustainability report more than 13 years ago. In 2016 Samsung SDI joined²⁰ the globally renowned Dow Jones Sustainability Index – World (DJSI World), after already spending 13 years in DJSI Asia Pacific. Our company recognizes that public reporting is a fundamental responsibility of all the stakeholders along the Cobalt supply chain *upstream* and *downstream*, and this report **testifies its commitment**. We believe that this is the world's first time that a battery company attempts to make public the efforts on making the Cobalt supply chain more responsible, and we very much welcome everyone's feedback to make the practice of reporting a benchmark within this industry. As we would like to lead through example, we would also like to encourage all of our peers and partners to do the same.

Increasing number of industry initiatives are converging

More and more initiatives on responsible raw material sourcing are being created recently. We heard about a World Economic Forum (WEF) workshop on responsible sourcing dedicated to Cobalt happened in Geneva in September 2016, and of a possible "Clean Battery Alliance" that will be able to mobilize funds that could potentially be funneled towards the RCI. Most recently EICC²¹ created a group called Responsible Raw Material Initiative (RRMI) to discuss topics related to the management of raw materials (more general, but it includes Cobalt). One of EICC's goals, together with CSR Europe, is to be that of avoiding duplication of tools/surveys/communications and of streamlining the requests on due diligence from the *downstream* to the *upstream*. RCI is working closely with EICC and CSR Europe to work smoothly on a complimentary and cooperative basis without room for overlap. Additionally, LBMA²², RJC²³ and other groups are also starting to talk to each other to ensure better alignment on their procedures and processes and improve synergies.

Currently, to the best of our knowledge, the RCI has done the most advances with respect to the engagement with Chinese and international players (including the DRC Government) as well as work on remedy actions and response to issues with Cobalt supply chain. We therefore always try our best to find the most efficient way for different forums and platforms to converge and join forces with RCI, as no effort will be dispersed.

Conclusion

Firm policy, clear transparency and maintaining accountability are key action items on Samsung SDI's agenda with regards to Cobalt supply chain. However, reducing the problem into a number of isolated subjects would not fully justify the complexity of this supply chain, nor the people that actually work in the mines.

To this extent, as a key *downstream* company, Samsung SDI is committed to lead through example and work with existing suppliers and others (e.g. governments and non-government bodies of each suppliers' country) to prevent and mitigate the adverse impact of questionable Cobalt, for example with focus on choke points (such as smelters and refiners), practical training, capacity building, government lobbying, exploring alternative livelihoods, partnerships across multiple players (such as RCI), immediate actions on the ground, etc.

In this respect, a disengagement would be the very last step that our company would take, and we will do everything within our power to protect the miners, their families and communities, as well as rescue children and prevent them from being pushed into worse situations.

To conclude, Samsung SDI has confidence that next year's progress report will show the impact of the activities that have been initiated in 2016, and hopes that many other companies along the Cobalt supply chain will start reporting likewise their own due diligence policies in the

²⁰ http://www.koreatimes.co.kr/www/news/biz/2016/09/123_196000.html

²¹ EICC is now inviting companies both electronics and non-electronics to participate to the Responsible Raw Materials Initiative (RRMI) <http://www.eiccoalition.org/initiatives/rrmi/>

²² London Bullion Market Association <http://www.lbma.org.uk/>

²³ Responsible Jewellery Council <http://www.responsiblejewellery.com/>

spirit of transparency and accountability. Given the importance of this topic, Samsung SDI has planned to incorporate the next edition (2017) of this progress report as a section of its Sustainability Report for 2017, which will be published in May 2018.

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Annexes

Annex I – Suppliers’ Code of Conduct

Samsung SDI **Suppliers’ Code of Conduct** is available for download at: <http://www.samsungsdi.com/sustainable-management/sustainability/supply-chain-responsibility.html>

Annex II – Suppliers’ Declaration of Compliance

Samsung SDI **Suppliers’ Declaration of Compliance** is available for download at: <http://www.samsungsdi.com/sustainable-management/sustainability/supply-chain-responsibility.html>

Annex III – Reported Smelters and Refiners

<u>Facility Name of Smelter or Refiner</u>	<u>Location of Smelter or Refiner</u>
1 Freeport Cobalt Oy (Kokkola)	Finland
2 Ganzhou Tengyuan Cobalt Industrial Co., Ltd.	China
3 Ganzhou Yi Hao Umicore Industries Co., Ltd. (GYHU)	China
4 GEM Co., Ltd.	China
5 Haopeng	China
6 Huayi	China
7 Jiana	China
8 Jiangmen Chancsun Umicore Industry Co., Ltd. (JUC) *	China
9 Jiangsu Cobalt Nickel Metal Co., Ltd.	China
10 Jiangsu Xiongfeng Technology Co., Ltd	China
11 Jiangxi Jiangwu	China
12 Jiayuan Cobalt	China
13 Lanzhou Jinchuan Advanced Materials Technology Co., Ltd.	China
14 Maolian	China
15 Murrin	Australia
16 Sherrit	Canada
17 Tengyuan	China
18 Umicore Olen	Belgium
19 Zhejiang Huayou Cobalt Co., Ltd ** (not smelted through CDM)	China

*Direct business relationship with Samsung SDI

**Starting from May 2016 Zhejiang Huayou Cobalt Co., Ltd (“Huayou”) supplied a very small batch of LCO precursor material to a tier 2 supplier of Samsung SDI. According to Huayou, neither CDM nor Huayou itself smelted the material. Huayou purchased the material in New Caledonia from an international trader. Subsequently, Samsung SDI has urged Huayou to undertake a third party audit to verify the accuracy and adequacy of such claim (Huayou confirmed that the audit should start in 2017).

Annex IV – Reported Countries of Origin

Countries of Origin

- 1 Australia
- 2 Canada
- 3 Cuba
- 4 Democratic Republic of Congo (DRC)
- 5 Finland
- 6 New Caledonia
- 7 Papua New Guinea
- 8 Philippines
- 9 Zambia

Annex V – Definitions and Acronyms

Definitions

Conflict Mineral

The Conflict Minerals Statutory Provision²⁴ defines the term “conflict mineral” as cassiterite, columbite-tantalite, gold, wolframite, or their derivatives, or any other *minerals* or their derivatives determined by the Secretary of State *to be financing conflict in the Covered Countries...* cassiterite is the metal ore that is most commonly used to produce *tin*, which is used in alloys, tin plating, and solders for joining pipes and electronic circuits. Columbite-tantalite is the metal ore from which *tantalum* is extracted. Tantalum is used in electronic components, including mobile telephones, computers, videogame consoles, and digital cameras, and as an alloy for making carbide tools and jet engine components. *Gold* is used for making jewelry and is used in electronic, communications, and aerospace equipment. Finally, wolframite is the metal ore that is used to produce *tungsten*, which is used for metal wires, electrodes, and contacts in lighting, electronic, electrical, heating, and welding applications.

Third Party Audit

Third party audits typically involve an examination of individual purchasing transactions on a sample basis to assess the reasonableness and effectiveness of mineral sourcing practices at the particular smelter or refiner. They are performed by an independent company, typically called a certification body or registrar.

Cathode Material

Common cathode materials are Lithium Cobalt Oxide (or Lithium Cobaltate - LCO), Lithium Manganese Oxide (also known as spinel or Lithium Manganate - LMO), Lithium Iron Phosphate (LFP), as well as Lithium Nickel Manganese Cobalt (or NMC/NCM) and Lithium Nickel Cobalt Aluminum Oxide (or NCA). The cathode material is usually coated on the positive electrode (the cathode) of a lithium-ion battery. Lithium-polymer is another cathode material that can be made in various chemistries and the most widely used format is Lithium-cobalt. Typically, the cathode material is built by sintering, grinding, mixing and packing different precursor materials.

Precursor Material

The Precursor Material is a compound that participates in a chemical reaction called calcination that produces another compound (hence the name “precursor”), used for the chemical synthesis of the Cathode Material.

Artisanal Mining

This is mining carried out by individuals, using artisanal hand tools and basic extraction methods. Mining outside authorized ASM areas (ZEAs) is illegal in DRC.

Copper Belt

The Copper Belt is a region of Central Africa running through northern Zambia and the southern Democratic Republic of Congo known for copper mining. Traditionally, it refers to the mining regions of Zambia's Copper Belt Province and the former Congo's Katanga Province with its major city at Lubumbashi.

Worst Forms of Child Labour

It is a form of child labour, as defined by article 3 of the Convention 182 of the International Labour Organization (ILO): “(d) work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children [under 18 years of age]”.

²⁴ See <https://www.sec.gov/rules/final/2012/34-67716.pdf>

Acronyms

ASM	Artisanal Mining
BSI	British Standard Institute
CCCMC	China Chamber of Commerce of Metals Minerals & Chemicals Importers & Exporters
CDP	Carbon Disclosure Project
CSR	Corporate Social Responsibility
DJSI	Dow Jones Sustainability Index
DRC	Democratic Republic of Congo
EICC	Electronic Industry Citizenship Coalition
ILO	International Labour Organization
LBMA	London Bullion Market
LCO	Lithium Cobalt Oxide
LSM	Large-Scale Mining
NCA	Nickel Cobalt Aluminum
NCM (aka NMC)	Nickel Cobalt Manganese
OECD	Organisation for Economic Co-operation and Development
PACT	A nonprofit international development organization founded in 1971
RCI	Responsible Cobalt Initiative
RJC	Responsible Jewellery Council
RRMI	Responsible Raw Materials Initiative
SM	Sustainability Management Office
WEF	World Economic Forum

Third Party Assurance

A copy of Samsung SDI's Progress Report on Responsible Cobalt Supply Chain 2016 is publicly available on Samsung SDI website at the link: <http://www.samsungsdi.com/sustainable-management/sustainability/supply-chain-responsibility.html>

Independent Auditors' Statement

To Samsung SDI's board of directors:

Engagement scope

BSI Group Korea Limited ("BSI" hereafter) performed an independent review of Samsung SDI's (the "Company" hereafter) Progress Report on Responsible Cobalt Supply Chain ("The Progress Report" hereafter). The Progress Report outlines the Company's due diligence framework ("S-Partner" hereafter) for Responsible Cobalt Supply Chain and the performance of the due diligence measures it performed for the reporting period from January 1 to December 31, 2016. The engagement conducted through document review on the drafted report and interviews with the staff of the Company who are responsible for the draft of the report at the Company's Giheung headquarters in Korea.

Responsibilities

- The responsibility for the design of the Company's S-Partner and the description of the Company's due diligence measures set forth in the Progress Report, and performance of the due diligence measures lies solely with the Company's top management.
- Our responsibility is to offer independent opinions on the design of the Company's due diligence framework and on the description of the due diligence measures the Company performed, based on our engagement activities. The engagement was conducted based on AA1000 Assurance Standard that includes examining, on a test basis, evidence about the design of the Company's S-Partner and the description of the due diligence measures the Company performed, and performing such other procedures as we considered necessary in the circumstances. We believe that the engagement methodology provides a reasonable basis for our opinion.

Engagement Activities performed

The audit team undertook the following activities:

- Reviewed the early draft of the Progress Report based on the reference guidelines and standards, and presented BSI's feedback.
- Interviewed top management and working-level staff who are responsible for drafting the Progress Report at Giheung headquarters.
- Evaluated the information provided by the Company to the audit team concerning the design of the Company's S-Partner and the description of the Company's due diligence measures set forth in the Progress Report, and performance of the due diligence measures.
- Reviewed the process of generating, collating and reporting data in respective areas as well as the evidence and data that support key statements assertions of the Progress Report.

The Engagement of the Progress Report review was performed based on the following guidelines and standards:

- AA1000 Assurance Standard(2008)
- Organisation of Economic Co-Operation and Development Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict Affected and High-Risk Areas, Third Edition 2016("OECD Due Diligence Guidance" hereafter)
- Conflict-Free Gold Standard Guidance for Assurance Providers(Oct. 2012)

The audit team has reviewed:

- Whether the design of the Company's S-Partner as set forth in section 1 Due Diligence Policy of the Progress Report for the reporting period from January 1 to December 31, 2016, and related activities are in conformity, in all material respects, with the criteria set forth in the Five-Step Framework for Risk-Based Due Diligence in the Mineral Supply Chain of the OECD Due Diligence Guidance and its Annex I, and
- Whether the Company's description of the due diligence measures it performed, as set forth in section 1 Due Diligence Policy of the Progress Report for the reporting period from January 1 to December 31, 2016, is consistent, in all material respects, with the due diligence process that the Company undertook.

Inherent limitations

Non-financial information, such as that included in the Progress Report, is subject to more inherent limitations than financial information, given the more qualitative characteristics of the subject matter and the methods used for determining such information. The absence of a significant body of established practice on which to draw allows for the selection of different but acceptable measurement techniques which can result in materially different measurements and can impact comparability. The nature and methods used to determine such information, as well as the measurement criteria may change over time.

Independence and competency statement

- This is BSI's first engagement for the review of the Company's Progress Report.
- No member of the audit team was involved in the Company's report drafting activities and the opinions were prepared through the interviews with the Company's employees in respective functions and the review of relevant documents and data provided by the Company.
- The interviewees were designated by the Company and agreed upon by the audit team.
- The audit team reviewed the early report drafts and offered feedback during the engagement and numerous modifications were made before the Progress Report was finalized.
- The audit team consisted of multidisciplinary experts with wide-ranging technical capabilities and in-depth experience to ensure the highest quality assurance services in accordance with BSI's Code of Business Ethics.

Conclusion

We do not express an opinion or any other form of assurance on any other matters included in any section of the Progress Report other than the design of the Company's due diligence framework and on the description of the due diligence measures the Company performed.

On the basis of the engagement activities undertaken concerning the scope, as described above,

- Nothing came to our attention to suggest that the design of the Company's S-Partner with respect to the reporting period from January 1 to December 31, 2016, as set forth in section 1 Due Diligence Policy of the Progress Report, and related activities are not in all material aspects prepared and presented in accordance with the criteria set forth in the Annex I (Five-step framework for risk-based due diligence in the mineral supply chain) of the OECD Due Diligence Guidance that the Company used, and
- Nothing came to our attention to suggest that the Company's description of the due diligence measures it performed as set forth in section 1 Due Diligence Policy of the Progress Report for the reporting period from January 1 to December 31, 2016, is not in all material aspects prepared and presented in consistent with the due diligence process that the Company undertook.

Without affecting or modifying our conclusions above, BSI provides the following recommendation for further improvement

- We recommend that the Company should establish a risk assessment process in order for risk assessment to be performed regularly in a consistent manner.
- As Samsung SDI is in early stage of due diligence and risk assessment of its cobalt supply chain, we recommend that more information of current efforts should be reported including, but not limited to, the result of stakeholder consultation, the risk assessment on the identified smelters/refiners and related due diligence plan.

Issue Date: 28/03/2017

For and on behalf of BSI:



Managing Director, Jongho Lee

BSI Group Korea Limited

