Raw materials value chain leverage for Drive Sustainability

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Introduction

Throughout 2021, the Levin Sources team worked on behalf of Drive Sustainability to develop the Raw Materials Outlook (RMO), which includes both a public portal and a partners' area. The RMO serves as a tool to centralise information about raw materials and provide Drive Sustainability and its members with insights on raw materials production and environmental, social and governance risks and impacts as a basis for further analysis and due diligence.

It is recommended that Drive Sustainability and individual automotive Original Equipment Manufacturers (OEMs) first and foremost begin proper assessments of their own materials supply chains using the RMO information as a starting point. Nevertheless, this document will share some recommendations in terms of potential leverages that either Drive Sustainability as a supply chain initiative or individual members could consider as potential follow up actions.

The concept of leverage used throughout this document builds on the UN Guiding Principles on Business and Human Rights (UNGPs or guiding principles). The UNGPs recognise that where "a business enterprise contributes or may contribute to an adverse human right impact, it should take the necessary steps to cease or prevent its contribution and **use its leverage to mitigate any remaining impact to its greatest extent possible."**

"Leverage is considered to exist where the enterprise has the ability to effect change in the wrongful practices of an entity that causes a harm". (Commentary to UNGP 19)

Whilst the UNGPs hold that enterprises involved in adverse impacts mainly through business relationships are not directly responsible for those harms, they nevertheless make clear that these entities can be indirectly responsible for harms where they fail to exercise leverage in that relationship to prevent or mitigate such impacts.

As such, and given the data uncovered in the RMO, the exercise of leverage is an important responsibility for the automotive industry and the individual companies that form it. In fact, the role of OEMs in working with supply chain partners and other relevant stakeholders to prevent harms is crucial, irrespective of how far down the supply chain they may be from the originating harm. This is because the automotive industry and the actors that comprise it can have an impact of the behaviour or raw materials producers in anticipation of demand from this market segment. Where such market players coordinate their leverage with others both within and beyond their sector, such action can become determinative.

As a result, this document draws on the information collected during the value chain mapping and risk identification process for the RMO to suggest potential avenues and leverage types. It is important to note that the value chain analysis has been completed at a broader level looking into the entire automotive industry and is not specific to individual Drive Sustainability members. As a result, the recommended leverages for individual companies remain generic. Each Drive Sustainability member is encouraged to further analyse their supply chain in light of the RMO information and identify specific leverages that relate to their unique contexts.

By using the Shift, "Using Leverage in Business Relationships to Reduce Human Rights Risks" 2013, and the UNGPs and their interpretative guide, this document aims to:

- Outline ideas for leverages based on the analysis done on each raw material value chain, and

- Identify, where relevant and applicable, stakeholders to further engage to exercise leverage and/or increase leverage

Importantly, the identification of any leverage that a given company or industry has on entities in a given value chain may be complex. Certain enterprises, regardless of their commercial position, may not have enough leverage to address adverse impacts and may need to be strategic about increasing such leverage. Consequently, this document is based on Levin Sources' understanding of the leverage of Drive Sustainability and its individual members' in the raw materials value chain, and the assumptions made should be assessed and confirmed by Drive Sustainability and its members themselves.

Using the Shift framework, leverages are classified into the following five categories:

Based on actions by individual companies	**Traditional commercial leverage** – easier to enforce with direct suppliers or parties engaged in a contract, through contractual agreements, audits, incentives.
	Broader internal leverage – leverage that can be exercised through company activities, for example capacity building, but which are not part of typical commercial relationships.
Through Drive Sustainability and engagement of other stakeholders	**Leverage together with business peers** – for example through Drive Sustainability actions as a sustainability supply chain initiative, with companies from other sectors sourcing the same material, etc.
	Leverage through bilateral engagement with one or more **stakeholders**
	Leverage through multi-stakeholder collaboration – leverage generated through collective action, collectively with business peers, government organisations and/ or CSOs.

This document does not suggest that traditional commercial leverage should be the first action to take. In many instances, it may not be effective enough or applicable to a situation lacking prior and proper industry engagement and advocacy on increased sustainability and responsible business standards or supply chain capacity building, among other actions.

Although some specific information from the RMO is referenced to put the leverages into context, this document should be read in combination with the information contained in the RMO, as this document does not replicate all the data. This specifically includes:

- Raw material value chain mapping
- Raw material major producers
- Raw material risk analysis
- Stakeholders and initiatives

In fact, the leverages outlined in this document not only refer to RMO data, but were developed based on research outcomes and understandings of the raw material value chains and the roles of supply chain actors and initiatives.

Considering the limited information on actual links between individual Drive Sustainability members and the risks and impacts included in the partners area of the RMO, the leverages in this document do not delve into risk remediation, but rather focus on how the automotive industry can start by influencing and supporting action of other stakeholders. In fact, while the RMO research aimed at analysing every stage

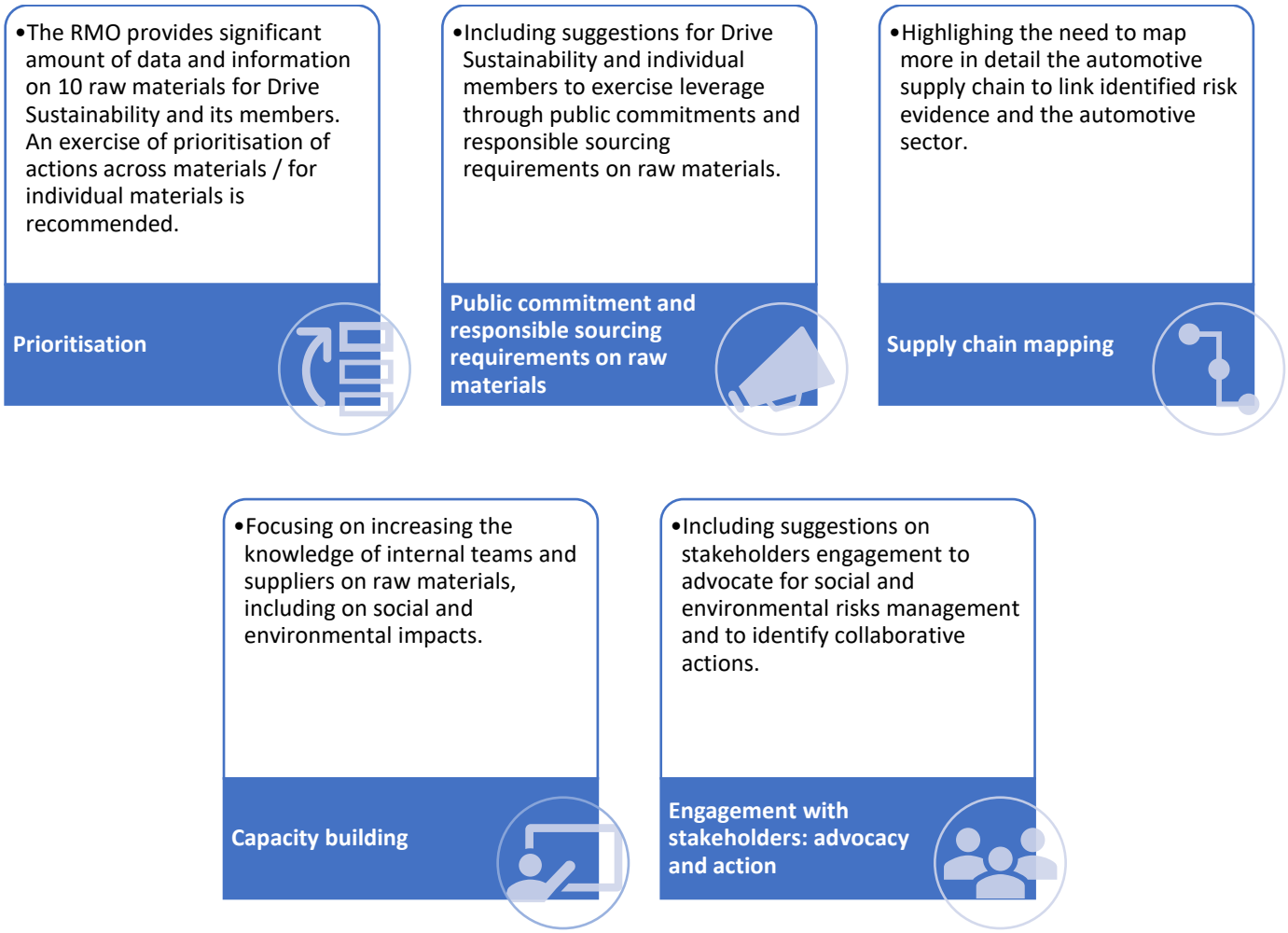
of each raw material value chain, the broad scope of analysis did not allow for the identification of direct remediation measures, even when specific evidence has been reported and described. Given the potential complexity of any given situation, the identification of remediation / mitigation measures would require further analysis on each materialised risk – a process that is outside of the scope of this phase.

This document is organised in the following two broad chapters:

1. Cross-material recommendations:
    - For the Drive Sustainability initiative
    - For individual companies
2. Material-specific recommendations: Bauxite (Aluminium), Chromium, Cobalt, Copper, Graphite, Iron ore (Steel), Leather, Lithium, Magnesium, Manganese, Molybdenum, Natural Rubber, Nickel, Niobium, Rare Earth Elements, Rhodium, Silica, Tantalum, Tin, Zinc

Summary recommendations

While this document expands on potential leverages at different levels (across raw materials and for specific ones) and based on the leverage categories described above, the main recommendations could also be summarised as follows.



1. Cross-material recommendations and leverages

This section outlines some of the actions that can be taken by Drive Sustainability members to increase their leverage by taking a systemic approach to issues arising in their raw materials supply chains. A number of environmental, social and governance (ESG) issues are identified through the RMO which arise across materials. This section outlines some of those issues and addresses individual and collective actions that might be taken to manage them using a more strategic, systemic, and optimally leveraged approach. These are presented as follows:

- Cross-cutting impacts and risks identified as applicable to raw materials more broadly
- Over whom to exercise leverage
- Supply chain mapping
- Cross-material leverages

Cross-cutting impacts and risks in raw materials supply chains

The research carried out for the development of the RMO made clear that the extraction, processing and transformation of raw materials into components for the automotive industry generates, in most instances, significant social and environmental impacts. Although negative impacts in some cases can be

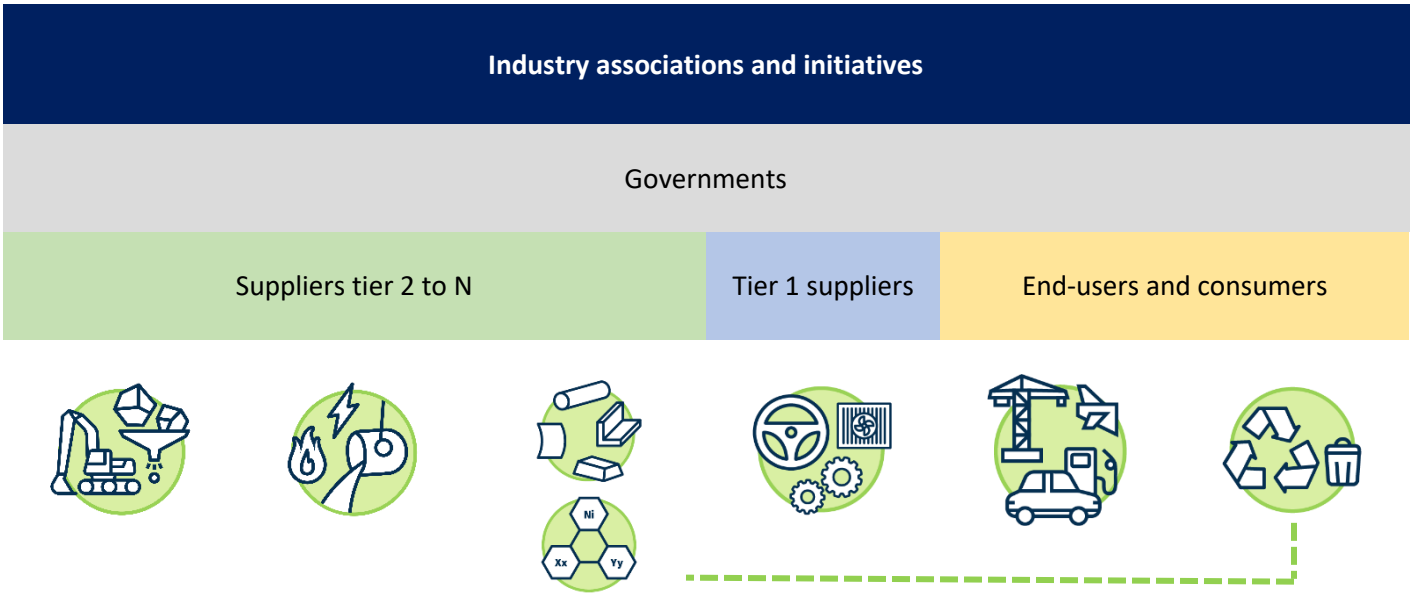
mitigated, reduced or even prevented or avoided, this should not exclude reflections on reducing demand for raw materials extraction and processing, including by looking into recycling materials and more circular models. Companies like Fairphone in the electronics industry are already making such pledges, while still recognising the need for mining in the short-medium term and the socio-economic contributions the industry makes.

In practice, a number of ESG risks and impacts apply across raw materials supply chains. Some of them are specific to certain national contexts, while others may focus on certain major producers of multiple minerals. Such issues include:

- Contribution to climate change due to GHG emissions and deforestation caused during mining, processing, manufacturing, transport, etc.
- Human rights abuses of various nature
- Interference with residential and Indigenous Peoples' rights
- Land use, biodiversity and deforestation
- Adverse environmental impacts of mining and/or processing on local community health and livelihoods
- Occupational health and safety
- Management of waste and hazardous substances
- Conflict minerals
- The stifling of dissent through violence and/or intimidation

Over whom to exercise leverage

The RMO presents specific value chain maps for each raw material. The image below is a generalisation of a raw material value chain in order to identify avenues to exercise leverage. Corporate social responsibility requires the exercise of leverage at multiple levels to prevent and/or mitigate and redress adverse ESG impacts associated with the business operations and supply chains. Responsible corporate actors are expected to exercise leverage over entities implicated in or otherwise influencing such negative human rights impacts.



Industry associations and initiatives

As an industry initiative itself, Drive Sustainability should consider industry initiatives representing producers of raw materials as one avenue to exercise leverage and identify avenues to address social and environmental impacts in the materials value chains. Industry associations and initiatives among the raw materials analysed have different profiles, priorities and focus on sustainability topics, so effectiveness of engagement will vary. However, they remain central stakeholders to raise expectations and advocate at industry level as they will be representing many companies in the raw materials value chains.

Governments

Mainly recognising the role of governments as regulators, especially when it comes to ensuring that business activities do not impact the environment and human rights. While this does not seek to suggest that the existence of a functioning regulatory environment would be enough to entirely prevent ESG abuses, it rather reinforces that the lack of such an environment increases the likelihood of certain risks materialising. In this respect, collective industry action can be key to advancing national or regional government policy.

Upstream suppliers

OEMs are positioned downstream of every raw material value chain, and in many instances, materials are used over a variety of components, which renders their tracking and mapping a demanding and ambitious task. In addition, OEMs may not have direct leverage over raw materials producers or processors. Therefore, when looking at avenues for leverage, OEMs should first consider tier 1 suppliers and then explore ways to exercise leverage over tier 2 suppliers and beyond. The suggestions included in this document take into account and address this aspect.

End-users and consumers

Vehicle buyers, including individual domestic and business consumers, retail outlets and government departments are generally even further than OEMs from the impacts of raw materials production. However, increased levels of awareness from consumers could support industry in exercising further leverage on governments and industry associations as an example.

Joint ventures and other 'horizontal' business partners

Individual OEMs that might have joint operating agreements or consortia with other business partners, should seek to exert leverage over their partners.

Supply chain mapping

The RMO combines data on global raw materials value chains, with a focus on the automotive industry. A mapping of materialised risks to the automotive industry and most specifically the members of Drive Sustainability, was out of scope at this stage.

Nevertheless, a supply chain mapping effort is recommended, in order to:

- Confirm links and attribute risks, and
- Identify specific entities over whom to exercise leverage

Drive Sustainability could in particular facilitate the collection of information on individual OEM supply chains, and identify commonalities and key actors over who to exercise leverage collaboratively without the need to disclose sensitive and competitive information on pricing and other things.

Recognising the ambition of this endeavour, a staged approach could be kicked off by looking at: 1) prioritised materials (e.g., those where the automotive industry represents a bigger use share), 2) identifying countries which are likely to be connected to individual OEMs value chains and 3) identifying major producers who are likely to be connected to individual OEMs value chains.

Cross-material leverages

This section includes suggested leverages which:

- Should be considered by Drive Sustainability for their overarching initiative strategy on raw materials
- Support leverages under each material

Although presented as individual leverage types, it is important to note that any effective intervention is likely to require the development of various interlinked and mutually supportive leverage types, rather than discrete interventions of one specific kind or another.

Traditional commercial leverage

Traditional commercial leverage that imposes certain requirements into commercial agreements is easier to enforce with direct suppliers or parties engaged in a contract. OEMs themselves are best placed to identify openings for the use of such traditional commercial leverage based on their supply chain understanding and linkages to raw materials production. For example, OEMs could demand that tier 1 suppliers cascade requirements to their suppliers.

Potential opportunities to exert such leverage include, but are not limited to:

- Contract negotiations
- Renewal of contract or service agreements
- Setting qualification criteria for services or products to be provided in the bidding processes
- Periodic reports on contractual agreements
- Monitoring and audit engagements
- Provision of technical or advisory assistance
- Processes and investigations for addressing complaints
- Incentives for suppliers (e.g., price, volume, long-term business)

This would translate into binding requirements on social and environmental performance.

Where commercial leverages are used, they can be especially effective if focused on creating frameworks for incentives and partnerships working in addressing ESG issues, as well as backed by financial penalties in the event of breach. Core operational issues within more immediate tiers, like the treatment of workers and environmental performance, are particularly well suited to these types of interventions, though more complex issues such as community conflict can also be covered where vertical integration is high and a well nuanced understanding of any given ESG situation is used to inform contractual negotiations.

This type of leverage may thus be used to address labour rights issues like those outlined by IndustriAll in burgeoning African manufacturing countries,[1] or by NGOs investigating conditions in the recycling sector.[2] For example, issues like anti-union activity, forced labour, environmental contamination, and worker and community health and safety can be addressed in contractual terms with suppliers. However, it is crucial to ensure that any such arrangements to be backed by collaborative engagement and robust monitoring and auditing, including effective and accessible worker-focused grievance mechanisms. Indeed, where issues like forced and informal labour have been highlighted, reliance on auditing alone is often highly fallible.[3] As such, entities like Anti-Slavery International encourage companies to try to establish good working relations with their suppliers and take a genuine approach to partnership. This could mean working with suppliers to identify vulnerable workers in their supply chains (migrants, minorities, illiterate, women, and sub-contracted, temporary and poor workers) and monitoring in accordance with vulnerability, including efforts to reduce such vulnerability (e.g., offering translation) and address red flags (excessive overtime, recruitment fees, cash payments, unused grievance mechanisms, prison labour).

Offers to cover or share the costs of audits and monitoring can sometimes help to incentivise suppliers and ensure action is taken where problems are identified. These types of arrangements may be developed through contractual arrangements, including contractually tied MOUs. In doing so, companies should consider engaging with local actors such as NGOs, unions or representatives to understand the local context. In cases where leverage is a challenge, consideration could likewise be made to linking up with other OEMs, retailers or other sectors in the same supply chain to address issues. It is important to note that companies with a dominant commercial position over a supplier might find it easier than others with limited commercial clout to influence a supplier's behaviour. Nevertheless, it is still expected that companies take appropriate steps to influence suppliers through traditional commercial leverage, and if not possible, strengthen all other leverages, particularly those involving collaborative action with other business peers, like other Drive Sustainability members, and through bilateral engagement and multi-stakeholder collaboration (see more details below).

OEMs may similarly consider adopting certain standards or targets on impact and remediation in contracts with upstream suppliers associated with higher ESG risks. For example, where assurances of environmental compliance have been made and repeatedly breached, financial penalties or forfeits could be contracted into supply agreements where verifiable instances of environmental breach have been identified, on the grounds that such instances harm the reputational integrity of the contracting party's supply chain. Where major producers exhibit repeated failures to effectively take up their environmental

[1] https://admin.industriall-union.org/sites/default/files/uploads/images/2021/Africa/pamphletlm1-v1.pdf
[2] https://www.ciel.org/wp-content/uploads/2015/10/HR_EWaste.pdf
[3] https://www.antislavery.org/take-action/companies/monitoring-forced-labour/

responsibilities, such measures may help to incentivise the advance of otherwise slow-moving reform within a company by raising the implications of failure for their bottom line. It can also help to create a fund for remediation and reparation. Where OEMs lack direct commercial ties to such suppliers, they may seek to have intermediaries impose such conditions into their contracts.

Drive Sustainability members are encouraged to include responsible contractual clauses as proposed by Responsible Contracting Project, especially concerning subcontracting practices to ensure that working conditions of subcontractors are aligned with international responsible business practices. Furthermore, OEMs are also encouraged to collaborate with their suppliers to implement those contractual clauses.

Broader internal leverages

Beyond contractual agreements, it is important to equip procurement team members to present social and environmental performance expectations. This could include endorsement by OEMs' leadership (CPOs, CSOs, CEOs, etc.) on addressing impacts in raw materials value chains.

In addition, industry standards should be used to align expectations towards individual suppliers with those of the industry. Refer to the partners area section of the RMO with industry initiatives and standards for further details.

Drive Sustainability members' should consider designating one responsible sourcing staff member to develop an expertise in responsible sourcing from ASM, which could be applicable to other minerals with high levels of ASM input (e.g. tantalum). Through this member it could start to drive ASM awareness and sensitivity down the supply chain through capacity enhancement exercises with suppliers and peers. This type of capacity enhancement can range from pursing traceability down ASM-sourced supply chains, awareness of the issues and challenges encountered in ASM production and ASM sourcing, and developing networks in support of responsible ASM sourcing. Such an expertise would significantly enhance Drive Sustainability's leverage and could in the longer term offer it a potential commercial advantage in being at the forefront of responsible sourcing from this crucial minerals' stakeholder.

Lastly, capacity building represents another key strategy for exercising leverage. Besides training by individual OEMs, this point should also be taken on board by Drive Sustainability, which should consider opportunities to jointly organise trainings as an initiative. This could be done in stages:

- Stage 1: Generic and introductory training on raw materials value chains and related ESG impacts. This could be based on the information available in the RMO and would help raising awareness among suppliers.
- Stage 2: Once individual OEMs or the Drive Sustainability initiative have a better overview of the supply chain mapping, tailored training sessions could be delivered to suppliers who are mostly exposed to specific raw materials.

Awareness raising and capacity enhancement training and workshops should also be developed and extended to Drive Sustainability member suppliers, especially suppliers with a history of adverse ESG impacts or operating in high-risk contexts.

In addition, it is important to recognise that embedding ESG risk management and human rights compliance into corporate management at an operational level requires a notable shift in management culture and perspective. This means that different departments will require the addition of certain skill

sets required to facilitate the consideration and appropriate handling of issues not traditionally falling within their hereto remit. Drive Sustainability members or the initiative as a whole should consider capacity building for key position holders within member companies in accordance with a strategic plan aimed at driving ESG compliance thorough all levels of operation in a manner that fosters cultural change. For example, offering procurement managers a good technical understanding of why a supplier may be failing in terms of environmental or social compliance empowers OEMs to make concrete requests for compliance, and to support suppliers to adhere to such requests. Likewise, offering sustainability teams the skills to engage rights holders sensitively and effectively is also crucial to ensuring the efficacy and legitimacy of any sustainability approach.

Finally, Drive Sustainability members should consider sharing key learnings and insights from the RMO with Drive + members.

Leverage together with business peers

Leverage avenues together with business peers is central to this document, as it represents Drive Sustainability's mission and approach to address sustainability challenges in automotive supply chains. In this respect, Levin Sources recognises the existing tools, including the guiding principles (embedding expectations of raw materials sourcing), the self-assessment questionnaires and trainings.

Prioritisation and commitments

Building on the Raw Materials set milestones, Drive Sustainability should discuss how to build on the outcomes of the RMO by defining specific objectives under each material and making a plan of engagement with relevant stakeholders. While the RMO provides a lot of insights, stakeholder engagement will be key to identifying actions and priorities. In fact, considering the broad scope of the RMO currently covering 10 raw materials, Drive Sustainability could also consider a prioritisation exercise to make commitments more manageable and realistic. In this prioritisation, Drive should also consider materials which are mined jointly as by-products or co-products.

Shared requirements

Drive Sustainability can also exercise leverage by sharing detailed and explicit shared requirements on raw materials (building on the guiding principles). The recent step taken in publishing the Common Standards Recognition Framework is an important one in this direction. It represents a first step towards aligning expectations in the industry and it hopefully will help to:

(1) Generally addressing expectations on raw materials production and sourcing, by recognising existing initiatives and standards (e.g., ICMM, IRMA, RMI, etc.).
(2) Aligning requirements on specific raw materials included in the scope of the RMO, including recognition of industry specific standards when applicable (e.g., Aluminium, Nickel, Steel).

In terms of recognising existing standards and responsible mining or sourcing schemes, these offer different advantages and disadvantages in terms of scope, membership and rigor. A comparative assessment of this is beyond the scope of this document, but OEMs and Drive Sustainability should aim to ascribe to those schemes with the highest standards and enforcement capacity.

In other cases, OEMs will need to assess how important cross cutting issues can be addressed systemically and efficiently in the absence of an existing guidance or initiative. In some instances, this will require OEMs to take action through their own processes and procedures, as well as seeking avenues to address these

challenges collaboratively. For example, McKinsey estimates that at least a third of vehicle carbon emissions will come from material production by 2030[4]. This means that, as a minimum, decarbonization of materials production is as crucial to reaching net zero as managing tailpipe emissions. Unfortunately, transparency around embedded supply chain emissions remains a key obstacle. OEMs can make a start on addressing this issue by contractually obliging and auditing transparency around embedded carbon emissions at all stages of their raw materials supply chains. This kind of exercise would facilitate a general audit of an OEM's climate change impacts more broadly and, if done in collaboration with other OEMs, may offer an important data pool to inform industry-wide approaches to addressing the implications of the automotive industry's minerals consumption for climate change and biodiversity and support action for achieving the crucial reduction of emissions. Drive Sustainability could also explore avenues to engage or collaborate with the Carbon Disclosure Project (CDP) supply chain programme, a global data collection platform to disclose information on carbon emissions.

Finally, while Artisanal and Small Mining (ASM) production has been identified as relevant for only a few of the materials in the current scope of the RMO, Drive Sustainability could consider developing a joint position on ASM sourcing. The RMO confirms that both ASM and large scale or industrial production can and do present significant negative impacts. While ASM producing contexts are often characterised by systemic issues or increased exposure to risks due to limited oversight, there is increasing consent in the industry that engaging strategies are more effective than exclusion ones to remediate and reduce risks.

Engagement of Drive +

Drive Sustainability could include the raw materials agenda as a topic for engagement with the members of the Drive + initiative. The Drive + members could be supported and encouraged to exercise leverage on raw materials value chains as a business initiative among peers (e.g., by considering some of the leverages recommended to Drive Sustainability).

China specific analysis

The research for the development of the RMO highlighted the role China plays for raw materials processing, component manufacturing and even mining in the case of some materials such as rare earth elements. This suggests that for the automotive industry to achieve greater transparency, identify which impacts are linked to their value chains and exercise leverage or support remediation, defining avenues to engage Chinese players is relevant. An exercise of supply chain mapping as suggested above might help with identifying major Chinese suppliers. Meanwhile engagement of Chinese industry initiatives should be considered (refer to next section).

Also, concerted industry action is advised when the value chain of a material is hugely dependant on a country with regulations and enforcement measures that could heighten risks to human rights for business, like it could be for China-dependent value chains. Given the heightened risk of forced labour in China that has been linked to auto supply chains (and that groups of Uyghurs have been moved around China factories), increased monitoring is strongly encouraged. Drive Sustainability should consider to strengthen engagement with Chinese associations and Chinese suppliers to increase expectations towards respecting environment and human rights.

[4] https://www.mckinsey.com/business-functions/sustainability/our-insights/sustainability-blog/this-surprising-change-can-help-the-auto-industry-tackle-emissions-goals

Capacity building

Refer to the recommendations under the broader internal leverage. Trainings could be supported by shared best practices among suppliers.

Leverage through bilateral engagement with one or more third parties and multi-stakeholder collaboration

Drive Sustainability should be present and engage within those multi-stakeholder responsible sourcing forums that offer the greatest impact in accessing stakeholders and exerting leverage. Numerous such initiatives exist on a global and mineral-specific basis and merit comparative review from a leverage perspective.[5] Such a comparative analysis was not in scope for this stage, however the mapping available in the RMO should set the basis for further analysis. Based on the research done so far, some of the organisations which are relevant across materials are included in this section.

China Chamber of Commerce of Metals, Minerals & Chemicals Importers & Exporters (CCCMC)

Consider engaging the China Chamber of Commerce of Metals, Minerals & Chemicals Importers & Exporters (CCCMC) to exercise leverage on metals and minerals producers in China. CCCMC issues standards for responsible business conduct, such as the Chinese Due Diligence Guidelines for Mineral Supply Chains, applicable to the entire value chain, or the Guidelines for Social Responsibility in Outbound Mining Investments, applicable to large scale mining. For example, in the context of climate change and biodiversity conservation, CCCMC is working on four aspects:

- Awareness raising – they provide professional training for enterprises on environmental management, soil, air and water pollution prevention, reduction of greenhouse gas emissions, mine closure and reclamation, etc.
- Creation of best practice case studies – they are providing special training and workshops on carbon neutral and life cycle assessment as well as case studies for enterprises that could be replicated and promoted
- Promoting industry action – by establishing partnership and promoting "MEIHAO Mining"[6] actions, through the creation of a climate action roadmap, a biodiversity action plan, and other manuals to help companies improve their environmental performance
- Encouraging companies to monitor and evaluate environmental performance in accordance with industry standards

Eurometaux

Consider engaging Eurometaux, the European non-ferrous metals association for non-ferrous metal producers and recyclers, representing the interests of the combined non-ferrous metals industry and European and national metals associations towards EU policy makers, with a focus on the climate transition, international trade, chemicals management and sustainability.

[5] Refer to the initiatives listed in the RMO and the full list of international initiatives operating to improve natural resource governance and sourcing by the European Commission https://rmis.jrc.ec.europa.eu/?page=international-initiatives-392e53

[6] MEIHAO Mining – "mei" means environmentally friendly and "hao" means harmonious society

Global Battery Alliance (GBA)

The GBA has the vision to promote circular, responsible and just battery value chains. As a result Drive Sustainability should monitor their activities and consider engagement, specifically on raw materials relevant for battery production.

IndustriALL

Considering that occupational health and safety and labour rights were observed as a salient risk across several raw materials value chains, Drive Sustainability could consider engaging IndustriALL, the global union that represents 50 million workers in 140 countries in the mining, energy and manufacturing sectors. IndustriALL is a key ally to promote best practices and advance workers' rights. Drive Sustainability could sign a global agreement on social responsibility and human rights.

The Responsible Minerals Initiative (RMI)

The Responsible Minerals Initiative remains a central association addressing responsible minerals sourcing. Besides playing a key role as standard setter (e.g., smelters standard, new ESG standard), it also represents more than 400 members confirming its relevance and potential in terms of exercising leverage. Drive Sustainability should explore avenues to share mutual updates on raw materials programs to avoid repetitions and explore collaboration where relevant.

Other sectors

Moreover, Drive Sustainability, could engage industries beyond the transportation sector that source the same materials. Key industries to engage include:

- **Electronics** – relevant for aluminium, nickel, iron (to a lesser extent), zinc, natural graphite, rare earth elements and tantalum. One way to engage business peers in this sector is through the Responsible Business Alliance, which includes many technology and electronics' companies.
- **Construction** – important for magnesium, aluminium, nickel, iron ore, zinc and manganese.
- **Engineering** – relevant for nickel, zinc, natural graphite and molybdenum.
- **Machinery and equipment** – relevant for aluminium, iron ore and manganese.
- **Metallurgy** – relevant for natural graphite, molybdenum, iron ore, aluminium and rare earths elements.
- **Packaging** – particularly important for magnesium and aluminium.
- **Metal goods** – such as users of iron, molybdenum, nickel metal, and users of magnesium metal for the thermal reduction of metals in order to produce titanium and for the desulphurisation of metals.

Researching industry initiatives for these sectors was considered out of scope at this stage. However, this should be considered when engaging other sectors.

2. Material specific recommendations and leverages

Bauxite (Aluminium)

Based on a 2019 OECD report, aluminium consumption by industry in 2016 was divided as follows:

- Building and construction: 26%
- Transportation: 26%
- Power sector: 14%
- Containers and packaging: 7%
- Consumer durables: 5%
- Machinery & equipment: 9%
- Other: 13%

Although this information does not specify how much of the 26% of aluminium used in transportation can be allocated specifically to the automotive industry, other information collected suggests that the quantity of aluminium used by the industry is expected to grow. Importantly, aluminium is considered as an important material for reducing the weight of vehicles and increase fuel efficiency while reducing emissions. As a result, it can be expected the automotive industry to have some leverage on aluminium producers and overall value chain.

Most salient risks identified specifically for the aluminium value chain include:

- Residential & indigenous rights and livelihoods
- Community and stakeholder engagement
- Community and occupational health and safety
- Land use and biodiversity
- Dust and GHG emissions at the mining stage
- Energy consumption, GHG and other emissions at the refining and smelting stage
- Waste management leading to water and soil contamination
- Workers and human rights, including at recycling stage

The aluminium (produced from bauxite ore) value chain is characterised by significant vertical integration, in particular from the bauxite mining stage until the casting and intermediary products. This presents an important opportunity for engagement and leverage. Some of the companies which were identified as vertical integrated for aluminium production include: Alcoa, Chalco, Nalco, Norsk Hydro (even producing semi-fabricated products), Rio Tinto, Rusal.

In terms of geographies, while Guinea has raised crucial concerns in terms of responsible mining practices, the research findings included in the RMO, emphasise that it will be important to further assess risks and engage stakeholders beyond risks in Guinea (including but not limited to Brazil, India, etc.).

Traditional commercial leverages

Building on the cross-cutting recommendations, individual OEMs should consider requiring suppliers of aluminium products, to disclose information about their aluminium sources. This would not only aid mapping of the supply chain, but also allow each OEM to perform due diligence and assess which impacts

are directly connected to its supply chain and to identify which specific leverage could be exercised more directly.

Leverage together with business peers

Looking at the aluminium value chain globally, Drive Sustainability could seek engagement with the major producers of bauxite and aluminium worldwide and advocate in favour of assessing and remediating impacts, specifically the most salient ones. These efforts should look at risks not only at the mining stage, but also the alumina refining and aluminium smelting impacts.

Guinea

When it comes to the risks linked to the Compagnie des Bauxites de Guinée (CBG), while the companies owning the operations were already members of the Aluminium Stewardship Initiative (ASI) (Alcoa, Dadco and Rio Tinto), recently, in June 2021, also CBG has joined the initiative. Based on the ASI rules, it is expected that CBG should get certified against the ASI standard within two years. Importantly, both a business level and facility level certification would be accepted. Drive Sustainability as an initiative could advocate for the mining operations in the area of Sangarédi in the north-western part of the Republic of Guinea to be certified.

In addition, evidence researched for the RMO identified that in 2019 a complaint was raised against the International Finance Corporation (IFC), in relation to wrongdoing by CBG, being the IFC funding the operations, Drive should seek to monitor further development of this specific event.

Leverage through bilateral engagement with one or more third parties and through multi-stakeholder collaboration

The Aluminium Stewardship Initiative (ASI) represents a key initiative for Drive Sustainability to engage. Besides playing an important role as standard setter and certification mechanism, they also bring together many key stakeholders of the aluminium value chain to work towards responsible and sustainable production. As a multi-stakeholder initiative, comprising members from civil society, engaging can also open avenues for collaborative action.

Beyond the ASI, the aluminium industry presents several industry associations, with whom Drive Sustainability could seek engagement at regional or national level, and to deepen the understanding of how the impacts of the aluminium industry are being managed in the major producing countries (e.g., Australia, Brazil, Canada, China, etc.). These industry associations also represent key stakeholders to exercise leverage on their member companies (refer to the information in the RMO partners area for the full list). Globally instead, the International Aluminium Institute (IAI) also represents a key stakeholder.

Drive Sustainability should also consider engaging the Aluminium Association (North America focus) to advocate for greater emphasis on social responsibility including community engagement and human rights, considering that their existing reporting on sustainability in the aluminium industry focuses on environmental performance.

Guinea

It is Levin Sources' understanding that Drive Sustainability has already engaged and taken actions in relation to the incidents in Guinea and linked to the operations of CBG. Considering the percentage global

production of bauxite in Guinea and the fact that the country has the largest reserves worldwide, engagement over risks mitigation should continue from Drive Sustainability. By engaging organisations international civil society organisations like Inclusive Development or Human Rights Watch or more local ones like the Association pour le Développement Rural et L'entraide Mutuelle en Guinée (ADREMGUI) and Centre du Commerce International pour le Development (CECIDE), Drive Sustainability could gain further insights on affected stakeholders and support mitigation measures.

Chromium

In automobiles, chromium can be used for light coverings, wheel rim coverings, wheel valve caps, the diaphragm spring of the clutch, as a component of stainless steel which is used for parts of the frame, suspension and engine of a car and as a component of alloys, it is used for parts of the brakes, engine, cylinder and clutch.

Most salient risks in the chromium value chain include:

- Serious human right abuses in the mining, beneficiation, smelting and manufacturing stages
- Terms of employment in the mining, beneficiation, smelting and manufacturing stages
- Occupational health and safety in the mining, beneficiation, smelting, manufacturing, use and application and recycling stages
- Community rights in the mining, beneficiation, manufacturing and use and application stages
- Local value added in the mining, beneficiation and manufacturing stages
- Land use and biodiversity in the mining, beneficiation and manufacturing stages
- Water use in the mining, beneficiation and manufacturing stages
- Closure and land rehabilitation in the mining and beneficiation stage
- Waste and wastewater in the mining, beneficiation, manufacturing and use and application stages
- Air emissions and noise in the smelting, manufacturing and transportation stages
- Business and management practices in the mining, beneficiation and manufacturing stages

Traditional commercial leverage

The inclusion of contractual provisions requiring the disclosure of countries of origin of chromium suppliers (including percentages of supply), with further requirements to show that human rights due diligence measures have been taken in contexts appearing as high risk. It is important to ensure that before any such measures are taken however that a full human rights risk assessment is conducted on the implications of any contractual interventions and consequent approach to the application of due diligence and mitigation in order to ensure that they do not bring about unintended consequences. Where they are foreseen, such consequences can thus be mitigated. Such preliminary assessments are particularly important where, for example, the severance of ties to ASM sources by suppliers may cause significant hardships that outweigh any benefits brought about, and the ultimate intention would in fact have been better served by continuing to engage but providing necessary support.

Leverage through bilateral engagement with one or more third parties

Drive Sustainability may be in a good position to engage civil society actors in countries with notable representation in its supply chain to (a) create a point of engagement on chromium mining/processing impacts and how best to address them; and/or (b) shed further light on blind spots regarding chromium

mining, processing and product manufacture in these contexts (e.g., Russia and Kazakhstan). Such engagement may or may not include steps in line with Human Rights Watch's recommendations[7] to ensure the monitoring of threats, intimidation and violence against activists seeking to raise awareness of human rights and environmental impacts, to ensure that such information can come to light.

Leverages through multi-stakeholder collaboration

Engaging chrome sector industry associations to address the lack of responsible sourcing standards in the chromium sector and raising awareness of the need for the sector to come up to speed are steps that may also be within Drive Sustainability's capacity. Such an effort might start with the identification of chromite suppliers in Drive Sustainability members' supply chain and engagement with them to encourage their adoption of the Voluntary Principles on Security and Human Rights. Drive Sustainability could engage with prominent industry associations and ask them what concrete steps are being taken to prevent and mitigate existing human rights risks and impacts, as well as to standardise approaches to ESG impact mitigation.

Cobalt

A significant proportion of global cobalt production is used in lithium-ion batteries' manufacturing for electric vehicles (34% in 2021). This puts the automotive sector in a stronger position to exercise leverage on cobalt producers along the value chain.

Other uses of cobalt include portables, super alloys, hard metals, catalysts, ceramics and other.[8] Although artisanal and small-scale mining (ASM) only contributes between 15-30% to the DRC cobalt production (2019 estimations) the country as the whole produces 70% of global cobalt, thus the risks associated with the DRC cobalt sector, including ASM, are highly relevant for the cobalt value chain analysis. Risks linked to LSM and ASM operations at the mining stage require equal attention and should be dealt with accordingly.

Some of the most salient ESG issues in cobalt supply chain include:

- Serious human rights abuses in the mining, manufacturing and recycling stages
- Occupational health and terms of employment at mining, recovery and refining, manufacturing and recycling stages as well as in some aspects of transportation and trade of the mineral
- Community rights, including indigenous rights, at the mining, recovery and refining, and recycling stages
- Water contamination at mining, recovery and refining,
- Air emissions and noise at mining, recovery and refining, manufacturing, and transportation and trade stages
- Business practices at mining and transportation and trade stages

[7] https://www.hrw.org/report/2019/04/16/we-know-our-lives-are-danger/environment-fear-south-africas-mining-affected

[8]https://www.cobaltinstitute.org/about-cobalt/cobalt-life-cycle/cobalt-use/#:~:text=Cobalt%20is%20used%20in%20a%20wide%20variety%20of%20applications&text=and%20other%20appliacations%20including%20energy,tyres%2C%20soaps%20and%20paint%20driers.

- At recovery and refining of cobalt stage issues of land use and biodiversity as well as local value added issues

Leverage through bilateral engagement with one or more third parties and multistakeholder collaboration

It is understood that engagement with stakeholders on cobalt production, in particular DRC value chains, has already taken place, either through the Drive Sustainability initiative, or by individual OEMs. Such efforts should be continued, and some examples are provided.

Bilateral engagement with **IndustriALL in Indonesia** offers opportunities for awareness raising and risk identification and mitigation initiatives in the country that specifically focus on cobalt supply chain. Considering the existing engagements with IndustriALL and other stakeholders in Indonesia through the work on nickel, Drive Sustainability should take the chance to learn more about cobalt specific impacts which are currently less reported on.

Drive Sustainability is also encouraged to continue engaging with the **Cobalt Institute**, which covers a range of programmes, including responsible sourcing and sustainability, to enhance knowledge on cobalt supply chain, salient risks, market intel and take part in joint risk mitigation initiatives. For example, the Cobalt Institute has a work program on the DRC focusing on engagement, knowledge building, ASM focus initiatives, intelligence gathering and addressing issues of child labour and poverty through partners such as **Fair Cobalt Alliance**, **Cobalt Action Partnership** and **Global Battery Alliance**. At the same time, the Cobalt Institute by representing the cobalt industry beyond mineral producers, remains a key interlocutor to discuss and potentially address challenges related to availability of information at the processing stage. In addition, considering that Indonesia became the second biggest cobalt producer the Cobalt Institute is partnering with the **Nickel Institute** for join initiatives in the country.

Drive Sustainability could also consider engaging with initiatives related to minerals used in lithium-on batteries and battery initiatives such as **MOBI Battery Initiative, European Battery Alliance** and **the CCCMC.**

Finally, Drive Sustainability should also follow development from international organisations such as USAID and the European Union, given the strategic attention on critical minerals and related initiatives and funding. In particular, following the signature of MoUs between the EU and both the DRC and Zambia, a roadmap is expected to be developed including joint actions to be implemented by 2023.

Copper

Copper is widely used in conventional vehicles. For example, the high thermal conductivity, strength and corrosion resistance of copper make it suitable for use in automotive and truck radiators. In electric vehicles, the metal is present in batteries, windings and copper rotors used, and also in electric motors, wiring and busbars, and there is up to four times as much copper in electric vehicles (83 kg) than in conventional cars (23kg). Larger electric vehicles contain more copper, with the ICA estimating 89 kg of copper in hybrid electric buses and 224-69 kg in battery-powered electric buses. Charging infrastructure also requires copper, with standard chargers containing approximately 0.7 kg each, and fast chargers containing up to 8 kg.

Some of the most salient ESG issues in the copper supply chain include:

- Serious human right abuses in the mining and processing stages
- Air emissions and noise at mining, beneficiation and smelting stages
- Occupational health and safety at mining and production stages
- Land use and biodiversity loss, including deforestation due to mining
- Community rights including indigenous rights, stakeholder engagement, FPIC, resettlement and displacement and social licence to operate at mining and beneficiation stages
- Waste and wastewater management and contamination of soil and water

Leverage together with business peers

Drive Sustainability could consider issuing a public commitment emphasising expectations from the automotive industry for companies producing copper in terms of:

- Respecting human rights in its operations and supply chains
- Water and soil pollution and mismanagement of tailings.
- The reduction of greenhouse gas emissions in the mining and processing stages
- The commitment to implement international health and safety norms in the processing, transport and manufacturing of copper
- Residential and indigenous rights and Free, Prior and Informed Consent (FPIC), taking the example of cases in DRC, Ecuador, Philippines, Canada, Chile, Peru, Colombia, Zambia, Myanmar

Considering the significant use of copper in the automotive value chain, Drive Sustainability, representing many companies in the industry, can promote and advocate for risks to be managed and mitigated at mining and processing stages. Other sectors could be engaged to strengthen leverage where relevant.

Leverage through bilateral engagement with one or more third parties or through multi-stakeholder collaboration

Drive sustainability should follow up the work of the International Copper Association and the Copper Mark and consider engagement with these initiatives where appropriate to exercise leverage on identified ESG risks in copper supply chains.

Silica

Silica sand has several direct and indirect applications in the automotive sector. These include direct application through glass manufacture, use in the production of rubber for the manufacture of tyres, use as filler in paints and coatings, and potential indirect application through foundry casting and the construction of facilities. Each use requires a specific grade of silica sand purity and composition. Whilst silica sand may be found in many different forms in a typical car, the dominant form is as the major component of glass and glass-based materials (e.g., fiberglass). As such, glass manufacture represents the most significant supply chain segment through which the automotive sector is exposed to the silica sand value chain.

Most salient risks in the silica value chain include:

- Serious human right abuses in the mining and beneficiation stages
- Terms of employment in the manufacturing and use stage

- Occupational health and safety in the mining, beneficiation and manufacturing and use stages
- Community rights in the mining and beneficiation stages
- Land use and biodiversity in the mining and beneficiation stages
- Water use in the mining and beneficiation stages
- Waste and wastewater in the mining and beneficiation stages
- Air emissions and noise in the mining and beneficiation stages
- Business and management practices in the mining and beneficiation stages

Traditional commercial leverage

On the basis of the foregoing risk assessment and the potential for exposure to substantial human rights risks through suppliers operating and sourcing silica in China and Mexico, Drive Sustainability members should prioritise engagement with its Chinese and Mexican glass suppliers to determine (a) the source of silica used by these contractors, and (b) the working conditions under which the glass component manufacturing is produced. Depending on the outcome of these investigations, Drive Sustainability members may then take further appropriate steps to sensitise its suppliers to any relevant supply chain risks and seek means of ensuing human rights compliance.

Drive Sustainability members could insert certain standard contractual clauses into agreements with silica-reliant suppliers, like glass manufacturers, requiring them to ensure that their silica sand is sourced from non-active 'fossil' systems and never from "active" sediment systems, such as riverbanks, beaches or the seabed, which have significant environmental impacts. Such clauses should certainly be included in any procurement contract for construction services in respect of Drive Sustainability members facilities or facilities of its joint ventures and partners. Such action would be in line with global calls from experts regarding the burgeoning international sand crisis. Any such clause should however be backed with appropriate enforcement arrangements such as independent third-party verification audits and constitute a material breach of contract if violated. Additional quotas for glass manufacturers to use a certain percentage of recycled material would also be beneficial. Any such actions should however be preceded by further consultation with relevant experts and a good understanding of the supply chain context in which they are to be applied to ensure that unintended adverse human rights impacts are not triggered. For example, care should be taken to be sensitive to and mitigate any livelihoods issues potential raised in contexts characterized by considerable ASM dependence. [i]

Broader internal leverage

Drive Sustainability may be in a position to offer awareness raising of the risks associated with irresponsible silica sand extraction through capacity enhancement workshops with Drive Sustainability members and their suppliers for key silica-based components such as flat glass in various countries, particularly those outside the EU. Such capacity enhancement might help to raise these suppliers' awareness about, or help them investigate further, environmental and human rights issues in their supply chains, whilst introducing them to relevant responsible sourcing initiatives, such as the OECD Guidance on Responsible Sourcing of Minerals from Conflict-affected and High Risk Areas, as well as the Voluntary principles on Security and Human Rights.

Leverage through bilateral engagement with one or more third parties

Drive Sustainability could mobilise resources for the conduct of further independent primary research into the extent to which silica sand is implicated in devastating environmental and human rights impacts, including illegal mining and smuggling, associated with sand more widely on continents like Africa and Asia. It is highly recommended that any such research be conducted in communication with the Global Sand Observatory in order to help it develop and data bank on the issue of sand and ensure the efficient and correct targeting of global efforts to advocate for better practices in the extraction of sand.

Leverages through multi-stakeholder collaboration

Drive Sustainability would be taking a pioneering step in the automotive and business and human rights realm if it were to offer active engagement with the UNEP's Sand Observatory in its effort to secure greater oversight and monitoring of sand. There are a variety of engagements that Drive Sustainability may be able to offer in this regard, whether simply in the form facilitating greater awareness of issues affecting the silica supply chain from a downstream non-construction perspective or providing the resources and/or incentives required to further investigate the true extent to which silica sand is really implicated in serious adverse human rights and environmental impacts in Africa and Asia. Such work could aim to identify leverage points in countries most seriously affected by environmental and social devastation and violence with a view to standard setting for responsible sourcing and understanding industry's role vis-à-vis addressing such impacts, beyond the construction sector.

Graphite

Last updated March 2026

Flake graphite is used in many applications including powder metallurgy, fuel cell bi-polar plates, coatings, thermal materials, friction moderators, electrically conductive materials, refractories, general lubricant applications, pencils, gaskets, rubber compounds, and other advanced polymer systems. In the automotive sector, graphite is used in battery anodes, advanced brake and clutch applications, and lubricants, amongst many other things, and the electric mobility sector represents an important demand driver[9].

Some of the most salient ESG issues in the graphite supply chain include:

- Environmental contamination affecting the health and livelihoods of communities surrounding processing facilities.
- The high energy consumption of graphite purification, often using fossil fuels.
- Sourcing from conflict-affected and high-risk areas.
- Serious issues relating to workers' rights, such as forced labour, discrimination, terms of employment and high occupational health and safety risks.

One of the most significant findings of this analysis on the graphite supply chain is the lack of information and clarity concerning both supply chain traceability and the ESG implications of graphite in any given

[9] Based on European Carbon and Graphite Association data

context. There appears to be a lack of clarity for some market analysts about which companies produce natural graphite, synthetic graphite or both, as well as who the natural graphite suppliers of specific anode producers are. Given the close relationship between natural and synthetic graphite in battery/component manufacture, it would be appropriate to include synthetic graphite within the scope of future ESG assessments. This is also likely to offer Drive Sustainability better insight and positioning on leverage for both forms of graphite. Synthetic graphite has raised notable ESG concerns surrounding the negative environmental impacts of its production for both GHG emissions (including its use of fossil fuels as a base material) and community health, leading to a clamp down on the sector in countries like India and China.

Traditional commercial leverages

Traditional commercial leverage that imposes certain requirements into commercial agreements is easier to enforce with direct suppliers or parties engaged in a contract. For graphite, this is may, depending on the supply chain, extend to anode producers though its effectiveness diminishes beyond this point, to supply chain actors further upstream due to fragmented supply chains and indirect sourcing structures.

A number of pre-contractual enquiries and contractual clauses could aid Drive Sustainability members to address supply chain ESG issues. These include requiring suppliers of graphite-containing components to disclose: (1) the percentage of natural and synthetic graphite used in a component; (2) the countries of origin (not simply provenance) of natural graphite and production of synthetic graphite; (3) disclosure of the CO2 emissions associated with the production of one kilo of anode graphite during processing; (4) requiring compliance with a given set of environmental or worker standards; (5) requiring suppliers to screen and mitigate community-related risks; and (6) requiring component manufacturers to conduct supply chain due diligence on their sources of graphite and reporting on the same.

Broader internal leverages

Awareness raising and capacity enhancement training and workshops should also be developed and extended to Drive Sustainability member suppliers, especially suppliers sourcing from companies operating in high-risk contexts. In providing such capacity enhancement, Drive Sustainability should consider focusing workshops on certain key contexts (e.g., extraction operations in Mozambique and graphite production in Heilongjiang and Shandong provinces) in need of remediation to enable consideration and learning from live and complex ESG contexts.

Leverage together with business peers

Drive Sustainability should exercise collective leverage in the form of capacity building for key position holders within member companies in accordance with a strategic plan aimed at driving ESG compliance thorough all levels of operation in a manner that fosters cultural change. In doing so, it should **highlight limitations in understanding the graphite supply chain and blind spots regarding ESG compliance.** In particular, procurement managers should be given a detailed understanding of the role of (natural and synthetic) graphite in the company's supply chain, how it is produced, from where it is sourced, and the factors that lead to adverse ESG impacts from a technical perspective. This training should help procurement managers ask the right questions of suppliers, or aid suppliers to ask the right questions of their suppliers. It could be facilitated by technical expertise from either major graphite producers co-opted into this initiative or industry associations like the European Carbon and Graphite Association. The Global

Battery Alliance and RMI working group on graphite may also have a role to play in enhancing understandings of the supply chain and leverages for EV batteries.

Drive Sustainability might consider soliciting support from business peers, especially in the electronics sector, who have previously been implicated in reports of adverse ESG impacts, such as graphite pollution.[10] Such peers may be able to offer guidance on how such issues are raised with authorities and suppliers down the supply chain, and/or support in exercising collective leverage to prevent such issues.

In particular, peers also forming part of the Global Battery Alliance, of which a number of Drive Sustainability members are a part, could be sensitized to the ESG issues in the graphite supply chain and potentially co-opted to exert leverage where necessary.

Leverage through bilateral engagement with one or more third parties

Graphite industry associations appear to have a largely regional membership composition and represent both natural and synthetic graphite producers, though with few natural graphite compared to synthetic. They may nevertheless present an opportunity to reach notable players in graphite production generally, both for awareness raising and possibly collective leverage.

Drive Sustainability could **engage with the CCCMC to:**

(1) institute discussions with Chinese graphite-producing companies about how it can support them to phase out fossil fuel use or reduce energy consumption during minerals processing (e.g. offers of support with R&D, including, for example, collaborations aimed at aligning vehicle design with most carbon neutral minerals production. This is especially important with respect to graphite, the purification process for which for the purposes of battery use is extremely energy intensive); and

(2) **discuss how it can support compliance and enforcement** with **CCCMC** standards among producers and graphite producing companies.

In addition, Drive Sustainability could reach out to **major natural graphite producers and invite them to adopt or join multilateral initiatives, such as the Initiative for Responsible Mining Assurance (IRMA), the Global Battery Alliance (GBA), the Responsible Minerals Initiative (RMI), the European Carbon and Graphite Association initiative and/or the Consolidated Mining Standard Initiative (CMSI)**. Natural graphite miners such as Syrah Resources and Inner Mongolia Rising New Energy Company could prove most beneficial to engage with, due to their market share. Moreover, Drive Sustainability should likewise **try to identify common battery, module and/or cell producers and invite them to join these initiatives, including particularly in the Global Battery Alliance**.

Leverage through multi-stakeholder collaboration

Drive Sustainability may explore through its members how RMI Graphite Working Group seeks to address risks and impacts in graphite supply chains and identify opportunities for collaboration. Likewise, Drive Sustainability could engage with battery focused initiatives, such as the Global Battery Alliance with an aim of learning about their initiatives relating to graphite, including through the Circularity & Critical

[10] See for example, https://www.washingtonpost.com/graphics/business/batteries/graphite-mining-pollution-in-china/?tid=a_inl.

Minerals Advisory Group (CCMAG) for instance. Drive Sustainability should also invite battery, module, cell and anode producers to join such forums with a view to signing up to specific initiatives that will help or require them to address ESG impacts in their supply chains. Additionally, Drive Sustainability may review the European Commission's official guidance regarding due diligence requirements under the EU Batteries regulation, which is due in July 2026, as it will cover requirements regarding responsible sourcing of natural graphite and may include some further relevant recommendations.

Drive Sustainability should be raising awareness regarding the potential ESG issues, particularly concerning GHG emissions, around graphite (natural and synthetic) to mobilise multi-stakeholder engagement on this supply chain in a bid to offer solutions. In doing so, Drive Sustainability should highlight the limits of the current state of knowledge around the graphite supply chain and its associated ESG risks, and appeal for collaboration in reducing blind spots.

Iron Ore (Steel)

Iron ore is the raw material used to produce pig iron, one of the materials used to make steel, and approximately 98% of iron ore mined is consumed in the production of iron and steel. The RMO has particularly focused on iron ore as the raw material of steel production. Although the industry using most steel, according to the World Steel Association (2019) is the building and infrastructure one, this material remains central to the automotive sector considering that on average a vehicle contains 64% combined iron and steel, and this results in the automotive industry using 12% of steel produced. Specifically, when it comes to application among major sectors:

- Building and infrastructure: 52%
- Mechanical equipment 16%
- **Automotive: 12%**
- Metal products: 10%
- Other transport: 5%
- Electrical equipment: 3%
- Domestic appliances: 2%

The most salient risks identified in the Iron ore and Steel value chain include:

- Deforestation (iron ore being among the top three materials mined in forests together with gold and copper)
- Waste and tailings management (considering major incidents in Brazil over the past decade)
- Occupational health and safety both at mining and steel producing stages
- Residential and Indigenous rights and livelihoods
- Community health and safety
- Dust and other emissions at and around mine sites
- GHG emissions from steel production
- Other emissions and pollution from steel production

Broader internal leverages

In addition to the cross-material standards, individual OEMs should consider to promote requirements in line with Responsible Steel standard for suppliers of steel components.

In addition, Drive Sustainability could also promote the World Steel Association Operational Health and Safety requirements.

Leverage together with business peers

The Iron Ore (Steel) market intelligence data shows that top 10 producers of iron ore represent about 50% of total production, with top 3 companies being Vale, Rio Tinto and BHP Billiton producing about 30% alone. This creates an avenue to engage and exercise leverage more directly with raw materials producers.

Similarly, top producers of steel are also disclosed, and Drive Sustainability could seek engagement as an initiative and advocate for sustainability requirements as well as risk remediation for most salient impacts.

For example, Drive sustainability should consider having joint statements and advocacy on the major sustainability challenges which are known and linked to the steel value chain. Specifically:

- Supporting the reduction of GHG emissions, considering the industry is responsible for between 7% and 9% of global emissions. Drive Sustainability and/or individual members could consider engaging or joining the SteelZero initiative, and as a result making a commitment to procure 100% net zero steel by 2050. As one of the major industries using steel, such action would definitely exercise some leverage in terms of much needed innovations and investments to reduce emissions linked to the production of steel.
- Recognising the impact of steel mining (together with gold and copper) in terms of deforestation, specifically in Brazil, India and Russia.
- Community and human rights, including indigenous rights, livelihoods, health and safety.

Drive Sustainability should consider recognising the Responsible Steel standard and advocate for its application in the industry. Importantly, while the Responsible Steel standard itself focuses mainly on steel producers, the initiative is willing to recognise standards which apply to the mining stage of the raw materials needed for steel production. IRMA, Bettercoal and The Mining Association of Canada's Towards Sustainable Mining (TSM) standard.

Leverage through bilateral engagement with one or more third parties and multi-stakeholder collaboration

Besides engagement with the SteelZero initiative as suggested above, Drive Sustainability should consider to engage the main industries initiatives which are following and addressing the sustainability challenges of the steel sector. Specifically Responsible Steel, WorldSteel Association and the International Iron Metallics Association (IIMA).

Leather

Leather is used for automotive interiors due to its strength, flexibility durability, and aesthetic features. It can also be argued that being a by-product of the meat industry, the automotive sector sought to utilise a raw material that might otherwise go to waste (landfill or burning, etc). It should also be taken into account that the world's automotive companies developed in areas near to large cattle farming areas (Detroit Michigan in the USA near the great plains, Germany, Italy near the Austrian and German cattle growing areas, etc). Bloomberg reported circa 2017 that 30 per cent of all leather produced on earth went towards car interiors, but more recent (2020) data describes use for auto at a lower percentage. The

reduction in the amount of global leather supply used in car interiors may be due to increased use of leather in other sectors.

Unlike leather luggages or jackets, the sort of leather used in car interiors has to be durable enough to resist years' worth of stains, fading and people sliding across it thousands of times. Bovine leather is stable and firm and therefore versatile.

The global automotive interior leather market is estimated by Future Market Insights (FMI), to be valued at ~US$29.9 Bn in 2021. Car seats play an integral role in reducing the overall weight of a vehicle and improving its fuel efficiency. Leather has been consistently used in vehicles due to rising demand for light weight, high quality, and durable leather interior, especially for seats, which improves not only the foundation of the car but also ensures comfort to the driver and passengers.

Most salient risks in the leather value chain include:

- Serious human rights abuses at cattle farming, meatpacking, leather tanning and automotive manufacturing stages
- Terms of employment and work contracts at cattle farming, meatpacking, leather tanning and automotive manufacturing stages
- Occupation health and safety at cattle farming, meatpacking and leather tanning stages
- Community and residential rights at cattle farming and leather tanning stages
- Land use and biodiversity and impacts at cattle farming stage
- Efficient use of water during cattle farming and leather tanning stages
- Waste management at cattle farming and leather tanning stages
- Air emissions and noise at cattle farming, automotive manufacturing and leather tanning stages
- Management and business practices at cattle farming, meatpacking and leather tanning stages

Traditional commercial leverage

The Rainforest Foundation Norway recommend that Auto companies: "Adopt a zero-deforestation supply chain policy by the end of 2021 at the latest, covering all deforestation risk commodities, with a clear commitment to eliminate all deforestation (legal and illegal), conversion of native vegetation and human rights violations from their supply chains. Companies must require that their suppliers are fully deforestation-free in all their operations, including their sub-suppliers. Policies should be aligned with the Accountability Framework Initiative. For cattle related products, the policy must have a cut-off date for deforestation of no later than 2020, include requirements that cattle are not sourced from farms involved in slave labour, invasion of indigenous territories, protected areas or public lands, or that have any governmental embargoes, covering indirect supplying ranches back to birth farm.

Policies should be upgraded to meet these standards, and communicated to suppliers directly, in face to face or webinar trainings, when possible, in supplier languages, and when possible in collaboration with other buyers promoting similar policies. Suppliers can be encouraged to invite their relevant suppliers (such as tanneries or even meatpackers). **Facilitating honest discussion** with suppliers where they can raise their concerns about how such policies can be realised can help understand bottleneck root cause challenges so as to consider how these might be overcome towards policy delivery with traceability.

Besides any policy improvement and communication, asking suppliers not to source materials such as hides from a country or areas does not guarantee that the policy will be abided by, especially as tanneries themselves may not have strong visibility and traceability. Unless and until very strong **traceability systems** can robustly and near absolutely verify that cattle hides for leather are not coming from countries and areas of deforestation (and with strong tannery, processor and slaughterhouse/meatpacker participation), it is must be assumed that it is possible that hides from these areas may enter the supply chain. To ensure integrity of traceability systems, stakeholder insight is also needed.

Broader internal leverage

Drive Sustainability members are encouraged to **consider piloting with one or more of its automotive leather suppliers sourcing of leather from one of the certification and standards programmes** as the food sector have initiated[11]. This can also help to create awareness at the automotive consumer level of the fact that leather sourcing can have a positive role to play in global climate change prevention efforts, and for biodiversity and nature.

Such promotion could align with any involvement in automotive and other leather industry efforts to educate consumers on the fact that most leather alternatives to date are not in fact yet as biodegradable as leather more often is, and in fact often fully or in part come from fossil fuel sources/ are plastics.

Leverage together with business peers

Where leather is turned in to seats and interiors, it is encouraged that Drive Sustainability utilises collaborative initiatives to engage suppliers who supply to many brands. The *Responsible Business Alliance (RBA)* Manufacturing site EHS and labour standards monitoring and improvement program has expanded beyond technology companies to automotive and is very knowledgeable on the high risks in China and Asia EHS and labour (whilst capable globally), driving to excellence and traceability. Drive Sustainability and its members could follow the work promoted by the RBA. Drive Sustainability could encourage or require its suppliers to participate in RBA and have their global sites (particularly China) monitored by it, and to a certain standard, within a certain timeframe, as a term of business, integrating into the Supplier Scorecard a score based on findings from RBA monitoring of suppliers.

Drive Sustainability members can ensure that all direct suppliers will recognize trade unions where possible and work with industriALL to monitor this, and integrate into the Supplier Scorecard a score for extent this is respect (based on input from trade unions/ worker representatives).

To complement monitoring by the RBA in China and Vietnam and truly hear the voice of workers, many companies have trained workers at China supplier sites in services such as INNO Handshake **NGO worker helpline** which both provides workers with support in understanding their rights under local law and codes of conduct, and also reports on rights violations where buyer intervention can help influence remediation. Given the high risk of forced labour in China and that has been linked to auto supply chains (and that groups of Uyghurs have been moved around China factories), such increased monitoring is strongly encourage. Drive Sustainability members would need to require higher risk suppliers to allow such NGOs to train workers in these services which help support respect for worker rights. Findings from helpline

[11] Refer to the list of initiatives for leather on the Raw Materials Outlook

reports and regular surveys of workers can be integrated into supplier scorecards (as for trade union information in countries where free trade unions are allowed e.g. Europe, Americas, etc).
Companies have also identified other buyers sourcing from suppliers and aligned to **collaborate** and introduce such services for workers at supplier level together, and monitor these in Supply Chain EHS monitoring platform database systems.

In order to ensure a robust cattle hide traceability, it is encouraged that Drive Sustainability members consider the various **traceability tools** under development, and with leather industry expertise, and consider either investing in one, and/or requiring it's investment or usage by auto leather interior suppliers. Such systems increasingly support companies in seeing data on suppliers EHS, social and traceability efforts which is then shared to other buyers to reduce duplicative efforts by suppliers. Drive Sustainability members should also encourage that any system invested in is making great efforts to both share data to and from other systems monitoring the same issues for the same suppliers but perhaps for a different customer.
Ultimately Drive Sustainability should participate in efforts to influence that supplier monitoring data is made public and transparent so that rights holders can easily see it as the industriALL led "Alliance on fire and building safety" and ILO Better Work programme had done.

Finally, it is recommended that Drive Sustainability to consider joining or participating in ***the Leather Working Group (LWG) and/or Sustainable Leather Foundation*** which *Bentley* luxury auto recently joined. Towards ensuring high EHS, labour and traceability standards, companies such as Timberland set in place policies years ago that all leather sourced by their suppliers for their product must come from tanneries of at least the "Gold" standard as assessed by the *LWG*. It is recommended that Drive Sustainability members engage their auto leather interior suppliers and consider setting a similar standard integrated into the Supplier Scorecard, perhaps that all suppliers of leather or leather interiors must meet LWG Bronze within X years, Silver by Y years, then Gold (which has requirements for better social/labour practises, environmental and EHS excellence, and traceability to ensure no deforestation links) by Z years. The LWG is also expanding its scope to "agents" and "processors" who undertake the pre-tanning "wet-blue" stages, sometimes in countries such as the USA and Italy before hides are made into finished leather in say, Italy.
If suppliers indicate LWG Gold or Silver may be challenging, Dr Reiner Hengstmann advises that companies join the *Sustainable Leather Foundation* which will recognize and support LWG certification progress, but provide a better capacity building "helping hand" to suppliers learning how to make LWG and social standards progress. The SLF also provides a dashboard whereby companies (end brand buyers) can use to monitor suppliers status.
The LWG standard requires basic hide traceability, and although one of the best in the sector, is not a fully sufficient approaches to ensuring leather hides are in fact not 100% linked to deforestation. Therefore, Drive Sustainability should strongly support calls in this or similar initiatives that the standard rapidly do reach the higher traceability standard required, if necessary through a "platinum" standard or similar.
The above steps would help Drive Sustainability members meet expectations of NGOs such as the *Rainforest Foundation Norway , author of the 2021 Driving deforestation* report[12] that Auto companies:

[12] https://d5i6is0eze552.cloudfront.net/documents/Publikasjoner/Andre-rapporter/Driving_Deforestation_16_June-compressed.pdf?mtime=20210617202546

• Ensure that there are robust systems for supply chain traceability, to identify origins of all deforestation risk commodities used, including land tenure and the fiscal and environmental situation of the supplying farms. For cattle related products, companies must demand traceability that include all indirect suppliers of cattle, back to birth farm. The companies should receive full reports on progress and verify results.
• Engage with suppliers to communicate expectations and help monitor their efforts to become deforestation-free across their entire supply base.
• Temporarily block non-compliant suppliers but continue to engage to allow reintroduction of suppliers once they are in compliance. See Annex 4: Full NGO expectations for due diligence on deforestation.

Leverage through bilateral engagement with one or more third parties

The Rainforest Foundation Norway recommend that automotive companies "Get involved with multi-stakeholder initiatives that focus on solutions for traceability, monitoring and transparency in the cattle value chain, such as the Working group for indirect suppliers (GTFI), Global Roundtable of Sustainable Beef (GRSB), Brazilian Roundtable on Sustainable Livestock (GTPS/BRSL), and others". These initiatives also help influence improvement of practises in cattle farming globally in Brazil and south America.

Despite their strengths, neither the LWG nor SSLF are truly "multi-stakeholder" yet as neither trade unions, nor worker rights NGOs are members of their leadership (although WWF is now involved, and Solidaridad in the LWG). If Drive Sustainability engages with either of these organisations it is encouraged to **engage IndustriALL** and encourage that IndustriALL or another worker rights representative voice organisation be invited to play a key role in the work with companies towards ensuring good labour and safety standards.

The Italian and German leather unions may have a key role (depending on where Drive Sustainability members maps its automotive leather suppliers and their tanneries to be). As freedom of association with trade unions is outlawed in China and Vietnam where leather tanning has been growing, and challenging for migrant workers who may be involved in any production in Taiwan, Korea or Japan, it is encouraged that an NGO representing east Asian workers, and with insight into leather tanning worker rights issues in the region, also be invited to join the initiative and eventually play a leadership role.

In Europe, it is possible that meatpackers may be able to be engaged through IndustriALL on the monitoring and continuous improvement of labour and safety standards. The covid pandemic showed up risks for migrant workers and need for some attention to this value chain. Drive Sustainability is encouraged to engage meatpacking slaughterhouses at the industry level with the auto leather interior companies and tanneries and processors which buy from this stage and then supply Drive Sustainability members.

To monitor environmental management (both of meatpacking sites, feedlots, and for traceability to ensure no deforestation) in this sector, Drive Sustainability is encouraged to discuss options with WWF and/or in the LWG &/or SLF.

On traceability the "Big4" largest meatpacking companies are already engaged by WWF who are active in the LWG and SLF. WWF have encouraged end of chain brand companies to engage them directly to receive guidance on how to play a role in the collective efforts to influence these players in the value chain to deepen their Environmental efforts needed.

For European meatpacking sites, engagement through auto leather seat makers and tanneries and their initiatives and LWG and SLF to collectively send messages on the importance of continued EHS improvement (as McDonalds etc have done for traceability of meat) would align with UNGPs expectations

Leverages through multi-stakeholder collaboration

No significant human rights labour and social standards risks in northern European cattle were identified during the value chain analysis.

In north America, significant risk on livelihoods was identified (lawsuits, congressional inquiry, etc) in the allegations that the "big4" may have driven down cattle pricing, possibly in illegal ways, leading to an ability for some cattle farmers to maintain sufficient income to realise their human rights to a decent standard of living. It is therefore recommended that, via the above outlined approaches to joining dialogue and collaboration with leather industry supply chain initiatives, Drive Sustainability follow developments in the USA and Canada regarding whether the Big4 had in fact undertaken illegal practises, and the claimed efforts by some of the Big4 to provide fairer pricing and support to cattle farmers supplying them.

For human rights due diligence, **participation is needed in multi-stakeholder efforts** to end clearing and deforestation of rainforest and protected areas for cattle farming, and related human rights violations of communities in terms of their land being grabbed, violence, threats, loss of cultural heritage, and more. It is recommended that Drive Sustainability **engage NGOs such as WWF and NWF** or similar who are experts in and active on solutions for both the environmental and related social/human rights issues to better understand the role that auto companies can play, and strengths and weaknesses of various possible approaches to traceability. The WWF Director has also pointed out that a key driver of deforestation (in the "indirect" provision of cattle into meatpacking value chains) can be poverty, and that therefore, like for high risk mineral sourcing from Africa, projects which support direct interventions with communities to improve their livelihoods may be able to have an effective role in companies doing their due diligence to help reduce these human rights and environmental risks. The voice of indigenous people should also be heard directly to show respect for their human rights. If this is not possible through partners such as WWF or NWF, other more local representative groups may be able to be identified. Some Brazilian NGOs were mentioned in this report. Engagement with such rights holders would help to verify whether the recommendations by WWF or other international bodies for actions companies can take are in fact the most helpful steps needed.
The *Rainforest Foundation Norway in it's Driving deforestation*[13] report also recommends that Auto companies:

[13] https://d5i6is0eze552.cloudfront.net/documents/Publikasjoner/Andre-rapporter/Driving_Deforestation_16_June-compressed.pdf?mtime=20210617202546

- "Get involved with multi-stakeholder initiatives that focus on solutions for traceability, monitoring and transparency in the cattle value chain such as the WorkGroup For Indirect suppliers (GTFI), Global Roundtable of Sustainable Beef (GRSB), Brazi Roundtable on Sustainable Livestock (GTPS/BRSL)" etc and
- "Engage with governments and law-makers in supply-side countries to introduce systems for transparency and full traceability of commodity supply chains, all the way to the origin of the commodities."

Key impacts are from methane emissions from cattle, other GHGs, and on biodiversity. Various initiatives in north America and global were outlined in the initiatives section which are engaging cattle farmers globally to improve GHG emissions reductions, sequestration, biodiversity, and overall sustainability and social standards.

Lithium

Approximately 80% of end use lithium is used in manufacturing cathodes for lithium-ion batteries (Li-ion) which are used in electrical vehicles and also for electronic, industrial and energy storage uses. Thus, the automotive sector consumes significant global share of lithium and might be able to exercise some leverage on lithium producers. Most salient risks identified include:

- Serious human right abuses in the mining, beneficiation, refining and manufacturing stages
- Energy use at mining and production stages, leading to GHG emissions
- Air emissions and noise in the mining and refining stages
- Occupational health and safety at mining and production stages
- Land use and biodiversity loss, including after closure and land rehabilitation
- Residential and indigenous rights and Free, Prior and Informed Consent (FPIC)
- Efficient water use and water access for local communities around mining, beneficiation and refining operations
- Waste management, tailings, and contamination of soil and waters
- Business practices and management practices in the mining, beneficiation and refining stages
- Terms of employment and access to grievance mechanisms at the mining stage
- Local value added for communities

Leverage together with business peers

Considering the significant use of lithium in the automotive value chain, Drive Sustainability, representing many companies in the industry, can promote and advocate for risks to be managed and mitigated at mining and processing stages. Other sectors could be engaged to strengthen leverage where relevant.

Peers also forming part of the Global Battery Alliance, of which a number of Drive Sustainability members are a part, could be sensitized to the ESG issues in the lithium supply chain and potentially co-opted to exert leverage where necessary.

Drive Sustainability should also consider making a public commitment emphasising expectations from the automotive industry for companies producing lithium in terms of:

- Respecting human rights in its operations and supply chains

- Water use and mismanagement in arid climates such as Chile or Argentina
- Water and soil pollution and mismanagement of tailings.
- The reduction of greenhouse gas emissions in the mining, beneficiation and processing and refining stages
- The commitment to implement international health and safety norms in the processing, refining, transport and manufacturing of lithium
- Residential and indigenous rights and Free, Prior and Informed Consent (FPIC), taking the example of cases in Russia, United States of America, Argentina, Portugal and Peru.
- The closure and rehabilitation of abandoned lithium mines

Leverage through bilateral engagement with one or more third parties

Drive Sustainability could also encourage CCCMC to create manuals and best practice case studies on lithium refining, with a reduced environmental footprint, proper waste management and health and safety practices. The proposed engagement with **the CCCMC** under the graphite is also applicable to lithium, both of which are minerals used in lithium-on batteries**.**

Leverage through bilateral engagement with one or more third parties or through multi-stakeholder collaboration

Drive Sustainability could engage with **International Lithium Association**, **Lithium Triangle Initiative** and **Responsible Lithium Project** to seek ways of mitigating issues of access to water and water contamination in arid areas like Chile and Argentina that are major producers of lithium.

Drive Sustainability could also consider engaging with other battery initiatives such as **MOBI Battery Initiative** and **European Battery Alliance**.

Magnesium

Globally, the automotive sector uses 35% of magnesium alloys and given that 70% of magnesium is used for alloy production, the automotive share of global magnesium consumption is significant. This suggest that the sector might be able to exercise some leverage on magnesium producers.

Most salient risks identified include:

- Energy used at mining and production stages (Pidgeon process), leading to GHG emissions
- Land use, including after closure and land rehabilitation
- Occupational health and safety
- Waste management and hazardous waste at the processing stage
- Negative impacts related to poorly management emissions at the alloying stage
- Legal compliance against environmental regulations

Traditional commercial leverages

Considering that the research on risk evidence has identified several instances of dangerous explosions in component manufacturing factories, **individual OEMs should consider including specific requirements on occupational health & safety requirements in contract negotiations and agreement.** If not handled

with care, magnesium powder can react with certain materials and create dangerous explosions and fires. With proper safeguards, fires and explosions can be prevented. IMA has handbooks and information on how to best handle magnesium that could be used for suppliers to abide with.

Leverage together with business peers

Considering the significant use of magnesium in the automotive value chain, Drive Sustainability, representing many companies in the industry, can promote and advocate for risks to be managed and mitigated at mining and processing stages. Other sectors could be engaged to strengthen leverage where relevant.

Concerted industry action is also advised when the value chain of a material is hugely dependant on a country with regulations and enforcement measures that could heighten risks to human rights for business, which is the case of magnesium as China has a share of more than 85% of the first stages of the value chain of magnesium. Drive Sustainability should focus engagement with Chinese associations and Chinese suppliers to increase expectations towards the reduction of the energy intensity of the Pidgeon Process at the production stage.

Leverage through bilateral engagement with one or more third parties

As part of the engagement with CCCMC Drive Sustainability could **advocate for the organisation to create manuals and best practice case studies** on magnesium processing and manufacturing, with a reduced environmental footprint, proper waste management and health and safety practices.

Leverages through multi-stakeholder collaboration

Drive Sustainability should engage International Magnesium Association (IMA) and China Magnesium Association (CMA) and advocate for the associations to support their members reduce the energy intensity of magnesium production and implement appropriate health and safety measures. Drive Sustainability can help the associations increase their leverage through pressures on Chinese companies who use the Pidgeon Process (this could start by writing a joint letter).

Drive Sustainability could advocate **for suppliers to reduce the energy intensity needed to power the Pidgeon Process**[14] at the production stage, **phasing out of coal**, as that was one of the most salient risks identified through our research. The phase out of coal, however, needs to be mindful of the potential harmful social and environmental impacts that can arise.

Drive Sustainability could engage with all industry associations that have as members Nanjing Yunhai Special Metals, Shanxi Yinguang Huasheng Magnesium, Yingkou Yinhe Magnesium Aluminium, US Magnesium, ICL Dead Sea Magnesium, Fugu Jinwatong Magnesium, Huizhou Yunhai, Shaanxi Fugu Tianyu Mineral Industry, Ningxia Huiye Magnesium Group, Wenxi Bada Magnesium, within others, these include IMA, CMA, Minor Metals Trade Association (MMTA) and European Association for Magnesium (EAM). The request should be the same support their members in the:

- Reduction of energy intensity, in particular for all Chinese suppliers

[14] The Pidgeon Process is a thermal reduction process to produce magnesium ingots.

- Implementation of appropriate health and safety measures, in particular for Yingkou Yinhe Magnesium Aluminium, Pimpri Chinchwad, Orchard Way Magnesium processing factory, Meridian Magnesium and Kunshan Waffer Technology Corp Ltd
- Manage waste and take remediation measures to water pollution caused, in particular Nanjing Yunhai Special Metals and US Magnesium.

Drive Sustainability should consider engaging the Institute for Scrap Recycling Industries (ISRI) and advocate for the association to support their members implement appropriate health and safety measures. Drive Sustainability can help the associations increase their leverage through pressures on companies engaged in magnesium recycling. Although all instances of recycling facility fires were found in non-magnesium specific scrap storage and recycling facilities, given that if magnesium scrap is not handled with care, it can react with certain materials and create dangerous explosions.

Manganese

Last updated March 2026

Manganese is an irreplaceable element used in steel production, and the automotive sector accounts for almost a quarter of the end use of steel. The World Steel Association calculated that, on average, a vehicle uses 900 kg of steel. This equates to approximately 4 – 8 kg of manganese contained in the steel present in a typical car. Although 90% of manganese is used for steel production, manganese finds other uses in electric and hybrid vehicles as an essential element in nickel-metal hydride (NiMH) electric vehicle batteries and lithium-ion (Li-ion) batteries.

In sum, the automotive sector uses 23% of global manganese, making the automotive sector share significant, however, it is still recommended to **also engage with businesses beyond the automotive sector that use manganese** in this case.

Most salient risks include:

- Occupational health and safety at mining and processing stage, including risks with the handling of manganese presenting significant health risks.
- Residential and indigenous rights and Free, Prior and Informed Consent (FPIC)
- Efficient water use and water access for local communities around mining operations
- Energy use and GHG emissions and other emissions.
- Waste management (incl. nuclear waste), tailings, and contamination of waters
- Biodiversity loss

Leverage together with business peers

Considering the application of manganese in the automotive sector, **Drive Sustainability should advocate for companies in the manganese value chain to manage and mitigate identified risks.**

For example, a public commitment could emphasise expectations from the automotive industry for companies producing manganese in terms of:

- The adequate **management of waste and water use** at the mining, beneficiation, smelting and manufacturing stages, which has been observed to produce water pollution and community impacts, particularly in South Africa, but also in China, Georgia, Malaysia, Cote d'Ivoire and Brazil.

- The **reduction of greenhouse gas emissions** in the mining, beneficiation, smelting and manufacturing stages.
- The commitment to implement international **health and safety norms** in the mining, beneficiation and manufacturing stages.

Leverage through bilateral engagement with one or more third parties

Drive Sustainability could engage with the Minerals Council in South Africa and advocate for the initiative to support their members in addressing most salient risks identified. The Minerals Council is the mining industry employers' organisation that promotes the South African mining industry, including manganese mining. The Minerals Council is a member association of the International Council on Mining and Metals (ICMM), an international organisation dedicated to a safe, fair and sustainable mining industry.

Drive Sustainability could also encourage CCCMC to create manuals and best practice case studies on manganese smelting, with a reduced environmental footprint, proper waste management and health and safety practices.

Finally, considering manganese is an essential raw material for the steel industry, engagement with the steel industry to exercise further leverage should also be sought.

Leverages through multi-stakeholder collaboration

Drive Sustainability should engage International Manganese Institute (IMnI) and Manganese Innovation Alliance (MIA) and advocate for the association to support their members in addressing most salient risks identified. Drive Sustainability can help the associations increase their leverage mainly through pressures on South African, but also Chinese, Georgian, Malaysian, Cote d'Ivoire and Brazilian companies.

Drive Sustainability could engage with all industry associations that have as members the major producing companies of Manganese (refer to the RMO), within others, these include IMnI, Minor Metals Trade Association (MMTA) and MIA. The request should be the same, to support their members addressing most salient risks:

- The **management of waste and water use** at the mining, beneficiation, smelting and manufacturing stages, which has been observed to produce water pollution and community impacts, particularly in South Africa, but also in China, Georgia, Malaysia, Cote d'Ivoire and Brazil.
- The **reduction of greenhouse gas emissions** in the mining, beneficiation, smelting and manufacturing stages.
- The commitment to implement international **health and safety norms** in the mining, beneficiation and manufacturing stages.

Molybdenum

Molybdenum enters the automotive value chain mainly through its use in steel production. It is primarily used in enhancing the strength, hardenability, weldability, toughness, and corrosion resistance of steel. As a result, relevance and leverage can be correlated to the steel value chain.

The most salient risks in the molybdenum value chain include:

- Occupational health and safety, especially at mining and beneficiation stages

- Terms of employment and work contracts
- Resettlement and community rights
- Land use and deforestation driven by mining activity, including in legally protected areas
- Efficient use of water, especially at mining and beneficiation stages
- Waste management, including tailings management and risks of soil and water contamination also by hazardous waste at mining, beneficiation and manufacturing stages

Leverage together with business peers

Drive Sustainability should consider advocating and requirements for suppliers in the molybdenum value chain to manage and mitigate social and environmental risks. For example, a public commitment could emphasise expectations from the automotive industry for companies producing molybdenum in terms of:

- The soil pollution and mismanagement of tailings.
- The resettlement and displacement of communities, taking the example of cases in Armenia, Chile and Peru.
- The worker illnesses and fatalities associated with hydrogen sulfide gases and other substances released during roasting that lead to negative impacts to health.
- The water use and mismanagement in arid climates such as Chile.
- The water pollution and the mismanagement of tailings.

Leverage through bilateral engagement with one or more third parties and through multistakeholder collaboration

Drive Sustainability should consider engaging with the relevant industry associations or initiatives. For example, **Drive Sustainability could engage and work the MMTA or the IMOA as these organisations can provide a platform to raise awareness and increase responsible sourcing expectations towards companies in the molybdenum value chain.** These industry organisations have been identified as leading stakeholders working with others to advocate for sustainability and other issues along the molybdenum value chain.

Drive Sustainability could also engage with RMI to promote the application of the Joint Due Diligence Standard for Copper, Lead, Nickel and Zinc (the standard cites molybdenum as a recognized associated metal within the standard, as a by-product of copper**) and its associated auditing and certification schemes for molybdenum producers.** The RMI also has expertise identifying and working with stakeholders along the molybdenum value chain involved with the elements of sustainability and ESG impacts.

Finally, considering molybdenum is a raw material used for the steel industry, engagement with the steel industry to exercise further leverage should also be sought.

Natural Rubber

Natural rubber is an agricultural forest commodity, with approximately 85% of latex (natural rubber product) collected by smallholder farmers primarily in Southeast Asia. Tyre manufacturers hold significant leverage as 70% of worlds natural rubber is used in tyre manufacturing due to its qualities in strength to support the vehicle load and resistance. Natural rubber is of key importance to automotive sector as well as for commercial vehicles like aircrafts and trucks. Other uses of natural rubber include footwear, seals, conveyor belts, hoses, sports equipment, and shock-absorbing parts.

Although traceability of natural rubber upstream actors is highly complex it is estimated that there are approximately 30 major tyre manufacturers and thus it can be expected that the identification of key actors in tyre manufacturing facilitates the exercise of leverage along the natural rubber value chain.

Some of the most salient ESG issues in natural rubber supply chain include:

- Deforestation, land use issues and biodiversity loss at farming and harvesting of natural rubber, and manufacturing of tyres stages
- Serious human rights abuses in the farming and harvesting stages
- Community rights, including indigenous rights, at the farming and harvesting stages
- Business practices including corruption issues at the farming and harvesting stages
- Occupational health and safety issues, including exposure to hazardous substances at farming and harvesting, latex preparation, processing, manufacturing of tyres,
- Water contamination and hazardous waste disposal at the recycling stage

Broader internal leverage

In the past natural rubber was perceived as significantly less important material for the European automotive sector. However, as the EU listed natural rubber as a critical mineral since 2017 and adopted the EU Regulation on Deforestation-free products in 2023, covering natural rubber products, the material has been gaining traction in relation to sustainable and responsible sourcing practices.

Under the EU Regulation on Deforestation-free products downstream companies selling tyres to the European market are expected to provide evidence that their products are not contributing to deforestation or forest degradation. In doing so downstream companies are expected to undertake natural rubber supply chain mapping exercise and collect data from their suppliers. Drive Sustainability members could use this traceability exercise as means for engagement and building effective relationships with suppliers to enhance willingness in sharing data and improving transparency. Even in instances when traceability data could not be shared, engaging with suppliers could be an opportunity to build relationships with those suppliers. Building effective relationships with suppliers (beyond immediate suppliers) may offer greater leverage opportunities to mitigate risks closer to upstream more effectively.

Leverages through multi-stakeholder collaboration

Continue to engage with the **Global Platform for Sustainable Natural Rubber** (GPSNR) for knowledge building, resources sharing, engagement with stakeholders, traceability and risk identification and mitigation initiatives in natural rubber supply chain. From 2025 GPSNR will commence their assurance framework focusing on effective due diligence measures (not certification) to support corporate claims on sustainability of natural rubber. GPSNR has an extensive knowledge on the upstream actors of natural

rubber supply chain and has undertaken initiatives in key natural rubber sourcing countries such as Thailand and Indonesia, as well as engaging with smallholder farmers. Those involved in tyre manufacturing could also consider engaging with the **European Tyre and Rubber Manufacturers' Association** (ETRMA) (GPSNR member) which may offer opportunities for midstream and downstream actors to minimise industry risks through collaborative efforts.

Nickel

Last updated March 2026

Approximately 66% of nickel is used globally for the production of stainless steel and other smaller uses include nickel-base and copper-base alloys (6%), alloy steels and castings (3%), plating (5%), batteries (16%). According to the Nickel Institute 27% of nickel finds its end use in nickel goods, with 27% going to transport and 14% going to process industries.[15] These three sectors alone thus consume nearly half of global nickel production annually. Nickel is then specifically important for the automotive industry both for stainless steel and for EV batteries production.

ESG issues that particularly arise in nickel supply chains include:

- Indigenous people's rights, and significant impacts on community health, access to water and livelihoods at mining and processing stages;
- Large-scale loss of biodiversity (and attendant climate change implications) occasioned by lateritic nickel ore mining;
- Harmful disposal of tailings waste from nickel mining as well as waste from processing facilities;
- The use of violence and other forms of force against those protesting impacts at any stage;
- The high energy consumption of nickel processing, often using fossil fuels; and
- Notable air and water emissions from nickel processing facilities.

Some possible mitigation measures for such issues are specific to nickel; for example, consideration could be given to sourcing nickel derived only from sulfidic rather than lateritic ores, given the relatively less complex ESG footprint of the former. Such strategies, however, will entail a balance of trade offs that would need to be carefully considered from a practical, environmental and human rights perspective. Indeed, without broader engagement with horizontal business peers, this kind of approach simply displaces rather than resolves the ESG risks it seeks to prevent.

For example, the present analysis indicates the need to engage suppliers operating in nickel mining and processing in countries where labour, human rights and environmental enforcement is weak, like Russia, China, Indonesia and the Philippines.. The salience of projects like, Nornickel in Russia and Tsingshan Group in Indonesia renders these projects likewise important to engage. It should be noted that the ownership and operation of specific mining and processing projects can be complex and dynamic. Developing an ongoing awareness of the corporate structures and beneficial ownership of upstream suppliers is thus extremely important.

[15] About nickel

Depending on the specific supply chain dynamics of Drive Sustainability members, such issues may effect some members more than others. It is likely, for instance, that European OEM's are more dependent on sulfidic nickel ores in their supply chains due to apparent existing trading preferences. For these OEMs, this would raise the significance and prioritization of environmental impacts associated with ore processing in countries like Russia. By contrast, Asia-based OEM's may be more dependent on lateritic ores. This would see the need for very careful and detailed consideration of viable sourcing from laterites without a dramatic impact on the environment and community/indigenous rights. In both cases, enhanced member leverage and a full understanding of the impacts of any given intervention, mean that Drive Sustainability members may wish to strategize a collective response on issues like lateritic nickel ore sourcing.

Traditional commercial leverage

In addition to requiring suppliers to align with international standards, traditional leverage in the nickel value chain may be especially useful in shaping the performance of producers who have repeatedly breached standards and performance targets. Here, as outlined above, financial penalties or forfeits could be contracted into supply agreements where verifiable instances of environmental breach have been identified, on the grounds that such instances harm the reputational integrity of the contracting party's supply chain.

Broader internal leverages

Drive Sustainability members and/or the initiative should draw upon the technical expertise of entities like the Nickel Institute and Nickel Producers Environmental Research Association (NIPERA Inc), Responsible Minerals Initiative Nickel Working Group, as well as key rightsholder proxies like IndustriAll, the CNV International HREDD Boost programme and the Indigenous Peoples Forum to support capacity building efforts for both suppliers and internally. In providing such capacity enhancement, Drive Sustainability should consider focusing workshops on certain flagship contexts in priority geographies like Indonesia (e.g. Raja Ampat, Obi Island projects) in need of remediation to enable consideration and learning from live and complex ESG contexts.

Leverage together with business peers

Numerous instances of harm to communities from nickel production facilities have been identified in the resources of the RMO, particularly in Indonesia and the Philippines due to the sheer production sizes, and to a lesser extend also Brazil, Guatemala, Colombia and Russia. However, the nickel producers implicated in these impacts are diverse and often subject to change. The mobilisation of business peers in addressing these harms will be essential.

Carbon emissions from nickel mining have significant implications on global warming[16] This highlights a crucial need to reduce virgin nickel consumption through attempts to decrease nickel consumption generally, increase reliance on recycled material and improve product/component design/manufacture to enable the full end of life recyclability of nickel containing components. Drive Sustainability could reach out to industry association peers in the sectors which mostly use nickel, including especially the transport,

[16] https://www.nature.com/articles/s41467-024-55703-y#:~:text=Abstract,needed%20for%20effective%20climate%20action.

steel, aerospace and defense sector,[17] and mobilize their collective leverage to promote the adoption and actual implementation of certain ESG standards, such as the Initiative on Responsible Mining Assurance or the Joint Due Diligence Standard for Copper, Lead, Nickel and Zinc, among nickel producers. The need to address the GHG implications of nickel sourcing may offer common ground for conversations with manufacturers who have less exposure to consumer-driven ESG concerns, such as human rights impacts, but do have a stake in climate change mitigation efforts due to the implications of the latter for supply chain logistics (e.g. other transport sectors). Discussions on issues such as increased recycling and recyclability of nickel, and GHG emissions reduction through sourcing, thus likewise present opportunities for awareness raising on other ESG issues and the augmentation of leverage and broader scope of influence over non-ESG respecting suppliers.

Besides collaboration through the Drive Sustainability initiative, the members are likely to have other business peers that they can engage, especially in emerging markets. For example, when it comes to sourcing, coordination in resolving ESG issues would benefit substantially from collaboration with major Chinese car manufacturers such as SAIC Motor, Dongfeng, FAW and Chang'an, as well as other notable companies like Geely, Beijing Automotive Group, Brilliance Automotive, Guangzhou Automobile Group, Great Wall, BYD, Chery and Jianghuai (JAC).

Leverage through bilateral engagement with one or more third parties

The Nickel Institute's joint Due Diligence Standard for Copper, Lead, Nickel and Zinc offers an initial framework for supporting companies in their due diligence, as well as the upcoming Consolidated Mining Standard Initiative. Drive Sustainability may be able to offer the Nickel Institute support in advancing adherence to this standard by promoting alignment with it among its own members and their suppliers. Such support may offer the beginnings of further collaboration in addressing issues identified during the implementation of such due diligence, as well as in other specific contexts requiring the leveraging of supply chain actors. For example, numerous severe instances of harm to communities from nickel production facilities in countries like Indonesia and the Philippines, and on a smaller scale in Brazil, Guatemala and Colombia appear to either emanate from or be exacerbated by the environmental contamination. Drive Sustainability could solicit advice from experts at NIPERA Inc. on what measures would be required in specific contexts to prevent and remediate such environmental harm. This would allow for the development of a baseline for concrete requests for compliance and a gauge to monitor this.

Moreover, consideration could be given to mobilising the collective influence of Drive Sustainability, the Nickel Institute and the CCCMC to try and stop the deep-sea dumping of tailings waste by Ramu Nickel Project in Papua New Guinea – an issue that whilst restricted to one entity tarnishes the ESG reputation of nickel generally and is currently being held up as a model for tailings disposal in other contexts and for other minerals.

Moreover, Drive Sustainability could encourage and support the Nickel Institute to organise ESG best practice lesson learning sessions under Chatham House rules involving Nickel Institute members that have tried to implement ESG best practices in good faith, like Sherrit International. This could provide an

[17] For example, the Institute of Cast Metals Engineers (ICME), Steel Construction Institute (SCI), the World Steel Association, General Aviation Manufacturers Association, the Aerospace Industries Association, the AeroSpace and Defence Industries Association of Europe, the International Shipsuppliers and Services Association.

opportunity to outline some of the challenges companies like Sherritt have faced in implementing best practice, and reflection on lessons learned and solutions going forward. Such sessions may help Drive Sustainability members to better understand the extent to which certain mitigation measures are effective, as well as how to support suppliers trying to implement best practice. Such sessions should either include or be followed up by sessions with affected stakeholders who can also share their experiences of adverse ESG impacts and attempts to resolve them, again with a view to lesson learning. Stakeholders such as IndustriAll, the Indigenous Peoples' Forum and Friends of the Earth may be able to facilitate such sessions.

Drive Sustainability should also consider governments, including specific government departments, for exercising leverage as the ones responsible for the operating context of actors where major ESG risks arise (where appropriate). In the context of nickel, consideration might be given to whether the best approach would be to exercise collective leverage towards individual countries, and/or towards the International Nickel Study Group, an autonomous, intergovernmental organization comprising nickel producing, using and trading countries. The latter reportedly has no provision for market stabilization activities or market intervention. However, its provision of a forum for discussions on issues of interest to nickel producing and using (consuming) countries and their industries, including on environmental issues, may create an opening for the exertion of leverage in some form. In determining the scope for collective leverage regarding individual governments it is worth considering the following:

- Production**:** A high-level traceability exercise to identify nickel source countries for Drive Sustainability members will highlight specific contexts in which collective leverage would prove most effective and efficient. For example, the severity of ESG impacts and significance of nickel imports from countries like Indonesia, Russia, and the Philippines to countries in which DS members have manufacturing facilities (e.g. Germany, Sweden, the US and Japan), may render these contexts particularly appropriate for the exercise of collective leverage.
- Manufacturing: Collective engagement may be a more effective means of addressing any supply chain concerns regarding labour rights in manufacturing facilities in countries like China.

Finally, Drive Sustainability should give specific consideration to its engagement with nickel sourcing from Indonesia and the Philippines to assess the best approach to addressing ESG risks associated with laterite ore extraction and processing at the national and regional level, whether through government departments, CSOs and companies operating nickel facilities.

Leverages through multi-stakeholder collaboration

Drive sustainability should be present and engaged within those multi-stakeholder responsible sourcing forums that offer it the greatest impact in accessing stakeholders and exerting leverage. Numerous such initiatives exist on a Global and mineral-specific basis, and merit comparative review from a leverage perspective. Whilst none explicitly cover nickel, the Responsible Steel Initiative is highly pertinent to the nickel sector and Drive Sustainability should consider becoming an active associate of the scheme, and mandating conformance with its standards and certification among its membership and their suppliers. As the scheme includes some actors identified in this study as involved in protracted ESG impacts (e.g. BHP and South32), this forum should be used to engage these suppliers and seek to drive and monitor compliance with Responsible Steel standards.

The RMO portal can be used to identify and highlight specific nickel operations that require urgent attention in terms of addressing existing ESG issues, and companies operating these nickel operations could be invited to join such forums with a view to signing up to specific initiatives that will help or require them to address ESG impacts in their supply chains. Drive Sustainability should raise the need to expand the reach of initiatives into Asia with any initiative it becomes a part of. Indeed, once a particular stance on laterite extraction has been clarified, it may be that government representatives from countries like Indonesia and the Philippines, could be invited to join such forums with a view to supporting them to create an ESG-respecting operating environment.

Niobium

Most niobium is consumed in the production of ferroniobium, with around 90% of niobium used in this form in the production of high strength low alloy (HSLA) steels used in car bodies, gas pipelines and ship hulls. Approximately 22% of the end use of niobium constitutes of steel used in the automobile industry. The higher strength of HSLA steels enables a weight reduction (as less steel is required to serve the same function) and the addition of 200g of niobium to a tonne of steel can increase its strength by up to 30%. The World Steel Association reported that $9 worth of niobium used in car manufacturing can reduce the mass by 100 kg and improve fuel efficiency by 5%; while 300 gram of niobium in a mid-sized car reduces the weight by 200 kg.

Brazil's dominance over niobium production (and CBMM's command over both niobium production and research and development), in addition to niobium's status as a critical strategic metal, may render leverage more challenging to exert in this supply chain due to the dependence of the market on Brazil as a source. At the same time, it offers an opportunity for leverage in collaboration with others, as the origins of niobium are so concentrated in Brazil and not diffused across many countries and companies. Here, a highly strategic and well considered approach would be required, starting with a clear prioritization of risks in sourcing from Brazil.

For example, given the dual interests of indigenous people's rights and climate change mitigation, stressing the need to prevent the intrusion of niobium (or any other) mining on indigenous territories and other protected areas of Amazon, and discussing a format in which collective leverage might be brought to bear on the market, may be one approach. This approach may also allow for enhanced leverage by widening the focus beyond niobium to cover all major minerals. This could loosen current niobium-specific restrictions on leverage by influencing the way that actors are engaging with Brazil's minerals sector more generally, including other players with significant sway on Brazilian minerals production. Here, securing responsible minerals exploitation in Brazil generally would thus support responsible niobium sourcing also.

Indeed, strong competition for niobium supplies particularly from China, which has already secured a sizable stake in the Brazilian sector, would mean that an effective approach would need to be well strategized, and look to exercising leverage beyond Brazil/niobium. Exerting leverage of indirect relevance to niobium on important mining players like Anglo American, by, for example, addressing with them the danger of setting precedents concerning encroachment on indigenous territories in Brazil may derive further benefits in the niobium sector. Moreover, supporting alternative sourcing (including possibly exploration and R&D) from countries such as Canada and Russia may also offer alternatives, though their likely current inability to satisfy all supply needs may render this a more long-term strategy.

Most salient risks in the niobium value chain include:

- Serious human right abuses in the mining and beneficiation stage
- Occupational health and safety in the mining, beneficiation, smelting and refining stages
- Community rights in the mining, beneficiation, smelting and refining stages
- Land use and biodiversity in the mining and beneficiation stage
- Water use in the mining and beneficiation stage
- Waste and wastewater in the mining, beneficiation, smelting and refining stages
- Air emissions and noise in the mining and beneficiation stage
- Business practices and management practices in the mining, beneficiation, smelting, refining and transportation stages

Traditional commercial leverage

Drive Sustainability members could seek to impose requirements on suppliers to exert leverage up their supply chains to ensure that no niobium is sourced from illegal Amazonian mining or operations violating Brazil's 1988 constitution. This may entail requirements for traceability of niobium, including from the vertically integrated smelter and refiner plants operated by CBMM or others.

Broader internal leverage

Drive Sustainability and its members may wish to review its own climate change policy from a human rights perspective to ensure that its human rights and climate change approaches to minerals sourcing are well coordinated, aligned and complimentary. In doing so, Drive Sustainability and its members could prioritise the protection of Amazonian indigenous peoples rights as a company priority. This could offer it a mandate upon which to engage more strategically on sourcing from Brazil specifically.

Leverage with business peers, including multi-stakeholder collaboration, and through bilateral engagement with one or more third parties

Drive Sustainability could advance conversations within entities, as well as other stakeholders from other backgrounds (for example, engagement might be sought with TIC), to raise their awareness of the GHG emission implications of niobium sourcing specifically, including through mining and processing. In doing so, it could consider how best to initiate conversations around market coordination to help reduce such risks, including a possible reduction in certain minerals consumption, as well as driving supply chain responsibility for climate change impacts down to minerals production level.

Specifically, Drive Sustainability may be able to better stress the significance of ensuring the protection of Amazonian territories to the interests of the automotive industry from a human rights and climate change mitigation perspective. Such a consortia may also offer greater leverage in bilateral engagement with major mining sector players like Anglo American, as well as offering a forum for difficult discussions that may need to arise about distribution of resources between peers, if climate targets are to be met and/or minerals sources subject to restrictions at a time of increased demand.

Rare Earth Elements

Last updated March 2026

Rare earth oxides, metals and alloys are used in various applications for automotive equipment, some of the most common being for catalysts, batteries, magnets and drive motors. Based on the publicly available resources revised to develop the RMO, REE are found in many components of a vehicle and in small parts, which make leverage based on specific components value chain harder.

Most salient risks risk identified include:

- Occupational health and safety at mining, processing and manufacturing stages
- Community rights, mostly having been reported in China
- Land use, biodiversity and impacts following activity closure
- Waste management, including soil and water contamination from hazardous substances
- Air emissions, GHG and others, because of the energy-intensive extraction and beneficiation process of REE

Leverage together with business peers

Considering the application of REE in the automotive sector, **Drive Sustainability should advocate for companies in the REE value chain to manage and mitigate identified risks.**

For example, a public commitment could emphasise expectations from the automotive industry for companies producing REE in terms of:

- The management of radioactive toxic waste at the mining stage, which has been observed to produce water pollution and community impacts, as well as issues around wastewater treatment, particularly in major producing countries such as China, Myanmar, Madagascar and Russia.
- The halting of deforestation without community consent to open room for REE mining
- The closure and rehabilitation of abandoned REE mines
- The halting of corrupt practices that allow REE being sold on China's black market.
- The reduction of greenhouse gas emissions in the mining, beneficiation and processing and refining stages
- The commitment to implement international health and safety norms in the processing, refining, transport and manufacturing of REE

Concerted industry action is also advised when the value chain of a material is hugely dependant on a country with regulations and enforcement measures that could heighten risks to human rights for business, which is the case of REE as China has a share of 69% of the mining stage of REE (in 2024)[18]. Drive Sustainability should focus actions to influence Chinese suppliers to manage radioactive waste, rehabilitate close up sites, halt corrupt practices, reduce the energy intensity at the production stage and adhere to international health and safety norms.

Leverage through bilateral engagement with one or more third parties

Drive Sustainability could consider engaging with the following industry associations or initiatives relevant to the REE value chain:

[18] Minerals Commodity Summaries https://www.usgs.gov/centers/national-minerals-information-center/rare-earths-statistics-and-information

- Rare Earth Industry Association (REIA)
- Chinese Society of Rare Earths (CSRE)
- Minor Metals Trade Association (MMTA)
- China Rare Earth Industry Association (CREIA)
- CCCMC as having influence on the 3 consolidated rare earth companies (1.China Rare-Earth Group, 2. Baogang/ Northern SE & 3. Xiamen Tungsten Coporation)
- European Raw Materials Alliance (ERMA)
- Eurometaux

Drive Sustainability could engage the Chinese Society of Rare Earths (CSRE), European Raw Materials Alliance (ERMA) and Eurometaux to advocate within the relevant European and/or Chinese legislatures to support their members in preventing, managing and remediating where relevant the most salient risks identified. These industry organisations have been identified as stakeholders working with their relevant governments or national legislatures to advocate for sustainability and other issues along the REE value chain.

Drive Sustainability should also monitor and support where appropriate the research of organisations such as Rare Earth Industry Association (REIA), CSRE, EIT RawMaterials and ERMA. These organisations engage in the latest research, science and technology, market data and trends impacting the REE value chain. Drive Sustainability could also engage these research organisations to raise awareness of ESG impacts along the REE value chain.

Drive Sustainability should also consider governments, including specific government departments, for exercising leverage as the ones responsible for the operating context of actors where major ESG risks arise (where appropriate). For REE the focus would be on the Chinese government mainly, as this is the location of a vast majority of REE mining and refining activities. Given that 69% of upstream REE suppliers are Chinese, and the fact that China's international labour and human rights enforcements is weak, it is important to engage Chinese suppliers and those who are in direct contact with Chinese suppliers through China's legal and regulatory framework.

Leverages through multi-stakeholder collaboration

Drive Sustainability should encourage REIA, CSRE, China Rare Earth Industry Association (CREIA) and ERMA to support their members in preventing, managing and remediate where applicable the most salient risks identified. Drive Sustainability can help the associations increase their leverage through pressures on Chinese and Myanmar companies, such as Bayan Obo in Inner Mongolia and Ganzhou mine sites, which have been found to mismanage REE waste, with very serious environmental and community health consequences.

Drive Sustainability could engage with all industry associations that have as members Inner Mongolia Baotou Steel Union Co., Ltd; Inner Mongolia Baotou Steel Rare-Earth Hi-Tech Co., Ltd; Baogang Group, Baotou Iron and Steel Group, Chalco Guangxi Nonferrous rare Earth Development Co., Ltd, Chinalco, Ganzhou Rare Earth and Northern Rare Earths, within others, these include REIA, CSRE, MMTA, CREIA and ERMA. The request should be the same, to support their members addressing most salient risks.

Finally, Drive Sustainability could engage with REIA, MMTA, ERMA and Eurometaux and other stakeholders to support the creation of sustainability standards and certification schemes linked to REE. These organisations work with governments and other stakeholders regarding policy initiatives and sustainability along the REE value chain. The creation of sustainability standards and certification schemes that are relevant to REE, involving leaders from downstream companies and the automotive industry, could be key in raising awareness of ESG issues along the REE value chain. ISO/TC298 Rare Earth group is a standardisation initiative currently leading the agenda for rare earths and sustainability.

Rhodium

Rhodium is used to make catalytic converters in vehicles. This autocatalysis is used to eliminate harmful emissions released from vehicle exhaust pipes by catalysing the gas form nitrogen oxides emitted into nitrogen gas.

Most salient risks in the rhodium value chain include:

- Serious human rights abuses at mining stage
- Terms of employment and work contracts at mining stage
- Occupation health and safety at the mining stage
- Community and residential rights at mining, and processing stages
- Land use and biodiversity and impacts at the mining stage
- Efficient use of water during mining stage
- Waste management, including soil and water contamination from hazardous materials at mining, and processing stages
- Air emissions and noise at mining, and processing stages
- Business and management practices at mining, and processing stages

Broader internal leverage

Given that many of the problems in South Africa appear to be systemic and could potentially impact on other supply chains (e.g. chromium), Drive Sustainability members may consider ensuring broader alignment of their approach on South Africa minerals sourcing to ensure complementarity, efficiency of resource allocation and the development of synergistic relations with key stakeholders across relevant minerals. There may be the same opportunity for alignment with actions on value chains that produce rhodium as a by- /co-product, such as nickel.

Moreover, if it has not already done so, Drive Sustainability may wish to review its own climate change policy from a human rights perspective to ensure that its human rights and climate change approaches to minerals sourcing are well coordinated, aligned and complimentary.

Leverage together with business peers and through bilateral engagement with one or more third parties

Drive Sustainability could leverage business relations in support of responsible minerals sourcing both with business peers and through bilateral engagements with NGOs or other civil society actors in South Africa. A first step in this regard could be establishing relations with key stakeholders, such as PGM industry leaders like Anglo American and civil society actors like MACUA and/or Bench Marks Foundation, and further landscaping how it can support human rights respect in these contexts. Drive Sustainability

should build on its networking within the context of its involvement with IRMA to approach these entities and draw together a conversation about how to advance improvements in the sector across South Africa. Specifically, Drive Sustainability could consult with Human Rights Watch and MACUA on how best to support human rights defenders within that context, as well as asking MACUA how it envisages community rights can be protected and how this might best be supported through the interventions of actors downstream.

In particular, Drive Sustainability could encourage its members and suppliers to commit to respecting internationally accepted rights and protections accorded to human rights defenders. In doing so, it could encourage the adoption of a system for monitoring threats and abuses against rights defenders, and raising these with authorities as they occur. It could also explore the possibility of establishing a credible grievance mechanism for alerting relevant authorities about threats, in collaboration with affected communities and stakeholders (for more see Human Rights Watch recommendations for companies).[19]

Leverages through multi-stakeholder collaboration

Finally, if not already the case, Drive Sustainability could be advancing conversations with its members and stakeholders from other backgrounds, to raise their awareness of the GHG emission implications of minerals sourcing – specifically, mining and processing. In doing so, it could consider how best to initiate conversations around market coordination to help reduce minerals consumption and drive recycling and re-use, as well as enable supply chain responsibility for climate change impacts up to the stage of minerals production so that these impacts are not considered by the automotive industry solely at manufacturing and performance phases. This is particularly important for minerals for which the automotive sector is a key consumer, such as rhodium.

Tantalum

Public information on the use of tantalum, refers to type of intermediary products or components it is used for (e.g. superalloys, capacitors, chemical products) rather than which industry is the primary user. However, data collected and interview with experts, suggest that the electronic industry represent the major customer for tantalum producers. This is very important when it comes to exercising leverage, since the major electronics industry players (e.g., Apple, Intel, etc.) have been recognising as being able to influence tantalum producers. As such Drive Sustainability should particularly focus on engaging the electronics industry, for example through the Responsible Mining Initiative.

In terms of leverages at mining stage, it is also important to highlight that often tantalum is mines as by-product or co-product of other materials including tin, lithium, and rare earth elements. This has made attribution of some impacts, for example of mines in Brazil, more difficult. However, from a leverage perspective it means that risks in the tantalum mining stage for certain locations can be analysed and addressed in combination with other materials.

Most salient risks in tantalum value chain remain:

- Human rights abuses, including serious ones, often linked to the armed interference in tantalum trading (especially in Eastern DRC)

[19] https://www.hrw.org/sites/default/files/report_pdf/southafrica0419_web.pdf , p.10.

- Land use and loss of biodiversity mainly linked to open pit industrial operations
- Residential and indigenous rights, especially in the Amazon in Brazil
- Occupational health and safety both at mining and smelting stages
- Extortion and corruption

Traditional commercial leverages

OEMs should include contractual requirements over disclosure of tantalum capacitors producers to share information about their supply chain, ideally at least until the smelting stage and encourage engagement of RMI conformant smelters and require compliance with the RMI Responsible Minerals Assurance Programme (RMAP).

Leverage through bilateral engagement with one or more third parties

A recent Global Witness report, "Digging for disclosure", has analysed publicly available supply chain due diligence information and reporting published by 75 tin, tantalum, tungsten and gold (3TG) smelters and refiners operating in mainland China, Hong Kong and Macau or controlled or owned by mainland Chinese nationals (including 21 tantalum smelters specifically). The analysis also looked at responsible sourcing programme followed by the companies reviewed, and specifically relevant for tantalum:

- The RMI RMAP
- ITSCI

The analysis found that most companies, although participating in the programmes, were not disclosing information about their supply chain due diligence (a key requirement under the OECD due diligence guidance).

Drive Sustainability could exercise leverage, as an industry initiative, over the responsible sourcing programmes such as the RMI RMAP and ITSCI for them to guarantee that the requirement of public reporting is properly followed.

Leverages through multi-stakeholder collaboration

As mentioned above, the automotive industry is likely to have greater leverage on tantalum value chain if it joins forces with other sectors. To this end, besides the RMI, Drive Sustainability should consider engagement with the European Partnership for Responsible Minerals (EPRM), which have been promoting and funding projects in producing countries (although none focus on tantalum specific, but some are / have been looking at 3Ts supply chains impacts).

Tin

Globally, the usage of tin is in solder, followed by production of chemicals and in tin-plat. Tin use in vehicles is significant in terms of its range of applications; the value chain analysis finds that tin is usually used in the following components:

- The suspension system, in strut rods, joints, bearings and bushings.
- In radios
- In wheels, specifically in the rim, hub flange and valve, and
- In the engine block.

The automotive share of global tin is significant, and it is recommended to also engage with businesses beyond the automotive sector that use tin to address issues regarding sustainability and the tin value chain.

Most salient risks in the tin value chain include:

- Serious human rights abuses at mining stage
- Terms of employment and work contracts at mining stage
- Occupation health and safety throughout the tin value chain, from mining to smelting and refining
- Community and residential rights at mining, smelting and refining stages
- Land use and biodiversity at the mining stage
- Land use and biodiversity and impacts after activity closure
- Efficient use of water during mining, smelting and refining stages
- Waste management, including soil and water contamination from hazardous materials at mining, smelting and refining stages
- Air emissions and noise at refining stage
- Business and management practices at the mining stage

Leverage together with business peers and through bilateral engagement with one or more third parties

Drive Sustainability and its members could leverage business relations in support of responsible minerals sourcing both with business peers, and through bilateral engagements with NGOs or other civil society actors. However, due to the relatively well matured responsible sourcing landscape for tin, the significant experience and information available on responsible sourcing (especially from ASM) in existing circles, and the complexity of some of the issues with which resolving human rights risks and impacts may have to grapple both politically and logistically, it is highly advised that Drive Sustainability first **prioritise engagement with multi-stakeholder initiatives**. This would enable the Drive to benefit from a wealth of learning from operationalisation exercises, more effectively assess and spread risk in taking specific actions, and better determine the most suitable partners for moving responsible sourcing in its own supply chains forward.

Encouraging business peers and suppliers to likewise engage with the responsible sourcing sector and multi-stakeholder forums could however prove highly beneficial to the company in the long run, especially in preventing Drive Sustainability's isolation on sometimes politicised human rights issues.

Leverages through multi-stakeholder collaboration

The wider responsible sourcing sector, particularly as it relates to sourcing from conflict affected and high risks areas, offers **numerous opportunities to engage with multi-stakeholder initiatives in support of projects and programs to advance the implementation of responsible minerals sourcing**. It may be instructive for Drive Sustainability to undertake a slightly more in-depth landscaping of the range of opportunities available here in light of the specific issues identified as affecting it in its own supply chain sources.

Consideration of joining the **EPRM**, given its focus on supporting compliance with EU conflict minerals rules, is highly advised. Such membership would offer Drive Sustainability a good insight into the latest initiatives currently being implemented, relevant challenges and a wealth of potential partners in driving

its leverage further down supply chains on a cross-sectoral basis. It is advisable that Drive Sustainability members engage as well in such membership independently of Drive Sustainability due to the additional strength of leverage and opportunities that such membership might offer.

Drive Sustainability would also enhance its positioning and potential for leverage by establishing a regular and engaged presence at the OECD forum on responsible minerals souring from conflict-affected and high-risk areas on an annual basis. In doing so, it could build further on representation by BMW's Management Board at the 2019 Forum, during which Andreas Wendt offered a keynote presentation on impact management.[20]

Zinc

Globally, the usage of zinc die casting is almost 30% in the automotive industry, including pressure die casting and vacuum die casting. Over 50% of global zinc production goes toward galvanizing steel. The automotive share of global zinc is significant, and it is recommended to also engage with businesses beyond the automotive sector that use zinc to address issues regarding sustainability and the zinc value chain. Zinc die casting is used for vehicles in many applications, including seatbelt components, and parts of the windshield wiper, sunroof and chassis. Zinc is also often found in brake parts, door lock housings, camshaft components, within components under the hood, and within parts of the fuel system.

Most salient risks in the zinc value chain include:

- Serious human rights abuses, including child labour and violence at mining stage
- Terms of employment and work contracts at mining stage
- Occupation health and safety throughout the zinc value chain, from mining to product manufacturing
- Community and residential rights at mining, roasting and refining stages
- Limited local added value from mining projects
- Land use and biodiversity and impacts after activity closure
- Efficient use of water during mining, roasting and refining stages
- Waste management, including soil and water contamination from hazardous materials at mining, roasting and refining stages
- GHG emissions at refining stage

Leverage together with business peers

Considering the application of zinc in the automotive sector, **Drive Sustainability should advocate for companies in the zinc value chain to manage and mitigate identified risks.**

For example, a public commitment could emphasise expectations from the automotive industry for companies producing zinc for specific risks such as:

- The labour rights and health and safety issues reported at the mining stage.

[20] https://mneguidelines.oecd.org/2019-Forum-on-Responsible-Mineral-Supply-Chains-AGENDA-English.pdf

- The acid rock drainage and effects on the local water supply that have led to community and social unrest, as well as issues impacting Indigenous rights, in Australia, Mexico and Peru.
- The depletion of water sources as a part of the zinc refining and smelting process and the mishandling of wastewater.
- The release of cadmium, a known carcinogenic, during the smelting stage, which leads to severe health implications and may impact workers and communities.
- The release of zinc oxide at the zinc alloying stage, which may impact workers exposed to the substance and cause metal fume fever.

Leverage through bilateral engagement with one or more third parties

Drive Sustainability could consider engaging with the following industry associations or initiatives relevant to the zinc value chain:

- International Zinc Association (IZA)
- International Lead and Zinc Study Group (ILZSG)
- ResponsibleSteel (Zinc is a critically important raw material for the steel sector, and over 50% of global zinc production is used to galvanize steel)
- Responsible Minerals Initiative (RMI) and specific standards:
  - Joint Due Diligence Standard for Copper, Lead, Nickel and Zinc
  - ESG Standard for Mineral Supply Chains
- Zinc Battery Initiative (ZBI) – a program of the International Zinc Association (IZA).

Drive Sustainability can endeavour to work closely with the IZA, currently one of the leading organisations on the globe for the zinc value chain. The IZA engages with a network of stakeholders and industry initiatives in the pursuit of promoting the zinc value chain. The IZA also has dedicated programs looking at environmental and social impacts along the zinc value chain, as well as a dedication to sustainability.

Drive Sustainability could also consider ways to support the work of the Responsible Steel Standard and RMI to promote the responsible sourcing of zinc and its associated standards, auditing and certification schemes. These standard-setting organisations have expertise identifying stakeholders along the zinc value chain involved with the elements of sustainability and ESG impacts.

Drive Sustainability could engage with the ILZSG's 30 member countries and advocate for management and mitigation of materialised risks along the zinc value chain. Drive Sustainability could particularly focus on member countries that host locations where salient risks have been found, including Australia, China, Peru, Mexico and the United States. Drive Sustainability can work with these countries and others to raise awareness of the risks identified and create action plans to address them.

In the case of zinc, it is important for Drive Sustainability to recognise the role of the following Governments and consider avenues to exercise leverage in collaboration with relevant stakeholders:

- Mining: the governments of Australia, Bolivia, Mexico and Peru. These countries have been cited as locations that deal with serious human rights abuses such as child labour in zinc mining

(Bolivia); environmental issues such as water use and the depletion of natural resources (Peru & Mexico); water and exposure to hazardous waste (Australia & Mexico).

- Smelting: the governments of China and the USA (here, regarding an American Zinc plant in New York state), where the mishandling of zinc smelting has been found to result in numerous environmental and hazardous waste violations and heavy metal pollution.
- Recycling: the government of the USA (state of Pennsylvania) regarding numerous environmental violations linked to a zinc recycling plant owned by American Zinc. Millions of dollars in fines have been attributed to this zinc recycling facility for alleged violations of air, water and hazardous waste laws.

Leverages through multi-stakeholder collaboration

By engaging with IZA and ILZSG Drive Sustainability could help the associations increase their leverage through pressures on companies that have been cited for alleged incidents of child labour, such as the Porco Mine in Bolivia, and water use and waste and wastewater mismanagement in countries such as Peru, Mexico and Australia.

Drive Sustainability could engage with all industry associations that have as members American Zinc, the Porco mine in Bolivia, Glencore-owned Volcan Mine and McArthur River Mine in Australia, the Newmont-owned Peñasquito Polymetallic Mine in Mexico, China Minmetals Non-ferrous Metals Co. Ltd., Antamina Mining in Peru, within others. The request should be the same, to support their members managing and addressing most salient risks.

[i] https://www.chathamhouse.org/events/all/research-event/sand-monitoring-and-management-sustainable-future