



re-sourcing

RE-SOURCING VIRTUAL CONFERENCE

Conference Report

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Vienna University of Economics and
Business**

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1 Introduction

The first Virtual Conference of the RE-SOURCING project 'On the Road to Responsible Sourcing' took place from November 8-10, 2021. During three half-days, the sessions dived deeper into three key issues of responsible sourcing:

1. **Supply Chain Due Diligence** - How to move towards meaningful and holistic impact?
2. **Responsible Sourcing for the Green Transition** - A Roadmap to 2050
3. **Closing the Loop of Responsible Sourcing** - How to make global raw material flows more sustainable through circularity?

This conference report summarises the presentations and discussions that happened during these three sessions. Session one revolved around the question how supply chain due diligence can lead to real impact. The concept has gained traction over the last decade as a major means to increase transparency and accountability in companies' supply chains. Led by foundational efforts such as the [UN Guiding Principles on Business and Human Rights](#) and the [OECD Due Diligence Guidance](#), multiple actors continue to develop DD strategies and practices in order to work towards global sustainability agendas. However, the increased adoption also leads to a heterogeneous understanding and implementation of DD with differing outcomes and impacts. In this session, a diverse group of experts from business, policy and civil society discussed different issues surrounding a major question in this regard: How does DD lead to change that is both effective and holistic in terms of the society and the environment?

The second day of the conference delved into the topic of responsible sourcing for the global green transition of the energy and mobility sectors that is necessary to combat climate change requires vast amounts of raw materials. To be truly sustainable, 'green' energy and transportation need to ensure that the sourcing of raw materials is conducted in a socially and environmentally responsible way. In this session, international experts took a deep dive into the concrete targets and measures needed to realize this ambition, informed by the RE-SOURCING Project's Roadmap for the Renewable Energy Sector and a preview of results from our Mobility Sector Roadmap.

The Circular Economy (CE), which has become a major vehicle to deliver the ambitions enshrined in global and local sustainability agendas, was the focus of the last day of the conference. Closing or at least narrowing the loop of product life cycles for decoupling economic activity from primary resource consumption is a promising proposition for business and sustainability alike. Naturally, CE has significant implications for the sourcing of raw materials both in primary and secondary raw material flows. However, a profound discourse on the precise interlinkages between Responsible Sourcing and Circular Economy is only emerging. This session will start by exploring Responsible Sourcing's role for CE and vice versa, followed by a diverse selection of high-level experts that will zoom in on two concrete issues: How to improve Responsible Sourcing in global secondary raw material streams and what is the responsibility of manufacturing companies to improve sustainable circularity in raw material flows?

2 Day 1: Supply Chain Due Diligence – How to move towards meaningful and holistic impact?

2.1 Presentation of the RE-SOURCING Project



Alexander Graf, Researcher at the Vienna University for Economics and Business and Project Coordinator of the RE-SOURCING Project, provided an overview of the project. As a Horizon 2020 project, it aims at bringing together companies, civil society and policy stakeholders that are willing to contribute to the responsible sourcing agenda. The ultimate objective will be to **build a global stakeholder platform**. The project will be running through 2023 and has four main goals:

- Establish a common Responsible Sourcing (RS) Vision for EU industry
- Increase uptake of RS practices by business and public policy
- Foster global advocacy for a common definition of RS
- Build a well-connected and diverse global RS community

Major actions for engaging with different stakeholders, include workshops and webinars, good practice manuals, and roadmaps for three EU industry downstream sectors as well as finding and broadly disseminating solutions. To foster global advocacy for a common definition of RS, there will be **three Global Advocacy Fora**, one in Asia, one in Africa and one in South America. The project will support international RS agenda setting (e.g. at the OECD or UN). To support building a well-connected and diverse global RS Community there will be an **online knowledge repository, conferences and webinars, as well as innovative storytelling and webcasts**.

2.2 Opening Note – Setting the Stage: are sustainability and responsibility strategic success factors for corporations?



André Martinuzzi, Founding Director of the Institute of Managing Sustainability and overall project coordinator of the RE-SOURCING project welcomed participants to the conference and referred to two studies to answer his question about the business case for responsibility. One of the studies asked companies around the world if they integrated the SDGs into their business strategy, of which 71% confirmed this in 2019 – this shows that the SDG integration has happened faster in the private sector than the public sector. The other study, from 2020, examined whether companies reported on their sustainability achievements, which 80% of companies worldwide affirmed to do, stating that the GRI is the most widely used reporting standard.

There are five main approaches to implement sustainability and responsibility, each with their advantages and disadvantages:

- Philanthropy, which is easy to communicate and initiate, but there are no links to the core business and the amount given is correlated to the company's profits.
- Eco-efficiency, which is effective when resources are expensive and it will positively affect the operations in the long run but it bears the risk of privatizing profits and socializing losses.
- Management systems e.g. ISO 14001, these provide a well-established and systematic approach but provide little room for innovation.
- Product differentiation, this allows to target market niches and therefore to ask for higher prices but the commitment-behaviour gap in consumers can result in low sales
- Responsible Innovation, with which first movers can gain competitiveness in the market, however such new business models can be difficult to set up
- Responsibility for impacts, by which companies need to consider their wider impact in society as well as their entire value chains. Effective implementation can have lasting effects on consumer habits and the operations of other companies.

For the journey to responsibility and sustainability to be effective, it is necessary for management to broaden their scope on several fronts. The focus needs to shift from shareholder value to shared value; from financial goals to impacts; from a narrow view on the company to thinking about value chains and management systems; from a command and control approach to increased collaboration; and finally from a technology push to open innovation.

2.3 Introduction to session 1 by Tobias Kind-Rieper (WWF)



Tobias Kind-Rieper, Global Lead Mining & Metals with WWF and member of the RE-SOURCING project, introduced the session by reiterating saying that supply Chain Due Diligence (DD) has gained traction over the last decade as a major means to increase transparency and accountability in companies' supply chains. He touched upon several points of importance to this topic, which will be further elaborated upon by the speakers and panellists in this session.

2.3.1 Keynote speech: Supply Chain Due Diligence – How to move towards meaningful and holistic impact?



Fabiana Di Lorenzo is a responsible sourcing and human rights expert at the Responsible Business Alliance (RBA), with an extensive background in business, minerals and metals.

For her, due diligence means that companies need to understand and account for the risks they encounter in their operations. This implementation will not be perfect from the beginning, and it will be a learning process leading to increased effectiveness over time. In practice, companies therefore need to be concerned how they, their suppliers and their suppliers' suppliers operate, and whether there are risks of negative impacts on people and the environment. As due diligence requirements are being included in national laws and will soon be imposed by EU regulation, companies need to have management systems in place to identify, mitigate and remediate such risks. There are a number of sources where companies can turn to for guidance

and tools to improve their due diligence efforts such as the OECD, or the Responsible Minerals Initiative (RMI). With regards to Artisanal- and Small-Scale Mining (ASM) Fabiana emphasises the importance of engagement on the ground with local ASM actors as a powerful lever to achieve positive change. Companies have a responsibility to engage with these actors and support them in improving the impacts of their operations. Disengagement, on the other hand, is an unfavourable option as it often leads to conditions to further degrade for humans and the environment it should therefore be seen as a last resort.

She followed this with a short overview of the actions of the Responsible Business Alliance (RBA) and the RMI and how they are supporting companies in their journeys to implementing proper due diligence. In broad terms, the RMI conducts audits and assessments, has partnerships with other business associations and strong collaborations with its member organisations as well as the members of other associations to create the most effective guidance for companies. Essentially the RMI provides tools and guidance on the following five areas of due diligence implementation. 1. Establishing strong company management systems, 2. Identifying and assessing risks in the supply chain, 3. Responding to and managing risks, 4. Auditing of smelters' and refiners' due diligence practices, 5. Publicly reporting on due diligence actions.

2.4 Panel discussion 1: From due diligence and risk assessment to driving change on the ground in mineral value chains – does DD work for businesses and local communities alike?



Panel Discussion

From due diligence and risk assessment to driving change on the ground in mineral value chains – Does DD work for businesses and local communities alike?



Angela Jorns
Levin Sources



Guy Muswil
Kamoa Copper



James Nicholson
Trafigura



Telye Yurisch Toledo
TERRAM

Key takeaways of the panel discussion

Holistic approach to risks:

- Identifying risks by engaging with local communities and on the ground site assessments
- Impact-focused due diligence to mitigate the various risks in a companies' value chain
- Stronger focus on ASM, as this is where most of the human rights and environmental risks in a value chain are concentrated – e.g. formalisation of ASM, programmes to support ASM communities in adapting their operations

Importance of proper governance:

- The government needs to act as a mediator between local communities and companies
- Human and environmental rights need to be safeguarded through binding policies
- A more proactive approach in reducing risks associated with extractive activities needs to be taken by governments with focus on region specific issues – e.g. strong water management policies in dry regions
- Free and prior informed consent is needed

Downstream pressure on upstream actors and how to support them in their uptake of RS practices:

- A significant amount of upstream change is driven by downstream demand for responsible sourcing of materials
- Many ASM or remote suppliers are at the beginning of their responsible sourcing journey, downstream actors need to support them in this transition
- It is important to control traders and manufacturers to ensure that they are buying and selling their raw materials responsibly
- Changes in consumer expectations and demands, are pushing governments to act as well as expecting manufacturing companies to increase their effort towards due diligence being enacted along the supply chain

Speaker statements:

Angela Jorns, Senior Manager in Good Governance and Responsible Mining at Levin Sources, discussed why risk assessment is crucial in mineral value chains, but to maximise the impact, it is important how risks are defined. The more holistic the considered risks are, the more impact on the ground will be achieved through the mitigation of these risks. The most effective approach by companies to reduce risks is the proper management of impacts in their operations. Enacting adequate due diligence and expecting the same of their suppliers is the most important step in reducing the negative impacts along a companies' value chain. On the downstream side, customers and manufacturing companies can influence the actions of upstream actors by making such responsible practices a prerequisite for engaging in business. When enough downstream actors start to demand specific practices from upstream business partners, these will adapt and the negative impacts along mineral value chains will be reduced.

Guy Muswil, the current president of Local Content Sub Commission in the DRC Chamber of Mines, as well as heading the HSE and Sustainability Departments as Executive Manager at Kamoa Copper SA, provided insights to risk assessment from an upstream perspective of copper mining.

For a responsible company to reduce supply chain risks, conducting due diligence on their suppliers is imperative. The most effective way is a direct assessment of suppliers on the ground, in respect of their compliance, impacts and practices aimed at producing change along the value chain. In addition, policies are needed to oblige these actors to adhere to their code of conduct.

Proper risk assessment of the value chain is crucial to safeguard local communities. To draft adequate risk management systems, the local communities directly impacted by the operations need to be the first ones that are consulted. If a company is genuinely interested in reducing their negative impacts on local communities, they need to map all of their risks, and once all the risks are identified the company needs to set up action plan how each of these risks can be mitigated.

James Nicholson Head of Corporate Responsibility at Trafigura, shared his views on risk assessment from a downstream perspective touching on the efforts downstream actors can make to change upstream practices.

A downstream company needs to understand the operations of a supplier before engaging with them. In the case of Trafigura there are several outside entities which demand the company takes proper measures to ensure due diligence is enacted along their supply chain and their suppliers are operating within adequate levels of responsibility. These external actors are banks, exchanges such as the London Metals Exchange and downstream companies, and they will enquire whether proper risk assessment has been conducted and efforts undertaken to reduce these risks.

The most effective way for risk assessments and mitigating actions by downstream actors is to have people on the ground on the sites of the suppliers. Continuous dialogue, engagement and support is the best way to achieve change in the suppliers' practices. This holds especially true for ASM actors that are inexperienced in compliance and risk management activities. For such suppliers, pragmatic measures are important to continuously support them in shifting their business practices to be in line with the downstream requirements of responsible sourcing.

Telye Yurisch Toledo, researcher at Fundación Terram and active member of the Latin American Network on Extractive Industries (RLIE) as well as the Civil Society Council of the Chilean Copper Commission, focused on how risk assessment affects businesses on the ground and the potential positive effects on local communities.

He also emphasised the importance of how risks are defined and on what scale these risks can and should be addressed. Taking the example of Chile, a very resource rich country, where there has been a governance gap in regards to properly managing mining risks for local communities. To meet the coming increase in raw material demand for the Green Transition, while simultaneously reducing the negative impacts on local communities, there is a strong need for a framework aimed at closing this governance gap.

Guidelines responding to this issue should be drafted by consulting the affected communities, e.g. opening the possibility for participation by indigenous communities in the consultation process to properly understand the potential risks and how to manage them. Additionally, the government needs to take a clear stance on their actions and follow through with the defined framework, this will allow the government to act as a mediator in discussions between communities, businesses and CSOs to ultimately resolve such issues in a way that is in line with responsible sourcing guidelines.

2.5 Panel discussion 2: Expanding due diligence to the environment – How to achieve holistic impact?



Panel Discussion

Expanding due diligence to the environment – How to achieve holistic impact?



Jan Kosmol
German
Environment
Agency



Jane Joughin
SRK Consulting



Jorge Sanhueza
Codelco



Johanna Sydow
Germanwatch

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Key takeaways of the panel discussion

There are differing views on the separation of environmental and human rights due diligence:

- Environmental impacts and human rights abuses cannot be separated, the most common human rights abuses from mining are in relation to the degradation of the environment
- Another point of view is that these two should be separated as they are at different stages of development and implementation
- A lack of environmental due diligence measures is often apparent only years later as the effect can be delayed by the several years that it takes pollution to cause adverse health effects on local communities

Why Environmental Due Diligence is necessary/beneficial:

- Countries cannot impose legislation in other jurisdictions but they can force companies to adhere to certain standards in their operations if they want to operate in certain markets
- It tackles issues of accountability at the root, eliminating the need for lengthy court trials to establish correlations between i.e. pollution and health effects on local communities

How to implement effective Environmental Due Diligence:

- Establish proper management systems and identify risks by engaging with local communities
- Establish legislation to force companies to enact it

- Offer rewards to early adapters in the market and showcase them as best practice examples

The speaker statements addressed why environmental due diligence is important and how it relates to their work.

Jan Kosmol, researcher and policy officer at the German Environment Agency (UBA), opened his statement by pointing out that numerous studies show that a large part of the environmental impact of high-income countries occur in the supply chain. For example, in Germany in addition to domestic GHG emissions the same amount is generated through imported goods. Therefore, there is the risk that greening the economy in high-income countries could brown the economy in low income countries. Besides the moral arguments there are obvious economic and social arguments as the impacts of climate change associated to trade, such as disruptions to global value chains, will hit Germany harder than the actual climate effects. Environmental policies of governments and companies need to address this.

Due diligence is a well-known and powerful approach to address companies' responsibilities and incentivise continuous improvements. It is not the gold bullet to solve all challenges but it is one important building block in achieving responsible sourcing. From a legislation perspective, mandatory due diligence is used to effectively address extraterritorial risks. As a governing body cannot set standards or guidelines in another jurisdiction, they can force the companies to adhere to a set of standards in order to be able to do business in its own legislation.

Jane Joughin, Corporate Consultant at SRK South Africa with extensive experience in impact assessment, permitting and auditing of mines, said that environmental impacts and human rights impacts should not to be seen separately in this discussion. People are dependent on natural resources, therefore, if there is a negative impact on natural resources there will be a negative impact on human rights.

However, the environmental side of due diligence needs to be more clearly integrated in the current mainstream guidance documents in order to provide an effective framework for mitigating environmental risks. Because once a negative impact has already occurred it is too late to act efficiently. Therefore, such impacts need to be identified prior to the operations. Rigorous, expert-led environmental impact assessments and exchange with local communities are vital to properly identify and mitigate environmental risks prior to the beginning of mining activities.

Jorge Sanhueza, Sustainable Development Manager at Codelco, provided the corporate and upstream perspective of how environmental due diligence is implemented on the ground. He explained that Codelco has taken part in challenging commitments until 2030 in relation to carbon footprint, water footprint, circular economy, tailings storing and also community engagement. Environmental due diligence is important in order to address issues cross-sectionally, it is important, just like in human rights due diligence to identify common elements that allow consensus-building. Knowing when a company or organisation has conducted proper due diligence is an important starting point to establish credible transparency in raw material value chains.

Johanna Sydow, Senior Advisor for Resource Policy at the NGO Germanwatch, highlighted that environmental due diligence is important to ensure that we stay in the planetary boundaries by

controlling the impact of industry on the climate targets, while further preventing the externalisation of the costs of extractive activities. The first important step towards this reduction however, would be to make products more circular and aim at reducing the amount of extracted primary raw materials in our economies. Environmental impact assessments are crucial due diligence tools as they are the first step in preventing harmful impacts on the environment which often result in harmful impacts on local communities.

The environmental impacts are often only apparent years after the operations are closed, such as increased cancer rates in local communities years after the end of a mining operations. This was the case at a Colombian mine site, for which the company avoided paying fines by arguing that no definite proof of the link between their prior activities and the increased cancer rates can be established. Therefore, holding companies accountable for not having appropriate monitoring systems is a much more effective way to solve issues of accountability and preventing risks.

2.6 Project presentations

2.6.1 **Circular** presented by Ellen Carey (project coordinator)



Circular's mission is to make the world's most complex supply chains more transparent to prevent the exploitation of people and the planet. It offers technology to improve the sustainability, traceability and risk management of complex supply chains in different sector. The main focus is on minerals and materials and greenhouse gas emission attribution throughout the supply chain as well as the ESG performance at every stage.

To ensure traceability along the supply chain, facial recognition is used to tag the material at the mine site, which is then tracked digitally through the refining and manufacturing process. This is facilitated by software for data upload and complemented by reports and technologies such as Blockchain and AI to manage risks and ensure a seamless tracing of the material along the entire supply chain.

For more information, visit: www.circular.com

2.6.2 **EU-Latin America Partnership on Raw Materials** presented by Aissa Rechlin



The project works towards ensuring sustainable, responsible and secure supply chains of raw materials to the EU, especially in the context of the EU Green Deal and the digital transition. It supports the development and strengthening of responsible sourcing practices within those value chains. Additionally, it fosters cooperation and business ties on raw materials between the EU and Latin America. In this regard, it helps to establish the EU leadership on innovation and technology for the mining sector.

To achieve their goals the project created a network platform, the Mineral Development Network Platform. Additionally, they organise events, such as conventions and webinars and offer a space to present related projects.

For more information, visit: www.mineralplatform.eu

2.6.3 **GemFair** presented by Adam Rolfe (project coordinator)



GemFair works towards transparency, empowerment and fair value for the ASM sector, acting as a responsible diamond buyer and trader in the Kono District of Sierra Leone. The main purpose is to create secure routes to the market for ethically-sourced artisanal and small-scale mined diamonds. It aims to support the formalisation of the ASM sector and to establish ASM as a source of development, focusing on creating fair value and finding solutions to current industry issues.

Additionally, they work towards setting higher standards in the ASM sector and delivering quantifiable social impacts for miners and local communities, as well as to elaborate solutions to enhance the responsible sourcing from ASM and offering training and capacity development. Furthermore, an overall goal of the project is to change the often negatively framed narrative around diamonds sourced from ASM.

For more information, visit: www.gemfair.com

3 Day 2: Responsible Sourcing for the Green Transition – A Roadmap to 2050



Masuma Farooki is consulting director at MineHutte and member of the RE-SOURCING project. She introduced the session by stating that the global transition of the energy and mobility sectors, that is necessary to combat climate change, requires vast amounts of raw materials. To be truly sustainable, 'green' energy and transportation need to ensure that the sourcing of raw materials is conducted in a socially and environmentally responsible way. In this session, international experts will take a deep dive into the concrete targets and measures needed to realize this ambition, informed by the RE-SOURCING project's Roadmap for the Renewable Energy Sector and a preview of results from our Mobility Sector Roadmap.

3.1 Roadmap for the Renewable Energy Sector



Marie-Theres Kügerl is a researcher and PhD student at Montanuniversität Leoben in the field of sustainable mining practices and responsible sourcing. She leads the RE-SOURCING project on the side of Montanuniversität, and is responsible for the roadmap development for the renewable energy sector.

This Roadmap for the Renewable Energy Sector is the first of three that will be produced by the Re-Sourcing Project. The project is in the process of developing roadmaps for the mobility and the electronics sector. All roadmaps include upstream and downstream perspectives, they are stakeholder driven and take into account the Sustainable Development Goals (SDGs) and the actions necessary to combat climate change.

This roadmap on the renewable energy sector takes into account three key stages of the supply chain

- Mining & Processing
 - Copper
 - Rare Earth Elements
 - Quartz/Silicon Metals
- Manufacturing & Recycling
 - Wind turbines
 - Solar PV Modules
- Supply Chain
 - Procurement

The Roadmap is based on strong Sustainability and Planetary Boundaries. This means the conservation of natural capital and ecosystem services, achievement of the Paris Agreement, a shift away from our current growth paradigm, and the SDGs as milestones, but not the ultimate goal. The achievement of the roadmap builds on international collaboration and harmonised sustainability and reporting criteria.

The following graphic shows the different targets set out in the roadmap.

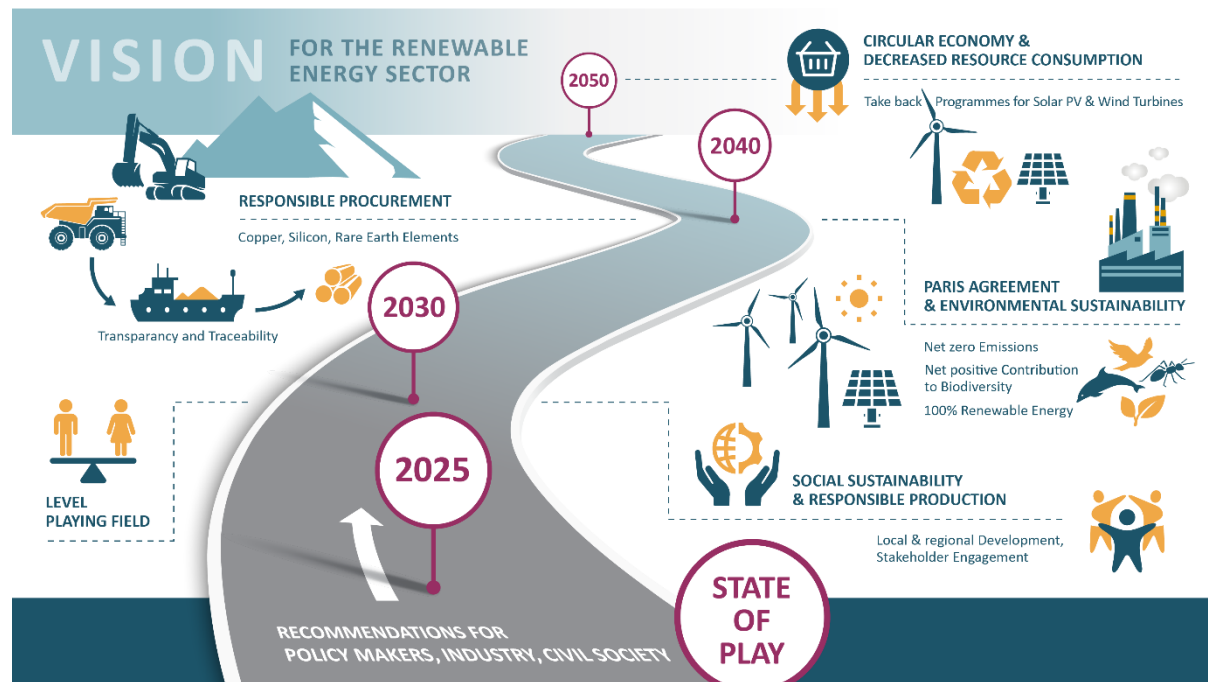


Figure 1: Roadmap for the Renewable Energy Sector

Target 1: Circular Economy and Decrease

Milestones for 2025

- Re-source efficiency and waste policies
- No expansion and new development of fossil fuels
- Targets for energy consumption
- Collection and recycling programmes
- Integrated sustainability accounting and reporting

Milestones for 2030

- Circular Economy
- Reduction of energy consumption
- High value recycling of wind- turbines and solar PV
- Optimised resource management
- Policies for changes of economic system

Milestones for 2040

- Significant increase in resource efficiency
- Move away from continuous economic growth

Milestones for 2050

- Reduction of energy intensity by >70%
- Establish new economic system

Roadmap recommendations:

For policymakers, the roadmap recommends to introduce eco-design policies for solar PV and wind turbines and to support recycling activities to create a market for secondary raw materials. For the

mining industry, the roadmap recommends to continuously modernise the fleet for electrification and decreased energy intensity. The manufacturing industry should improve collaboration between the supply chain stages and to invest in R&D to substitute unrecyclable materials. Research and academia should develop new and advance existing technologies focusing on the reduction of resource and energy use. Eco-design should be considered from the very beginning of technology development. Further interdisciplinary cooperation is needed. NGOs are recommended to increase awareness of the impact of consumption patterns and possible alternatives and to cooperate with policy makers to jointly develop resource efficiency measures and to communicate those to the public.

Response to Target 1 by Estelle Gervais, Fraunhofer Institute



Estelle Gervais is a research fellow at the Fraunhofer Institute for Solar Energy Systems in Freiburg, Germany, specialising in raw material criticality, sustainability strategies and circularity for current and future PV technologies. She mentioned that the idea of decreasing consumption is not new and there has been a lot of this question in recent years, especially in terms of energy efficiency. For example, there has been a reduction in silicon waste and wastewater in solar PV production. However, most of the improvements in energy efficiency have mainly been driven by a motivation to reduce costs, and by the objective to make PV an economically viable option for energy production. Now that this objective has been achieved, the question is how we move forward from here to create more ambition in sustainability. PV production will increase substantially until 2050, which will lead to a sharp increase in the demand for resources. A study by the Fraunhofer institute has shown that meeting the world demand for PV until 2050 will consume about 11% of the GHG budget for the 1.5°C pathway, despite its low carbon footprint.

Research can help in addressing these challenges. For example, researchers are working on more efficient cell design. Critical issues can be addressed by diversifying trade and substituting materials with high supply risks, for example indium. Furthermore, we need to move towards high value recycling and to establish economies of scale for recycling. There needs to be more product design for recycling and reuse to increase the share of recyclable materials in production. In addition, we need more data to understand our material consumption patterns along the entire value chain. For this, we need methodological tools such as life cycle sustainability assessments, which are currently being developed.

Target 2: Paris Agreement and Environmental Sustainability

This target includes milestones and recommendations regarding land-use, biodiversity conservation, electrification, life cycle business strategies, EHS Audits, renewable energy and net-zero emissions.

2025 Milestones

- Waste & land use policies
- Aichi Targets
- Climate and environmental reporting
- Environmental and climate impact assessments
- Life cycle business strategy

2040 Milestones

- Achievement of the Paris Agreement 1.5°C Target
- 100% renewable energy
- Net-zero emissions
- Zero pollution of land, air and sea
- Zero harmful air emissions

2030 Milestones

- SDGs 6,7, 12,14,15
- Reduction of GHG emissions
- Increase renewable energy capacity
- Net positive contribution to biodiversity
- Mandatory EHS Audits
- Ecosystem Impact Assessment and Performance Management
- Increase electrification of operations

To policymakers, the roadmap recommends to improve the harmonisation of environmental policies of EU member states and coordinate the implementation of reporting criteria. Mining regulations should be updated based on existing (voluntary) certification schemes. Industry actors need to implement environmental and climate reporting, including greenhouse gas accounting and reporting for the entire supply chain. In cooperation with other sectors, the reuse of unrecyclable materials needs to be improved. The role of civil society is to monitor and report violations of different regulations and certifications. Local NGOs and community associations are there to provide local expertise and mediate between communities, companies and governments. Research and academia can help to provide understandable information to companies, governments and the public. They support industry research on the development of new technologies.

Response to Target 2 by Raffaele Rossi, Solar Power Europe



Raffaele Rossi is a Policy Analyst at SolarPower Europe, where he leads the work regarding sustainability. He emphasised that one of the key selling points for the solar PV sector is to combat climate change by reducing global GHG emissions. Indeed, throughout its life cycle, solar energy produces at least 96% less GHG-Emissions than coal and 93% less than gas, but the carbon footprint of PV should nevertheless not be neglected. Therefore, reducing the carbon footprint in PV production is a key action to increase the sustainability of the sector.

Solar Power Europe has publicised three studies to minimise the carbon footprint in the industry, including a number of good practices. These include efforts to minimise energy consumption and using

green electricity in the manufacturing process and reducing the amount of carbon intensive material (aluminium, silicon, glass). For example, the amount of silicon per watt has decreased by 75% over the last 10 years. Another important aspect is to extend product lifetime and to maximise recycled content. All of these examples are crucial to decrease raw material needs and to improve the environmental impact of the industry. Yet, it is important to address other sustainability features too. The SDG framework shows how to take into account different environmental, economic and social aspects, and also that we need to take into account the whole value chain of PV panel manufacturing and their use. This includes the construction of solar parks and the proper treatment of end of life of PV panels. Examples for this are ecosystem preservation, biodiversity, human rights and transparency along the value chain and inclusiveness for a diverse workforce. This highlights that there are many examples how solar PV can provide a net benefit for environment and society.

Target 3: Social Sustainability and Responsible Production

The main aspects of this target are energy justice, occupational health & safety and meaningful stakeholder engagement. This includes working towards a just transition, increasing accountability and transparency, respecting human rights and fostering local development.

Milestones for 2025

- Gender and racial equality
- Procedural and distributive justice
- Integration of (social) Life Cycle Assessment and Life cycle perspective

Milestones for 2030

- SDGs 1,2,3,4,5,8
- Unification of standards
- Process optimisation and use of best available technology
- Local and regional development
- Corrective justice

For policymakers, the roadmap recommends to protect human rights defenders and support capacity building by civil society organisations. In manufacturing and recycling, policymakers should review occupational health and safety regulations to incorporate specific issues of wind turbine and solar PV manufacturing. In the area of mining, mine closure should be considered from the very beginning of project development. In manufacturing, social life cycle assessments need to be included in product development. Local NGOs are recommended to support multi-stakeholder approaches of companies and policy-makers. They can provide expertise in the field of ASM to support capacity building, infrastructure development and other necessary developments. Labour unions should monitor adherence to ILO conventions and cooperate with companies to improve occupational health and safety and provide training programmes. They are a key actor to support social sustainability along supply chains.

Response to Target 3 by Isabelle Geuskens, Friends of the Earth



Isabelle Geuskens works as the Just Energy Transition Senior Programme Officer at Miliedefensie (Friends of the Earth Netherlands). She discussed how civil society in general supports the rapid transition away from fossil fuels and their extraction, especially in the Global South. There are many lessons that can be learnt from fossil fuel extraction. Many partners of Friends of the Earth in the Global South are aware of the fossil resource curse and in the wake of the discovery of raw materials in their territory they see pollution, human rights violations and growing corruption, unfair

trade rules and a lack of accountability. Actors from the West have come many times with development rhetoric and promising jobs, but have not delivered. Communities in fossil fuel rich countries are still living in poverty, including energy poverty, despite the energy resources their countries have.

To reduce pressure on the Global South, the EU needs to decrease its material consumption significantly by 2050. Circular solutions can reduce the demand of primary metals and mining in- and outside the EU needs to be done with the highest environmental, social and safety measures and with the informed and equitable consent of affected communities. The EU must recognize, ensure and protect the involvement and rights of indigenous communities. This means a move towards more stakeholder engagement and bottom up decision-making. A part of this is to prioritize the right to free, prior and informed consent and communities' right to say No to mining.

For due diligence to work well, there need to be accountability mechanisms and sanctions. Access to justice and remedy for victims is important in due diligence legislation so that victims can seek justice in EU courts if required. Additionally, capacity development in developing countries should be supported so that they can also benefit from their natural resources. To highlight the current issues, partners of Friends of the Earth use the terms 'energy colonialism' and 'renewable energy colonialism' because foreign countries regulate the economy of these countries through trade agreements and the extraction of resources. Economic gains for resource extractions are not high enough (e.g. job creation, taxes, royalties), and there is not enough flowing back to the countries and communities who own the resources.

Target 4: Responsible Procurement

Main aspects for responsible procurement include mandatory supply chain due diligence, full transparency of mineral supply chains and resilient supply chains. This includes local development, supplier assessments, intra-supply chain cooperation and mining in Europe.

Milestones for 2025

- Standard for tracing raw materials
- Include supply chain due diligence in all trade agreements
- Resilient supply chains

Milestones for 2040

- Mandatory supply chain due diligence for all international actors

Milestones for 2030

- Achievement of SDGs along Supply chain
- Supply chain due diligence law
- Zero financial crime
- Local and regional development

To policymakers, the roadmap recommends to enable and strongly support responsible mining in Europe in order to avoid further 'burden-shifting'. In addition, raw materials and products imported from outside the EU should have to fulfil the same sustainability requirements as operations inside the EU. In general, the supply chain due diligence law should be implemented and made mandatory for all. This includes the implementation of control mechanisms.

Industry players need to assess and understand strategic vulnerabilities of companies' supply chains. The roadmap recommends that they decrease GHG missions along the supply chain by introducing tailor-made climate protection projects. In addition, industry players have to take decisive action against modern slavery and forced labour in supply chains of solar PV and wind turbines. In mining, they should support local procurement.

Response to Target 4 by Ben Katz, OECD Centre for Responsible Business Conduct



Ben Katz works on mineral supply chain due diligence at the OECD's Centre for Responsible Business Conduct and coordinates the OECD's work on measuring the uptake and impact of its due diligence standards. He warned that meeting our climate targets will 'turbo-charge' the demand for minerals. For example, an electric car needs six times as many metals as a combustion engine, 42 times more lithium, 25 times more graphite etc. The majority of current production volumes come from regions with low governance scores or high emissions intensity or both. This is a challenge for creating responsible supply chains that support accomplishing the energy transition.

Due diligence should support a just transition where producing communities' voices are respected. If Human Rights and Environmental Due Diligence are done right and companies engage responsibly in high risk areas, natural resources can play a positive role in development. One important way to do this is to establish and enforce standards.

Recycling will play an increasingly important role for responsible sourcing. However, this also poses the question of responsible exit. We should plan what happens in these regions and communities when we move away from primary production in some supply chains.

The OECD Guidance has a unique framework that maps onto all stages of the supply chain. This should clarify due diligence obligations for companies at different stages of the supply chain. The OECD has conducted a study on uptake of the due diligence guidance of 500 companies in the mineral supply chain around the world. Companies in the EV sector generally perform better than the average but there is still a lot of room for improvement, especially in the aspects of identifying risks and responding to them in producing countries and communities. Companies are doing better jobs at establishing policies and at auditing and reporting, but more progress has to be done here.

In general, due diligence is a process and it will take a while until the uptake of measures by a few will trickle down to wide-scale implementation of supply chain due diligence. To meet the milestones set out in the roadmap we need to accelerate progress as much as possible.

Target 5: Level Playing Field

The main aspects to achieve a level playing fields are the harmonisation of standards, the integration of Artisanal and Small Mining (ASM) and international collaboration and development. For this, a formalisation of the ASM sector is needed. In addition, important aspects are border-tax adjustments, producer responsibility, and a system that values quality over price.

The level playing field should be achieved by 2030 and includes the following milestones:

- "Polluter Pays"
- Border Tax Adjustments
- Extended producer responsibility
- Harmonised sustainability and reporting criteria

- Harmonised EU mining& production policies
- Formalisation of the ASM Sector
- International application of standards

The recommendations to policy makers are to strengthen international cooperation to develop harmonised mining standards for responsible extraction and to find mechanisms that goods manufactured with higher social and environmental standards are preferred over others. Furthermore, industry needs to internationally apply environmental and social standards. In the civil society sector, international NGOs act as mediators and independent advisory boards and negotiations between countries. International Organisations, such as the OECD, ILO or the UN should support the development of an international judiciary for companies, to continue to provide the framework for responsible behaviour of companies.

Response to Target 5 by Maria Nyberg, European Commission, Policy Officer DG Grow



Maria Nyberg is a policy officer at the European Commission, DG for Internal Market, Industry, Entrepreneurship and SMEs, unit 'Energy Intensive Industries and Raw Materials'. She said that it is necessary to involve civil society at all stages of the roadmap and supply chain. There is a need for dialogue on resource extraction with the public in order to raise awareness on the issue. One of the inputs to this dialogue are the EU Principles for Sustainable Raw Materials, developed together with member states.

These principles address social, economic, governance and environmental aspects and are aligned with the SDGs.

The EU portal *Due Diligence Ready* has been set up to support companies with their supply chain due diligence, to source minerals and metals responsibly and in compliance with the Responsible Minerals Regulation. The portal is designed for SMEs because performing supply chain due diligence can be time intensive and will further develop it to take into account future legislation.

Following the *Critical Raw Material Action Plan*, the Commission is setting up strategic partnerships to ensure responsible sourcing from third countries. Free trade agreements include ambitious sustainability and development goals, and cooperation on research and innovation to make value chains cleaner, greener and more resource efficient.

The forthcoming EU supply chain due diligence law includes a horizontal due diligence duty. This requires companies to identify, prevent, mitigate and account for sustainability impact in terms of environmental harm and human rights violations

The European Raw Materials Alliance has published a study on the materials needed for magnets and motors that are needed to turn the industry green and digital. The Alliance is asking for more transparency and sustainability, and demanding from the EU to promote ethical sourcing and transparency in rare earth value chain.

3.2 Responsible sourcing for the Green Transition – Towards a roadmap for the mobility sector



Johannes Betz who is a member of the RE-SOURCING consortium, working as a battery expert at Oeko-Institut gave an overview of the current work in progress for drafting the RE-SOURCING roadmap for the mobility sector.

The mobility sector roadmap process started with a state-of-play report covering the key players, challenges, initiatives, standards, visions and an initial gap analysis in the value chain of batteries. The main focus is on Lithium-Ion batteries, specifically on the stages of mining, cell production and recycling.

For the mining stage, the material focus was on lithium, cobalt, nickel and graphite. For each of these the information on production was researched i.e. players, locations, and environmental and social challenges. Secondly, for the cell production stage Oeko looked at the technical processes used, locations of cell manufacturers and major players. Lastly, for recycling existing capacities and technologies were investigated as well as locations of recyclers and challenges.

A stock-taking of standards and initiatives has been done in relation to the three main steps (better: stages? This is how they are called in the previous paragraph). , which helped to identify existing gaps in responsible practices and their implementation in cell production and recycling.

A consultative process was conducted that allowed actors from all over their world to provide their input in a brainstorming format. This allowed Oeko to scope and identify the main challenges, general ones and stage-specific ones, that needed to be addressed in the roadmap.

General challenges:

- Increase transparency and fairness in global mineral value chains.
- Implement independent reviews to enhance trust and acceptance.
- Recognize the urgency to implement these practices and start acting now.
- Reducing the energy consumption in battery production.

Mining specific challenges:

- How much of the needed materials can be mined in the EU?
- How can local development at mine sites be ensured?
- How can we achieve a harmonization of standards and initiatives?
- How can the formalization of ASM be achieved and the cooperation between ASM and LSM be improved?

Cell production challenges:

- How to reach 100% renewable energy in cell production?
- Cells need to be designed and made for recycling
- How can we ensure all primary materials are certified by strong standards and have undergone due diligence?
- How can local communities benefit from a cell production site?

Recycling challenges:

- Which criteria need to be met by batteries to be certified for export (i.e. capacity, design etc.)?
- How can the EU support the construction of recycling plants in other countries (i.e. R&D, knowledge sharing, financial support)?
- How can we implement effective recycling standards?
- What are effective and achievable quotas on recycling and which materials should be focused on?

3.3 Panel discussion 2: Procurement – Global perspectives on implementing a responsible supply chain



Masuma Farooki introduced the session stating that the conversation about standards and necessary actions has been happening for decades and it sometimes feels like this conversation is going in circles. This panel will look at what is actually being done in terms of RS practices, and if it contains a lot of empty commitments or if actual progress is made.

Key takeaways of the panel discussion

Public and private upstream actors need to be strongly supported in their journey to responsible sourcing:

- Governments in developing countries and state-owned enterprises need to be strongly supported in the designing and implementation of RS frameworks
- Issues of governance need to be better integrated into the RS discussion
- There are great ambitions and expectations amongst these actors, but if they are lacking the means to properly implement RS measures they will be slow in their uptake

Needs a stronger focus on implementation:

- The main issue is not a lack of standards but of correct implementation
- To incentivise effective implementation the reward for uptake of RS needs to be linked to the actual implementation and not simply to the existence of a framework, for both public and private actors
- Different tools and interventions are needed at different steps of the journey, fines are useful to get actors to the compliance stage, but to make stakeholders care you need to go beyond that. Such issues arise from a simplistic compliance driven implementation, more robust interventions are needed to effectuate real and lasting change

Other takeaways:

- There has been a positive trend of improvement in regards to the legal frameworks of Responsible Sourcing, but the practice and implementation has been lagging behind

- Best practice examples are a strong driver for change as their positive impacts are seen as inspirations for competitors

Speaker statements answering to Masuma Farooki's question to rate the implementation of RS practices, especially from a government perspective, on a scale of 1-10:



Amir Shafaie is the director of legal and economic programmes at the Natural Resource Governance Institute (NRGI). Amir and his team provide research and analysis in support of NRGI's mission: that countries rich in oil, gas and minerals achieve sustainable, inclusive development; and that people receive lasting benefits from extractives, and experience reduced harms.

He said that it is hard to give a number in regards to the implementation of RS practices. This topic needs to be addressed from different angles e.g. governance issues faced in developing countries are underrepresented in this discussion. RS focuses on traceability and compliance, but there is less focus on the core governance of the sector and on the country-level, e.g. anti-corruption.

The recent NRGI index still showed low numbers in developing countries, so there is a long way to go. It showed a significant implementation gap between standards and their proper inclusion into governance.



Jeff Geipel is the founder and managing director for the Mining Shared Value initiative at Engineers Without Borders Canada. This non-profit initiative works to improve the development impacts of mineral extraction in host countries through increasing local procurement by the global mining industry.

He answered that he would currently give the number 3.5 to 4 on the implementation scale, but he emphasised that it is an improvement, as he would have given a 2 only three years ago. The lack of implementation is the main issue as well as the lack of consequences for not implementing RS measures e.g. the OECD Guidelines for Multinational Enterprises have existed for decades. However, on the positive side, there has been more movement in the past 2-3 years, such as investors are increasingly asking about upstream risk management. Additionally, there were some high-profile cases where companies were sued for actions overseas and along their supply chain. These are a result of companies and governments in the north not taking appropriate actions and the resulting lack of management systems. In Canada, a mining company purchased labour through a local supplier in Eritrea that was using slave labour. This case went up all the way to the Canadian supreme court, shining a light on harmful practices and causing a lot of change in companies' practices.

Ideally, it should not take such court cases to effectuate change, and indeed, we are seeing the first steps of legal governance affecting supply chains positively. With the right measures a 6, on the scale of 1-10, can be reached fairly quickly.



Jonas Astrup is a United Nations Official currently serving as Chief of the ILO Third-Party Monitoring Project in Uzbekistan. He has a private sector background with over 20 years supply chain experience in extractives and consumer products.

To highlight the pressing need for effective measures and actions in relation to supply chain due diligence he opened his statement by giving several statistics related to human rights issues in global supply chains, 160 million children are in child labour, that's 1 in 10 children worldwide, of which half are in hazardous work. 25 million people are trapped in forced labour, 16 million in the private sector, 4.8 million in forced sexual exploitation, 4 million in forced labour imposed by state authorities. 2.3 million people die yearly from work related accidents and diseases, 340 million occupational accidents, 160 million victims of work related illnesses yearly.

On a scale of 1—10, when taking the scope of how good we are at using trade and value chains as a tool to address these issues, we still have a long way to go. Even though some companies, organisations and countries have made good progress as first movers in this regard.

Jonas strongly emphasised the value of standards and conventions and said that currently a lack of standards is not an issue, as a wide variety of those already exists. Such standards are important for businesses, as they help companies to move into a new market. There are often attempts to use code of conducts or audits to drive change, but such measures are rarely effective enough. He used a journey model to guide and illustrate the change process (basic, reactive, compliant, proactive, resilient).



Marie-Theres Kügerl answered that she would give 3-4 on the scale, however, not due to the implementation but because of all the work related to standards, frameworks and guidance that has already been done. As a result there is a lot of different guidance resources on necessary actions to achieve RS.

However, in terms of implementation we are nowhere near a successful and satisfactory uptake of these standards and frameworks. Even some of the most basic guidelines, such as the UN Principles on Business and Human Rights, have not yet been implemented by many companies. Many companies highlight what they do for RS, but from her experience responsible sourcing is often merely limited to de-risking, such as avoiding practices that could harm the reputation of the company and the shareholder value. E.g. avoiding certain suppliers and disengaging, so we are a long way from getting to RS in terms of creating value, and this is the target goal.

3.4 Project presentations

3.4.1 **NEXT (New Exploration Technologies) (2018 – 2021)** **presented by Dirk De Ketelaere (project coordinator)**



The NEXT project has developed 'A Practical Toolkit addressed to Mineral Exploration and Mining Companies'. The core objectives of the project focused on the development of new, environmentally sensitive exploration technologies, as well as gaining a better understanding of the factors affecting local attitudes towards exploration and mining.

These are some of the project's achievements:

- delivered new insights into how ore deposits are formed
- published new research into mineral exploration in glaciated terrain;
- developed a drone to conduct non-invasive mineral exploration;
- developed novel software for processing of mineral prospectivity mapping;
- delivered new products for mineral exploration;
- used of AI for self-organizing maps to support mineral predictive mapping;
- applied the findings of its new exploration technologies to a test site in Finland, that resulted in a large increase of estimated materials.

For more information, visit: <https://new-exploration.tech/>

3.4.2 **SUSMAGPRO (2019 – 2023)** (Sustainable Recovery, Reprocessing and Reuse of Rare Earth Magnets in a European Circular Economy) presented by Carlo Burkhardt (project coordinator)



The project is an industrialization project developing and demonstrating pilot plants for the clean and sustainable recycling of permanent magnets from secondary End of Life sources in Europe. They created a detailed database to assess the recyclability of magnets in different appliances. The project is working to establish closed loop recycling programmes with partners to continuously refine the recycling process, with the aim of achieving 15-20% of potentially recyclable materials in magnets by 2035.

For more information, visit: www.susmagpro.eu

3.4.3 **Resource Impact Dashboard** presented by Felicitas Fischer



The resource impact dashboard is an online available and publically accessible, free-to-use tool, to measure the impacts of mining at the extraction site, which enables stakeholders to monitor the effects of resource extraction on local development at the mine site level.

Its three main features are:

- a holistic view on development impacts in terms of social, environmental, economic and institutional effects;
- taking a balanced view on these impacts by including a wide variety of perspective by collecting data from a variety of sources through household surveys, public/institutional sources and mining companies;
- a standardised methodology which makes it easy to use and accessible for interested stakeholders.

This three-pronged approach ultimately aims at providing a common ground for constructive dialogue and for evidence-based policy.

For more information, visit: www.resource-impact.org

4 Day 3: Closing the Loop of Responsible Sourcing – How to make global raw material flows more sustainable through circularity?



Mathias Schluep is Managing Director of the World Resources Forum (WRF) and member of the RE-SOURCING Project and was the moderator for this session. He introduced the topic by pointing out that the Circular Economy (CE) has become a major vehicle to deliver the ambitions enshrined in global and local sustainability agendas. Closing or at least narrowing the loop of product life cycles for decoupling economic activity from primary resource consumption is a promising proposition for business and sustainability alike. Naturally, CE has significant implications for the sourcing of raw materials both in primary and secondary raw material flows. However, a profound discourse on the precise interlinkages between Responsible Sourcing and Circular Economy is only emerging. The session explored Responsible Sourcing's role for CE and vice versa, followed by a diverse selection of high-level experts that will zoom in on two concrete issues: How to improve Responsible Sourcing in global secondary raw material streams and what is the responsibility of manufacturing companies to improve sustainable circularity in raw material flows?

4.1 Keynote on Closing the Loop of Responsible Sourcing – How to make global raw material flows more sustainable through circularity?



Matthias Buchert, head of the Resources & Transport Division at Oeko Institute, introduced the topic by outlining the differences and similarities in the responsible sourcing of primary and secondary raw materials. For primary raw materials, mining activities are often burdened by problems of colonial heritage, issues of governance, corruption, an unregulated ASM sector and a lack of standards. Furthermore, mining is often related to environmental and health problems, which is why setting effective environmental and social standards for mining is very important. However, without a strong framework, companies voluntarily adhering to strict standards will be at a competitive disadvantage.

Secondary raw materials often have a better environmental footprint, but there are prevalent problems with working conditions and health protection in areas such as lead acid battery recycling in Africa. Deficits in collection rates are still observed and there is a lot of room for improvement. Similarly to the primary raw material sector, without strict standards and rules, responsibly acting companies will currently be at a disadvantage.

For base metals such as aluminium and copper as well as steel, there are currently extensive recycling infrastructures that result in efficient recycling rates. These recycling rates will continuously increase

due to the increase of the stocks of these metals in the economy. However, for the recycling of technology metals the potential has yet to be reached. For this, it needs proper collection systems aimed at these materials. Recycling technologies need to be further developed and taken up industrially for e.g. lithium from batteries or rare earth elements from magnets. To support this uptake, good framework conditions set by the legislators are essential to create a level playing field.

To this end, the EU has proposed the new EU Battery Regulation. This proposal is a milestone in EU environmental policy, a breakthrough in Circular Economy and an important building block of the European Green Deal. The proposal sets increasing recovery rate targets aiming at 70% recovery rates for Lithium by 2030, as well as mandating secondary lithium content in cell production e.g. 10% in 2035. It further forces manufacturers to enact due diligence efforts in their supply chains.

In conclusion, Matthias showed that there is great strategic potential for a circular economy in the long term, as it will redefine global supply chains and contribute to reduce the negative impacts traditionally associated with these value chains. In order to master this transition there is the need for clear and coherent rules and frameworks for the responsible sourcing of both primary and secondary raw materials.

4.2 Panel discussion 1: Responsible sourcing in global secondary resource streams – current challenges and how to address them



Responsible Sourcing in global secondary resource streams – Current challenges and how to address them

Panel Discussion



Sonia Valdivia
World Resources
Forum



Tatiana Terekhova
UN Environment
Programme



Susanne Karcher
African Circular
Economy Network



Luca Marmo
European Commission,
DG Environment

Key takeaways of the panel discussion

Problems with toxic waste and chemicals:

- Some countries are not equipped to properly deal with such waste streams
- There is the need for more stringent policies to prevent unregulated trade of toxic and chemical waste
- Unregulated trade will lead to inadequate processing, resulting in harmful effects for humans and the environment

Circularity in economies needs to be improved:

- There is 9% circularity in the global economy, and 12% in the EU, there is still a lot of room for improvement
- Primary materials will still be needed, therefore efforts for responsible sourcing of these are important to support the Circular Economy
- International trade plays a big role in enabling circular economy, the scope needs to be global

Differentiated approaches yield the best results:

- Different actions/approaches are needed for different waste streams e.g. toxic vs non-toxic, and some waste streams are more complex than others e.g. e-waste vs plastics
- Therefore, policies and conventions need to be adapted to respond to evolving realities in different waste streams e.g. mixed plastics containing toxic components
- In some cases, circularity of materials is undesirable and some materials should be purposefully taken out of the loop such as very hazardous materials e.g. persistent organic pollutants - POPS.

Balance the environmental and trade perspective:

- From an environmental point of view, restrictions make sense to prevent environmental damages through waste that cannot be properly processed locally
- From a trade point of view, the facilitation of trade is in the focus to better deal with secondary raw materials sourcing in on a global level and restrictions will be barriers to this endeavour.
- To balance these perspectives trade needs to be made more efficient while ensuring that developing countries are not burdened with unwanted waste

In their introductory statements, speakers were asked what they considered the two top issues in international secondary raw material streams that need to be most urgently addressed to improve responsible sourcing.

Sonia Valdivia, Scientific Director at the World Resources Forum, approached this question from a standardisation perspective emphasising the importance to focus on the need to understand what the value chain actually encompasses, what exactly the materials in question are, who the actors behind it are, as well as what and where the material flows are. This knowledge can result in the creation of an information system that will serve to properly address issues of circularity as well as to increase the understanding of hidden material flows. Furthermore, such an information system would help to identify elements that are critical to know in order to ensure a credible traceability. This, in turn, will inform the development of measures to solve key issues and identify opportunities for improvement and synergies in global material flows.

A well-functioning traceability will result in the increase of shared responsibility by actors along the value chain of secondary material flows. Only by generating commitment of all involved actors, and ensuring that shared responsibility is taken seriously, can the flow of secondary materials be effectively managed and made sustainable.

Tatiana Terekhova, Programme Officer at UNEP (United Nations Environment Programme) with a focus on the Basel, Rotterdam and Stockholm conventions, answered the question from the perspective of the UN and multilateral environmental agreements; particularly the Basel convention on hazardous and other waste and the Stockholm convention which aims to reduce and ban the production of some of the most toxic chemicals. She stated that Circular Economy embraces the waste hierarchy, as stated in the Basel convention, as it is focused on preventing and minimising waste production and on reusing, repairing, recycling and recovering resources with environmentally sound management. In the Basel convention framework, there are cases where e-waste or plastic waste provides good examples of how circularity can be effectively implemented on the ground.

First issue to highlight is the importance of considerations when it comes to national trade in hazardous and other waste. The convention provides protection to developing countries from unwanted hazardous waste that they cannot safely manage to protect environmental and human health. To ensure the effectiveness of this assurance, illegal international trade of hazardous and other waste needs to be adequately punished as a criminal offense.

Susanne Karcher CEO of the environmental consultancy EnviroSense CC in Cape Town, reflected on what was pointed out by Matthias Buchert about the need for social justice and human development to arise from the sourcing of secondary materials in Africa. There needs to be more focus on the value creation, such as skill building and job creation that is linked to providing these secondary resources. However, a stronger focus should also be aimed at secondary functionality, for which Africa could become a knowledge hub. This could additionally complement the efficient provision of secondary resources, so there is the need of maintaining the physical life of appliances e.g. through repair and sustainable design.

Luca Marmo, Senior Expert at the European Commission Directorate-General Environment, opened his statement by making a general point in terms of the broader sustainability aspects and the role that secondary raw materials can play in this context. The UN talks about a triple crisis that the earth is currently facing: climate change; biodiversity loss; and pollution, these are the three main aspects of unsustainable development with negative effects on the environment, social aspects and the economy.

To address climate change, a transition towards a green economy is necessary, this also encompasses the use of more sustainable materials, such as secondary raw materials that have a lower carbon footprint. The use of secondary raw materials can also minimise the effect on ecosystems by helping revert and reduce biodiversity loss. Reusing and recycling to avoid and reduce the extraction of additional primary raw materials helps to reduce pollution of the air, water and ground. Therefore, the use of secondary raw materials, and the responsible sourcing of them, helps to address the triple crisis that the world is currently facing.

4.3 Panel discussion 2: From sourcing to recovery – what is the responsibility of producers to improve sustainable circularity of raw material flow



re-sourcing

Responsible Sourcing in global secondary resource streams – Current challenges and how to address them

Panel Discussion



Pascal Leroy
WEEE Forum



Martin Eriksson
Boliden



Thea Kleinmagd
Fairphone



Olivier Groux
Kyburz

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Key takeaways of the panel discussion

E-waste is a complicated waste stream:

- The plastic content makes it hard to effectively extract raw materials
- This results in high emissions, high costs and low recycling rates
- Proper recycling systems are needed

Economic incentives are effective in increasing recycling:

- Primary raw materials are too cheap, as the consumer is not being charged for the footprint of the purchased materials
- Charging a tax that correlates with the materials' footprint would increase the demand for secondary raw materials
- Companies would put more efforts into establishing effective recycling systems due to economic and competitive reasons

First movers need to be rewarded in order to show the benefits of using secondary raw materials, which will motivate other companies to follow:

- A level playing field is needed
- Regulations and policies can be strong drivers for the uptake of these practices

- Early adopters will have a competitive advantage supplying the growing market for responsibly sourced (secondary) raw materials

Speaker statements focused on what is feasible in terms of responsibly sourcing secondary raw material, where are the limits and how can these practices be implemented?

Pascal Leroy, Director General at the WEEE Forum, stated that the material footprint of the EU is very high at 14.5 tons per capita, in this regard, there is a big, yet untapped recycling potential. With the correct actions, 40% of demand could be met through recycling by the year 2050. Currently, the EU is highly dependent on certain countries for their raw material imports and recycling only plays a limited role, as the recycling rates for all types of metals are still low. To improve recycling rates, the EU needs a strong legal framework including mandatory and properly enforced standards. Additionally, manufacturers can play an important role in the transition by joining producer responsibility organisations and committing to only do business with other companies following responsible sourcing guidelines.

Another area with a lot of room for improvement is the formal collection of electronic waste. In Europe 55% percent of e-waste is reported to authorities and properly recycled. Globally that number is only 17%. To improve this, it is necessary to include all actors with access to e-waste in this discussion and to allocate responsibilities that will be controlled.

Martin Eriksson is the Head of Copper Sales at Boliden, he explained that the company is faced with the issue of how far responsibility can be traced up the value chain for secondary materials. Additionally, the biggest issue in effectively recycling e-waste is the high plastic content in appliances that undergo the recycling process. Indeed, the carbon footprint of recycled copper from e-waste is the same than for copper that is mined and smelted in one of Boliden's mines in Sweden. The general recycling rate for copper is high, with the exception of e-waste, where the recycling rate is around 20%. Therefore, a big step towards a circular economy would be to create effective recycling systems for e-waste. Reducing the recycling cost will further benefit companies, as the concentration of secondary raw materials in e-waste is very high and will allow tapping into a lot of unused potential for secondary raw material recovery.

Thea Kleinmagd, Circular Material Innovator at Fairphone, explained that Fairphone is a smartphone manufacturer aiming at challenging other players in the industry by showing that it is possible to produce smartphones responsibly. The main focus areas are circularity and mining. She emphasised that secondary raw materials are not always sourced responsibly and mined materials are not always bad. Therefore, we need a granulated view on this topic. Indeed, we must ask the question of what responsibility and fairness are and how they can be integrated into a business' operations. Fairphone is focusing on continuous improvement in their supply chain, they acknowledge that a project or sourcing cannot be perfect from the beginning and challenges need to be identified and addressed along the way with all involved parties, to improve the commitment to responsible sourcing along every stage of the value chain.

An important driver for change will be the increase of the minimum regulations that manufacturers need to comply with i.e. creating a level playing field that will also reflect these costs into the prices.

One company alone cannot establish a responsible supply chain, but the more companies are forced to look at alternative/responsible supplies, the more the market will get established.

Olivier Groux, project manager and battery specialist at KYBURZ Schweiz AG explained how KYBURZ designed a closed loop system, where they buy back their sold vehicles to recycle them or reuse the batteries. The idea is not to talk about waste but about keeping materials in the loop as long as possible. Using their own battery recycling process, they manage to reuse 91% of materials in the batteries. There is the need for a standardised framework to rate and classify batteries before reusing and recycling them. This would help to create a regulated market with clear expectations of quality and price for second life batteries. Increasing the price of primary raw materials would increase the demand in secondary raw materials, which would lead to increased recycling rates and the need for regulated market for second-life batteries.

4.4 Project presentations

4.4.1 CEWASTE (2018 – 2021) (Voluntary certification scheme for waste treatment) presented by Shahrzad Manoochehri (project coordinator)



The CEWASTE project (voluntary certification scheme for waste treatment) had the goal to develop a certification scheme for the collection, transport and treatment facilities of key types of waste containing sufficiently high amounts of valuable and critical raw materials. The aim is to provide sustainable access to valuable Critical Raw Materials (CRMs) and increase their recovery rates. The key components are the development of the assurance and verification system and the provision of recommendations and roadmaps to ensure the sustainability of the scheme, as well as contributing to the overall circularity of CRMs.

For more information, please visit: www.cewaste.eu

4.4.2 BlackCycle (2020 – 2023) presented by Margarita Dorato (project coordinator)



Black Cycle is a European project for the recycling of end-of-life tyres into new tyres. In Europe, more than half of end of life tyres are exported to other countries, providing a great potential for a more local material recovery. The aim is to valorize 100% of the tyres selected for recycling by using up to 25% for the production of new tyres and the rest for other industries, as well as achieving an overall recycling rate of 50% of European end of life tyres, which will ultimately lead to a significant reduction in waste exports. The final goal of Black Cycle is to create, develop and optimize a full circular value chain in tyre production.

For more information please visit: www.blackcycle-project.eu



re-sourcing

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