

Joint Press Statement on the Workshop at the World Resources Forum in Geneva, October 24, 2017

Strategic Raw Materials and Sustainable Development



On October 24, ESM Foundation, EIT Raw Materials and UNECE organized a workshop on „Strategic Raw Materials and Sustainable Development” at the World Resources Forum 2017 in Geneva, Switzerland.

The workshop was divided into three parts: in the first part, the focus was on **current and future needs for raw materials with relation to meeting the Sustainable Development Goals**, shedding light on the demand side of the global use of Critical Raw Materials. The second part of the workshop was devoted to the future **supply of Strategic Raw**

Materials with a view on Sustainable Development. In the third part of the workshop, the speakers were joined by further experts for a common panel discussion. The workshop was chaired by **Alessandra Hool**, ESM Foundation, **Roland Gauß**, EIT Raw Materials, and **Harikrishnan Tulsidas**, UNECE.

The first speaker, **Julian Hilton**, Chair of the UNFC Sustainable Development Working Group, explained the United Nations Framework Classification for Resources (UNFC) in the context of meeting the raw material needs for attaining the SDGs. He argued that we are currently pathfinding towards a new environmental-economic point of equilibrium – an approach that at the very core considers both the SDGs and the need to combat Climate Change. According to Hilton, the UNFC toolkit needs to be updated and centred around resources, customers and services, security, and values. Next steps would include developing a curriculum to apply the revised UNFC to the management of natural resources, shape resource management policy accordingly, and to develop technologies and material flows to feed the eco-system. In his talk on future global needs for Strategic Raw Materials, **Luis Tercero Espinoza**, ESM Foundation and Fraunhofer ISI, outlined the expected increased demand for non-energy raw materials associated with emerging technologies that will be crucial to attaining the SDGs. Tercero looked at the examples of raw materials demand for wind power and lithium-ion batteries. The talk concluded with a discussion of global interdependencies regarding raw materials and an examination of the role of recycling in securing supply: even if recycling rates increase substantially also for special metals, there will be still a global need for primary mining. **Michael Haschke**, DMT and Chair of the UNFC Mineral Working Group, explained how many existing mine operations show gradually depleting ore grades. Erosion of many historic tailings sites worldwide have raised health issues. Zero-waste solutions where tailings can be reprocessed and recycled are an important step to address these problems. Haschke showed a successful project on reprocessing of phosphogypsum tailings, which, if performed systematically, would have a significant impact on rare earth element and phosphorous supply. New automated technologies could lead to a more sustainable, environmentally friendly and less hazardous mining. Haschke pointed out the importance of integrating these commodities into a global resource management system such as UNFC.

Esthios Peteves, Head of the Knowledge for the Energy Union Unit in the Directorate C from the European Commission's Joint Research Center (JRC), highlighted the assessment of the EU resilience to the supply of several key materials and components required for the large deployment of selected low-carbon technologies, namely wind, photovoltaics and electric vehicles. A comprehensive methodology based on various indicators was used to determine the EU's resilience to supply bottlenecks across the complete value chain. The analysis shows that the EU is vulnerable to supply bottlenecks of several key materials and components needed in crucial future technologies. Unless mitigation measures are taken, European resilience to potential supply issues will deteriorate substantially over the next decade. **Soraya Heuss-Abbichler**, University of Munich and vice-chair of the UNFC Anthropogenic Resources Working Group, explained the need for improvement in keeping valuable materials in the value chain to avoid their dissipation into the environment. Reliable data about quantity and quality of various waste streams, their sources and disposal routes are largely missing. The possibility of classifying non-sales quantities, such as residues, tailings and wastes, makes the UNFC system attractive to visualize the potential for waste as a resource, which is a topic of growing attention in striving towards a circular economy. The working group 4 of the Cost Action MINEA (Mining the European Anthroposphere) aims at providing a coherent and consistent framework for the classification of anthropogenic resources, under consideration of its impact on the society, environment and economy.

The workshop continued with a video stream to a session on “Circular Economy and SDGs” at the G-STIC conference in Brussels on “Connecting Technological Innovation to Decision Making for Sustainability”. **Karen Hanghøj**, CEO of EIT Raw Materials, and **Karl Vrancken**, VITO, summarized the outcome of the session to the audience in Geneva: Systemic changes are required to achieve the transition to a circular economy. This transition is very complex and challenging, requiring behavioural, regional and global change as well as a high policy awareness. The continents are evolving differently. Policymakers, industry, and consumers have to learn within a dialogue framework. Leading countries that actively advance new business models are, for example, Finland, Netherlands, and Belgium, acting as front-runners in respective policy actions and in enabling stakeholder processes organised at a regional level. The G-STIC session included stakeholder presentations from Bangalore and Kenya, stimulating a lively discussion and highlighting the global dimension of the topic.

The afternoon session in Geneva continued with **Alexandra Pehlken**, University of Oldenburg, who presented an assessment of resource efficiency related to strategic raw materials. Many products undergo more than one owner and are not re-entering the same life cycle again. Examples from automotive and WEEE highlighted the potential of high-efficiency open-loop recycling. **Christian Hagelüken**, ESM Foundation and Director of EU Government Affairs at Umicore, talked about the future demand for cobalt and actions for its sustainable sourcing. The sustainable supply and use of metals is a key requirement for the successful implementation of many emerging low fossil carbon technologies. For example, the gradual transition from combustion engines to electromobility will trigger a significant demand for battery metals such as cobalt and lithium. It is an important task of industries across the value chain to develop resource efficient production chains and to secure a reliable and responsibly sourced metals supply. Closing the materials loop by establishing effective take-back and recycling systems is one of the key activities in this context. Legislation and interplay of stakeholders in the marketplace set important frame conditions, and the recent Circular Economy Package of the EU Commission can be a powerful enabler to closing materials loops. Finally, **Erika Ingvald**, Geological Survey of Sweden, put UNFC in the context as a tool for the sustainable management of critical raw material (CRM) resources. Even though extraction of raw materials might be local, the raw materials market and mining industry are global, and so there are challenges when it comes to sharing global data. UNFC has the potential of being a tool for resource policy and strategy formulation, government resource management, industry business process management, and capital allocation, by delivering globally comparable data. This will be extremely important for sourcing and management of critical raw materials. Hence, there are activities to develop guidance for Sweden, Finland and Norway with the purpose of moving beyond classification towards managing resources sustainably. UNFC is applicable and applied to a number of natural resources, bridging to the codes used by industry, and used as a communications tool for finance, business processes, resource management and policymaking. However, more work is needed in the coming years to develop UNFC into a tool that supports sustainable resourcing.

Participants of the following joint discussion included **Kerstin Brinnen**, Swedish Association of Mines, Mineral and Metal Producers (Svemin), **Constantin Ciupagea**, Joint Research Center, European Commission, **Keisuke Nansai**, NIEMS, Japan, **Hans-Jürgen Wachter**, Heraeus, **Steven Young**, University of Waterloo, Canada, **Armin Reller**, ESM Foundation and University of Augsburg, and **Vito Correia**, President of the European Federation of Geologists. Several important aspects of the overall topic were discussed in

the plenary: firstly, the participants agreed that whilst there is no SDG specifically on raw materials, raw materials are key for attaining many of the SDGs. Furthermore, there was a broad consensus that recycling and the transition towards a circular economy will be a global key goal in the future, but that mining will continue to be of importance and that strategies and technologies have to be developed to make mining both economically viable and responsible. At a consumer level, alternative business models such as leasing of components were identified as one important aspect of enabling the transition towards a circular economy. Europe's focus has to be on continuing to raise awareness towards raw materials, and collaboration has to happen not only on European but also on national and regional levels. Here, there are still large differences within Europe regarding transparency, and the dialogue must be improved and fostered. Drivers for transparency are today not only governments but also customers, companies and various actors across the value chain. It was agreed that the United Nations Framework Classification bears the potential to be a valuable tool to enable collaborative system approaches, not at least because it is backed by an internationally credible organization.

In summary, the key results of the workshop were:

- **Sustainable development is fundamentally linked to the access to strategic raw materials. Potential bottlenecks must be considered across the entire value chain, addressing raw materials, processing capacities, semi-finished as well as finished products. Mitigation measures to ensure sustainable future supply have to be taken today.**
- **It is crucial to define objectives on how to responsibly manage raw materials across the whole value chain. Secondary raw materials sourcing will become increasingly important, but mining will still be needed. Innovative approaches are required to tackle technology and business related issues in mining but also to deal with aspects of social responsibility and ecological impact.**
- **Reliable data and effective policy interventions can only be developed in a defined framework and require improved collaboration of all involved actors in a systematic and transparent approach.**

The presentations are available on the event website at <https://www.esmfoundation.org/event/wrf2017/>.

There was a high interest of the participants to further develop the interlinked topic on SDGs, critical raw materials and classification. If you want to join this dialogue, please contact us at info@esmfoundation.org.

A follow-up workshop on Sustainable Management of Strategic Raw Materials and its applications in industry will take place in the afternoon of **Tuesday, April 24, 2018**, in the framework of the UNECE Resource Management Week 2018. You will find further information on the [UNECE website](#) over the coming weeks.