INTELLIGENCE BULLETIN #5

Strategic Intelligence Bulletins aim to enrich strategic and managerial decisions and to engage stakeholders based on partners networks.

RAW MATERIALS INFORMATION SYSTEM (RMIS)

[The Raw Materials Information System (RMIS)](#) is an instrument of the European Commission, developed by the Directorate-General (DG) Joint Research Centre (JRC) in cooperation with the DG for Internal Market, Industry, Entrepreneurship and SMEs (GROWTH). RMIS is an online platform that joins non-fuel, non-agricultural raw materials from primary and secondary sources, and provides a general view of the context of raw materials in Europe.

RMIS main aim is to establish a continuous exchange of knowledge with national, EU-level and global knowledge providers. Fulfilling the wide range of knowledge needs related to raw materials requires a broad spectrum of different knowledge providers. In this respect, Horizon Europe projects such as PASSENGER are at the core of RMIS' knowledge providers. The PASSENGER project will feed relevant sections regarding REE and PM in RMIS Platform thanks to the data provided within the project.

RMIS CONTEXT

RMIS is an information system about raw materials data in a broad sense. The RMIS structure supports the collection, organization, storage, and communication of information on raw materials, and to a certain degree on materials, and components and products made of them.

RMIS provides stakeholders with comprehensive up-to-date knowledge related to the entire raw materials value chain, including exploration, extraction, processing/refining, production, use (e.g. consumption), and end-of-life treatment, establishing favourable conditions for industry to secure and sustain the supply of raw materials and to better manage the use of resources. It covers critical knowledge to support factual decision-making. Towards this end, the RMIS provide easy access to structured information to a wide range of stakeholders, including the manufacturing industry, extractive industry, recycling industry trade sector, material

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scientists, economists, academia, and education, the wider public, as well as decision/policy makers.

The RMIS platform arises from the need to reinforce the European Union Raw Materials Knowledge Base and acts as the core access point to such knowledge and as an interface for policy support. RMIS platform provides a structured repository of legislation and knowledge at the EU and all the Member States levels, with the aim to identify and update further needs, gaps and legislation in the EU. The overarching goal of the RMIS is to facilitate:

- The availability, coherence and quality of knowledge required by specific EU raw materials policies and EC services.

- The knowledge needs of the EU criticality assessment, the Raw Materials Scoreboard, trade, defense, Circular Economy, due diligence/conflict minerals and other raw materials-specific policies.

- Access to key raw materials information, within and beyond Europe, which complements the knowledge currently essential for policy support.

RMIS PLATFORM

The RMIS is an information system related to raw materials in the wider sense. The RMIS structure supports the collection, organization, storage, and communication of information on raw materials, and to a certain degree on materials, and components and products made of them. The RMIS website (Fig. 1) gives an access to the RMIS content.

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Figure 1. Screen capture of the homepage of the RMIS website

The content of the website menu, divided into "tiles", implicitly corresponds with the major EU policy-related drivers:

Overview & News

The "Overview & News" tile of the RMIS main menu gives users an introduction on the policy context, mandate, goal and scope of the RMIS, as well as a presentation of key knowledge needs and knowledge providers. It also includes a 'news & events' section and presents the 'raw materials value chain'.

Policy & Legislation

The "Policy & legislation" tile of the RMIS main menu provides an overview of the most important policy fields and documents (Commission Communications in most cases) that directly

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support the development of the RMIS or of the European knowledge base on raw materials (e.g., the European Raw Material Initiative), as well as of those that are anyway relevant in the context of the RMIS development.

RM Analysis on Russia's aggression against Ukraine

This tile provides key information related to Ukraine's, Russia's and Belarus' raw materials production and trade, as well as insights on the effects of the ongoing war on Europe's security of supply.

Resilience, autonomy, security of supply & criticality

This tile provides an overview of the lists of CRMs for the EU, including a CRM list, CRM and EC'S dashboards and a structured and facilitated access to the detailed potentially critical raw materials factsheets. This tile also includes information about CRMs in strategic sector & technologies and for medical devices.

Raw materials, scoreboard & monitoring

The "Raw Materials Scoreboard & monitoring" provides access to the Raw Materials Scoreboard content. This tile also prese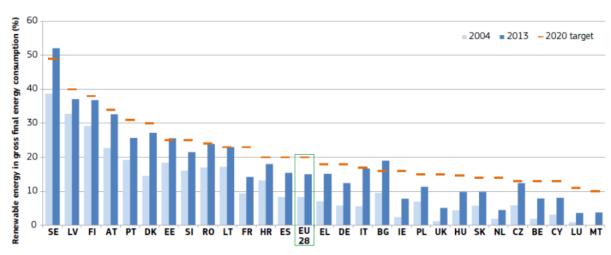nts knowledge from other scoreboards and monitoring systems including the Resource Efficiency Scoreboard, and the framework of indicators being developed for monitoring progresses towards a more Circular Economy. Furthermore, it also includes information regarding the monitoring of the EIP Raw Materials (e.g. Strategic Implementation Plan, annual monitoring reports).

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The Good Performance Program covers the period from 2000 to the present as shown in Figure 2 and can display EU-28 level, aggregate and national data.

Figure 2. Share of renewable energy in gross final energy consumption, 2004 and 2013 (Data source: Eurostat https://doi.org/10.2908/NRG_IND_REN)

Circular economy, secondary raw materials & waste

This tile emphasises the role and importance of related activities for the supply of raw materials and circular economy for the EU. To this end, it provides access to knowledge on e.g. data and monitoring indicators of SRMs, how SRMs are tackled in the five "priority areas" indicated by the Circular Economy Action Plan, as well as an analysis of SRMs in other specific industry sectors.

As example, Material Flow Analysis (MFA) approaches have been used widely over the past decade to characterize the anthropogenic life cycles of the elements. MFA is a systematic assessment of the flows (Fig. 3) and stocks of materials within a system defined in space and time. It connects the sources, the pathways, and the intermediate and final sinks of a material. So far, the methodological approaches to model material stocks and flows (anthropogenic material cycles) have not been standardised.
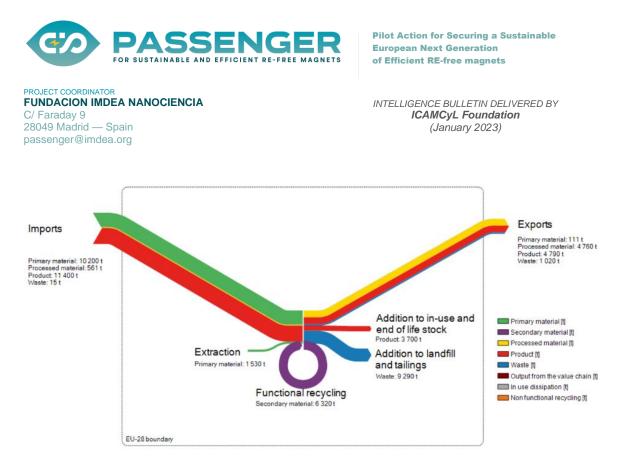
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Figure 3. Example of a Sankey diagram representing the input-output flows of Cobalt in EU[1]

There is a very useful method of LCA to quantify the environmental impacts associated to flows of energy and materials, taking a life cycle perspective (Fig. 4).
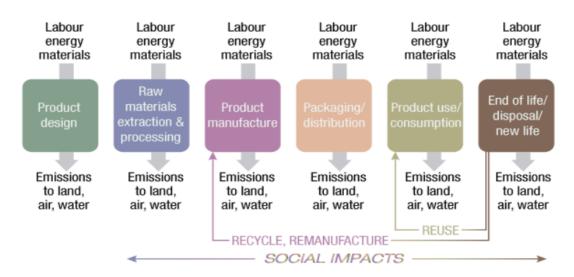

Figure 4. Phases of the life cycle of a product (modified from UNEP Life Cycle Initiative[2])

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[1] Reproduced from: BIO by Deloitte (2015) Study on Data for a Raw Material System Analysis: Roadmap and Test of the Fully Operational MSA for Raw Materials. Prepared for the European Commission, DG GROW.

[2] https://www.lifecycleinitiative.org/activities/what-is-life-cycle-thinking/

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Environmental & social and sustainability

This tile focuses on the environmental and social sustainability considerations of raw materials supply chains. With respect to environmental sustainability, this section provides information and/or data related to e.g. emissions of greenhouse gases and pollutants by the different extractive and processing activities, water use and impacts on land and biodiversity. Similarly, for the social dimension, this section provides information on e.g. employment, conflict minerals, due diligence, occupational health and safety, governance and integrity. Both environmental and social sustainability sections are linked to the environmental and social information included under the "Country profiles".

Economics & trade

The "Economics & trade" tile of the RMIS main menu allows users to access information related to trade performance, global production of primary and secondary raw materials, as well as knowledge on foreign investments, trade promotion and restrictiveness. Both economics and trade sections are partially fed into the economics and trade sub-sections included under the "Country profiles"

Foresight, strategic value chains & material flows

This tile provides access to quantitative and qualitative knowledge related to the supply chains of selected raw materials. Included in this tile is also the "supply chain viewer", which allows users to view simple raw material supply chains consisting of raw materials, countries, sectors, and product applications.

The RMIS Supply Chain Viewer (SCV)provides an overview of networks of selected raw materials supply chains, consisting of supplying countries, material products, product applications, and economic sectors using such products and materials.
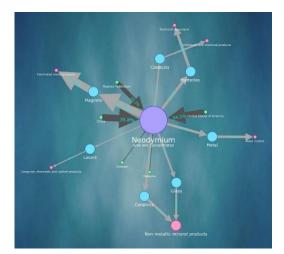
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- 4 different view types that enable analyse of various aspects
- 85 material chains (8 with multiple production stages)
- 133 supplying countries
- 21 NACE-2 economic sectors

Example of Network of Neodymium supply chain[3]

Raw materials profiles

This tile provides access to raw materials dashboard. This section provides information as well about mineral inventory with an interactive map and information about raw materials factsheets, with detailed information and data used in the 2011, 2014, 2017 and 2020 CRMs lists.

Country profiles

The "Country profile" tile provides access to country specific information related to raw materials and their supply chains. Country specific information will be separated in African country profiles and EU country profiles.

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[3] Elaborated with Raw Materials Supply Chain Viewer (SCV): https://rmis.jrc.ec.europa.eu/apps/scv

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101003914

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Knowledge gateway and library

The "Country profile" updates the EU funded projects, EU Science Hub and library, including most relevant terms/concepts used in the raw materials context based on EU legislation, international standards and H2020 consortia's glossaries, an up-to-date searchable library of major reports to be later developed into a metadatabase, as well as a section focused on harmonisation aspects in the RM sector such as harmonisation of RM classification, trade classes, extractive waste facility classes, landfill classes, etc.

For example, the RMIS-H2020 created a dialogue between JRC and EU funded projects such as on the Raw Material Information System (RMIS). The event brought together key representatives from the leaders of the European Commission, JRC, EASME and RMIS, as well as representatives from a total of 12 EU funded projects. The participants discussed the best information requirements based on raw materials (primary and secondary). Participants had an interesting discussion about how to raise awareness about the results of the project and how these results would contribute to the successful development of RMIS. During the training, special attention had been paid to needs / IT needs to facilitate knowledge transfer from H2020 projects to RMIS. H2020-RIA-TARANTULA can be found on the Raw Material Information System (RMIS).

PASSENGER CONTRIBUTIONS TO RMIS PLATFORM

PASSENGER will update RMIS with the project's most relevant findings and research results. The update of RMIS Platform with PASSENGER information is closely related to the materials-flow analysis (linked to a LCA and recyclability), and the impact that the project has on the EU demand for REEs.

Information to populate sections of the RMIS is selected based on outputs from tasks within WP4 (techno-economic & environmental LCA); the "RMIS 2019 Roadmap & Progress Report" from the European Commission alongside the conclusions from the "ORAMA & JRC RMIS Joint Workshop: Data Optimisation for

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Primary & Secondary Raw Materials" held in Ispra (Italy) on June 2019 and the Final ORAMA Workshop as the part of the "Raw materials Week 2019" (Brussels, 18th-22nd November). These include:

- Update of the Raw Materials Profile for PM;
- Material Flow Analysis (MFA) for the PM industrial value chain including supply chain, flows & stocks and a Sankey diagram;
- Contributions to the Criticality Assessment and RM factsheets;
- Recycling input rates.

All the information regarding PASSENGER project can be found in RMIS webpage under the section "Knowledge gateway and library (https://rmis.jrc.ec.europa.eu/rmkg) (Fig. 5).

Figure 5. RMIS GATEWAY section including PASSENGER project information
Source: Raw Materials Information System (RMIS)