

JOINT RESEARCH CENTRE (JRC)  
RAW MATERIALS INFORMATION SYSTEM (RMIS)  
**RMIS Newsletter n.1 (November 2019)**

*This newsletter is a bi-annual summary of the main developments related to the European Commission's Raw Materials Information System (RMIS). It provides key highlights on raw materials knowledge support to policy.*

Raw Materials Information System (RMIS): Goal & Scope



The **Raw Materials Information System (RMIS)** is the European Commission's reference knowledge platform on non-fuel, non-agriculture raw materials from primary (extraction / harvesting) to secondary (recycled / recovered) sources, along their entire value/supply chains. RMIS includes both abiotic and biotic materials.

Responding to a specific action point of the 2015 Commission's **Circular Economy Action Plan**, the RMIS acts as a key interface for policy support. The RMIS provides knowledge primarily to support EU policies and European Commission services in relation to issues such as Climate Change, the Defense Action Plan, the Circular Economy, the Battery Strategic Action Plan, the Renewed EU Industrial Policy, EU Trade Policy and Free Trade Agreements (FTAs), as well as the EU Raw Materials criticality assessment.

## 1. Annual international RMIS workshops

To further strengthen communication and knowledge sharing with the broad range of stakeholders within the raw materials sector, annual workshops are held at the JRC site in Ispra, Italy.

The 1st international RMIS workshop (March 2017) brought together key stakeholders of the raw materials sector and RMIS knowledge providers.

The 2nd workshop (May 2018) facilitated the further development of key RMIS thematic sections, including [raw materials' profiles](#)<sup>1</sup>, [country profiles](#)<sup>2</sup>, and the [knowledge gateway](#)<sup>3</sup>.

The 3rd RMIS workshop was held on 11-12 June 2019. It attracted 70+ participants from some 20 countries, 4 European Commission Directorates General (JRC, GROW, ENV, DEVCO), 2 EU agencies (EASME, EEA) and the EIT Raw Materials. Discussion topics included social and environmental issues associated with raw materials supply chains, national legislation, good governance, and a more in-depth focus on secondary raw materials.

More information on the workshop structure and content is available on the [RMIS website](#)<sup>4</sup>.



## 2. Policy and legislation news

Several recent EU policy documents highlight the role of the RMIS:

- According to the 2018 [Commission Communication on a monitoring framework for the circular economy](#)<sup>5</sup>, the RMIS will improve the knowledge base and availability of data for measuring progress in the circular economy, and deliver improved data to complement the official statistics.
- The 2018 [implementing recommendations](#)<sup>6</sup> of the EU [regulation on conflict minerals](#)<sup>7</sup> indicates that the RMIS should provide information on production, trade flows

<sup>5</sup> <http://ec.europa.eu/environment/circular-economy/pdf/monitoring-framework.pdf>

<sup>6</sup> [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2018.208.01.0094.01.ENG&toc=OJ.L:2018:208:TOC](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.208.01.0094.01.ENG&toc=OJ.L:2018:208:TOC)

<sup>7</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1552211402284&uri=CELEX:32017R0821>

<sup>1</sup> <http://rmis.jrc.ec.europa.eu/?page=rm-profiles/>

<sup>2</sup> <http://rmis.jrc.ec.europa.eu/?page=country-profiles/>

<sup>3</sup> <http://rmis.jrc.ec.europa.eu/?page=rmkg>

<sup>4</sup> <http://rmis.jrc.ec.europa.eu/?page=rmis-news-c4dc3d>

and policy that helps identify conflict-affected and high-risk areas.

- In the frame of Horizon 2020 (H2020) [Societal Challenge 5 “Climate action, environment, resource efficiency and raw materials”](#), [Commission Implementing Decision C\(2018\) 4708](#)<sup>8</sup> states that certain H2020 projects ‘will also contribute to building the EU knowledge base of primary and secondary raw materials for solid decision making, and particularly to the further development of the EC Raw Materials Information System – RMIS’.

### 3. How raw materials can contribute to, or hinder achievement of the SDGs

Raw materials play a fundamental role in achieving the Sustainable Development Goals (SDGs), but their production and consumption can have negative or positive impacts depending on how they are managed and regulated.

Examining the raw materials life-cycle phases on a world-wide scale, the [JRC report ‘Mapping the role of Raw Materials in Sustainable Development Goals’](#)<sup>9</sup> finds that negative impacts are generally concentrated in the extraction phase, particularly in the mining sector of countries with low governance levels (see also the [dedicated JRC Science Hub headline](#)<sup>10</sup>). The forestry sector can also contribute to several SDGs with sustainable forest management practices, but may similarly have adverse impacts if good practices are not applied. More information is available in the [RMIS](#)<sup>11</sup>.



The simplified supply chain of non-energy, non-agricultural raw materials along with their potential contributions to the 17 SDGs. Source: JRC, in [Mancini et al. \(2018\)](#)<sup>12</sup>.

<sup>8</sup> <https://ec.europa.eu/transparency/regdoc/rep/3/2018/EN/C-2018-4708-F1-EN-MAIN-PART-1.PDF>

<sup>9</sup> <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/mapping-role-raw-materials-sustainable-development-goals>

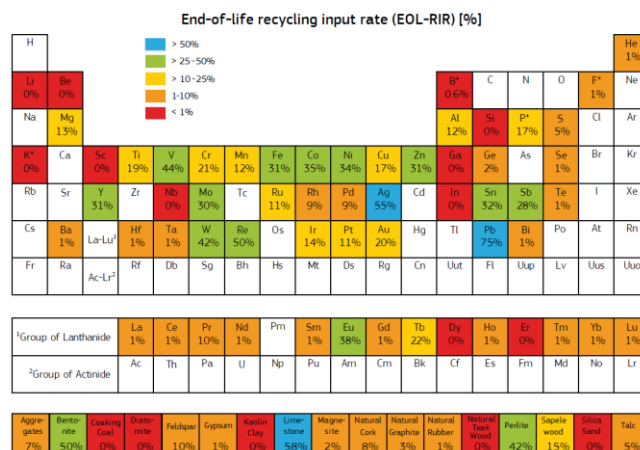
<sup>10</sup> <https://ec.europa.eu/jrc/en/publication/mapping-role-raw-materials-sustainable-development-goals>

<sup>11</sup> <http://rmis.jrc.ec.europa.eu/?page=sdg-18f0ad>

<sup>12</sup> <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/mapping-role-raw-materials-sustainable-development-goals>

### 4. Use of recycled materials as inputs to EU production remains low

The End-of-life recycling input rate (EOL-RIR) of raw materials estimates the total material input to the EU-28 production system that comes from the recycling of post-consumption scrap. It is a key indicator for [evaluating progress towards a Circular Economy](#)<sup>13</sup> and is included in the 2<sup>nd</sup> edition (2018) of the Raw Materials Scoreboard. The Raw Materials Scoreboard can be accessed from the RMIS through a [dedicated interactive application](#)<sup>14</sup>.



<sup>13</sup> Group of Lanthanide: La 1%, Ce 1%, Pr 10%, Nd 1%, Pm 0%, Sm 1%, Eu 58%, Gd 1%, Tb 22%, Dy 0%, Ho 1%, Er 0%, Tm 1%, Yb 1%, Lu 1%.  
<sup>14</sup> Group of Actinide: Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr.

Aggregates: 7%, Bentonite: 50%, Coking Coal: 0%, Dioxide: 0%, Feldspar: 10%, Gypsum: 1%, Kaolin Clay: 0%, Limestone: 58%, Magnesite: 2%, Natural Cork: 8%, Natural Graphite: 3%, Natural Rubber: 1%, Natural Tanned Wood: 0%, Peat: 42%, Sapwood: 15%, Other Sand: 0%, Talc: 5%.

\* Pb = Lead; major end-use applications include rechargeable batteries and light industry. Source: JRC elaboration based on data from Bio by Deloitte, 2015, and COM(2017)490 final, ‘On the list of critical raw materials 2017’.

Aside from a few materials such as silver (Ag), lead (Pb) and limestone (as industrial stone), the contribution of recycled materials to overall inputs to production is still low in the EU. This is due to a variety of reasons, including the fact that some materials are contained in long-lived products (e.g. buildings and other infrastructure), and the low rates of collection and recycling. Future improvements in recycling rates - expected with the implementation of the recycling targets set by the [Waste Framework Directive](#)<sup>15</sup> and [Eco-design Directive](#)<sup>16</sup> - are expected to result in increased EOL-RIRs.

### 5. Australia is the world’s leading exporter of minerals

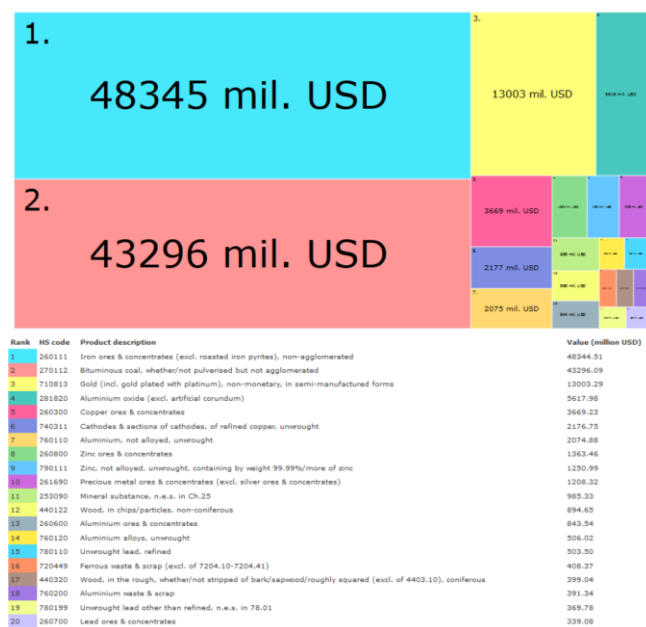
Australia is the world’s leading exporter of minerals, contributing to more than a quarter of world’s total export value of this product category in 2017. Minerals also make up a significant share of Australia’s exports, representing more than a quarter of Australia’s total annual exports (in value terms). Australia is also the leading exporter of iron ore and concentrates, supplying more than 60% of total global export value in 2017.

The EU is a significant destination for Australia’s exports of raw materials and intermediates such as coking coal (which accounted for almost a quarter of Australia’s total raw material

exports to the EU in 2017), unwrought lead, silicon, zinc ore and concentrates, and cobalt intermediates.

In 2017, Australia was a major source of EU imports of unwrought lead (86% in value terms) and coking coal (almost 50% in value terms).

Additional data and indicators of trade in raw materials for Australia (and also for Chile, Indonesia and New Zealand) can be found in the RMIS' Economics & Trade section, ['Pilot Country Fiches'](#)<sup>17</sup>.



Top 20 raw material commodities exported by Australia in 2017. Source: UN Comtrade data accessed via World Integrated Trade Solutions (WITS)

## 6. Hybrid vehicles and electro-mobility to transform European transport

According to the [European Roadmap for Electrification of Road Transport](#)<sup>18</sup>, there should be over 5 million electric vehicles on EU roads by 2020, increasing to 15 million by 2025. To reach emission reduction goals, even more ambitious targets are sometimes put forward, e.g. as many as 8-9 million electric vehicles on the road by 2020, with further increases in electric vehicle sales beyond 2025<sup>19</sup>. Higher quantities of critical and non-critical raw materials will be necessary to sustain this future uptake of e-mobility.

Further information on the contribution of raw materials to low-carbon technologies can be found in the [Environmental and Social Sustainability section of the RMIS](#)<sup>20</sup>. These raw materials would, for example, be integrated into electric traction motors (e.g. neodymium, praseodymium, dysprosium), batteries (e.g. cobalt, graphite, lithium) and even lightweight body structures (e.g. niobium). In the transition period, platinum and palladium will continue to play a major role in auto-catalysts.

Sustainable and undistorted access to these raw materials must be secured if the EU is to achieve its ambition of becoming

<sup>17</sup> <https://rmis.jrc.ec.europa.eu/?page=pilot-country-fiches-702d69>

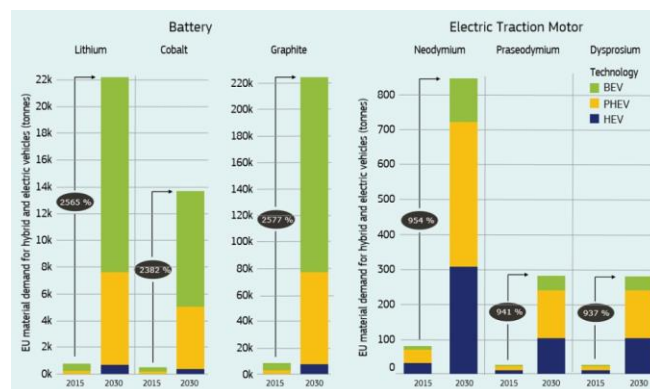
<sup>18</sup> [https://egvi.eu/wp-content/uploads/2018/01/ertrac\\_electrificationroadmap2017.pdf](https://egvi.eu/wp-content/uploads/2018/01/ertrac_electrificationroadmap2017.pdf)

<sup>19</sup> European Commission, 2016, 'Assessment of potential bottlenecks along the materials supply chain for the future deployment of low-carbon energy and transport technologies in the EU: Wind power, photovoltaic and electric vehicles technologies, time frame: 2015-2030', <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/assessment-potential-bottlenecks-along-materials-supply-chain-future-deployment-low-carbon>

<sup>20</sup> <http://rmis.jrc.ec.europa.eu/?page=climate-low-carbon-cda228>

competitive in the global battery sector by establishing a full value chain in Europe based on large-scale battery-cell production in a circular economy<sup>21</sup>. The battery value chain provides major opportunities for Europe to capture sizeable markets and boost jobs, growth and investment<sup>22,23</sup>.

Closing the loop by using waste as a resource is an important strand of the EU's Circular Economy action plan<sup>24</sup>. In this respect, the EU recycling industry could become a relevant supplier of secondary raw materials for the battery value chain in Europe<sup>25</sup>, as set out in the [European Battery Alliance](#) action plan adopted in May 2018<sup>26</sup> and the Commission [Report on Raw materials for Battery Applications](#)<sup>27</sup>.



Forecast demand of EU hybrid and electric vehicles for selected critical raw materials (BEV: battery electric vehicle; PHEV: plug-in hybrid electric vehicle; HEV: hybrid electric vehicle).

## 7. News & Events

- Following the success of the previous events, the JRC is again organizing the so-called 'Raw Materials Knowledge Base event' on 21 November 2019, as part of the broader [2019 'Raw Materials Week'](#)<sup>28</sup> (18-22 November 2019) in Brussels.

<sup>21</sup> Statement by Vice-President for Energy Union Maroš Šefčovič following the high-level meeting on battery development and production in Europe, 11 October 2017, Brussels, [http://europa.eu/rapid/press-release\\_STATEMENT-17-3861\\_en.htm](http://europa.eu/rapid/press-release_STATEMENT-17-3861_en.htm).

<sup>22</sup> Lebedeva, N., Di Persio, F., Boon-Brett, L., 'Lithium ion battery value chain and related opportunities for Europe', EUR 28534 EN, Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-66948-4, doi:10.2760/6060, JRC105010.

<sup>23</sup> Steen M., Lebedeva N., Di Persio F., Boon-Brett L., 'EU Competitiveness in Advanced Li-ion Batteries for E-Mobility and Stationary Storage Applications – Opportunities and Actions', European Commission, Petten, 2017, JRC108043.

<sup>24</sup> COM(2015) 614 final. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. 'Closing the loop — An EU action plan for the Circular Economy'.

<sup>25</sup> Mathieu, F., Ardenne, F., Bobba, S., Nuss, P., Blengini, G., Alves Dias, P., Blagoeva, D., Torres De Matos, C., Wittmer, D., Pavel, C., Hamor, T., Saveyn, H., Gawlik, B., Orveillon, G., Huygens, D., Garbarino, E., Tzimas, E., Bouraoui, F. and Solar, S., 'Critical Raw Materials and the Circular Economy — Background report', JRC Science-for-policy report, EUR 28832 EN, doi: 10.2760/378123, JRC108710.

<sup>26</sup> COM(2018) 293 final. Annex to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: 'Europe on the Move - Sustainable Mobility for Europe: safe, connected and clean.

<sup>27</sup> SWD(2018) 245 final. 'Report on Raw Materials for Battery Applications'.

<sup>28</sup> <https://www.eurawmaterialsweek.eu/event>

- Following the [2017 RMIS Roadmap & Progress Report](#)<sup>29</sup>, an updated [2019 RMIS Roadmap report](#)<sup>30</sup> was published in June 2019. This presents RMIS in its latest form, highlights progress made since 2017, identifies current knowledge needs related to the European raw materials sectors and provides an overview of the RMIS development priorities.

## 8. RMIS development outlook

Planned extensions of the RMIS include:

- Raw materials in battery supply chains, including updated datasets for relevant raw materials in batteries newly placed on the EU market, in-use stocks and waste-generated potential, as well as trends in traction batteries and their chemistries.
- Materials for dual-use applications in the defense and civil sectors, including knowledge related to supply chains for fuel cells, drones, robotics, and 3D printing (additive manufacturing).
- New country-level visualizations are being built in the RMIS showing data and information on trade flows pertaining to “minerals” and “intermediates”.
- Map-based interactive access to information related to issues such as environmental and social aspects of the raw material supply chains, responsible sourcing, sustainable supply and critical raw materials.

This is the newsletter of the Raw Materials Information System (RMIS) of the European Commission. It is hosted by the Land Resources Unit of the Sustainable Resources Directorate (JRC-D) of the Joint Research Centre (JRC) in Ispra, Italy.

This first newsletter is circulated to a broad selection of scientists and stakeholders. Please click [here](#) should you wish to be removed from the newsletter mailing list.

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Follow the JRC and our activities on Twitter through [@EU\\_ScienceHub](#); [@EU\\_H2020](#).

For more information and insights on the activities carried out within the Raw Materials project, check out the [News page in the RMIS](#).

<sup>29</sup> <https://ec.europa.eu/jrc/en/publication/raw-materials-information-system-rmis-towards-v20-interim-progress-report-roadmap>  
<sup>30</sup> <https://rmis.jrc.ec.europa.eu/uploads/2019RMISRoadmap.pdf>

## EASME corner

### Raw materials role & scope and project activities

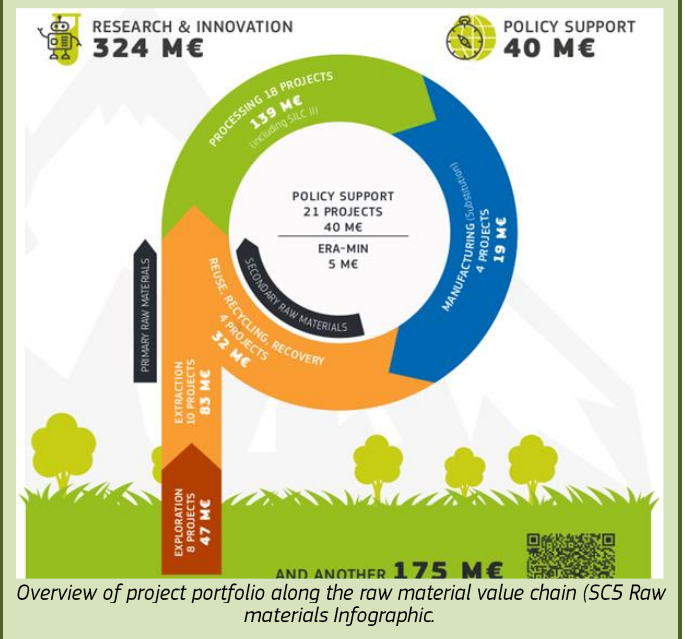
The role of the Executive Agency for Small and Medium-sized Enterprises (EASME) is to manage EU programmes in the field of energy, environment, resources and maritime areas. Within Horizon 2020 (the R&I funding tool for 2014-2020), the Raw Materials sector contributes to Societal Challenge 5 which is related to Climate Action, Environment, Resource Efficiency and Raw Materials.

Since the start of the Horizon 2020 Research & Innovation programme, the EU has selected 66 projects working with raw materials under Societal Challenge 5 and SILC II, for a combined EU contribution of 365 million euro. These projects are active along the whole value chain in the fields of exploration, extraction, processing, substitution and reuse, recycling and recovery of raw materials, provide policy support in international cooperation and framework conditions for primary and secondary sources, and build up the EU knowledge base on raw materials.

We ensure the implementation of the Raw Materials Initiative<sup>31</sup>, the Strategic Implementation Plan of the European Innovation Partnership (EIP)<sup>32</sup>, and supporting the development of the EC Raw Materials Information System (RMIS)<sup>33</sup>. Also through our projects, we contribute to the Sustainable Development Goals (SDGs), in particular to the SDG 12 'Ensure sustainable consumption and production patterns'<sup>34</sup>.

Based on the outcome of 2019 evaluations and grant agreement preparations, the raw materials sector expects to sign 10 grants for a total budget of 83 million EUR, reaching an EC contribution of 448 million EUR.

The next RMIS newsletters will include presentation of selected H2020 projects relevant in the context of RMIS development.



<sup>31</sup> <https://ec.europa.eu/growth/sectors/raw-materials/policy-strategy/>

<sup>32</sup> <https://ec.europa.eu/growth/tools-databases/eip-raw-materials/en/content/strategic-implementation-plan-sip-0>

<sup>33</sup> <https://rmis.jrc.ec.europa.eu/>

<sup>34</sup> <https://sdgcompass.org/sdgs/sdg-12/>