



# Examples of integration

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*Unit D3 Land Resources*  
*EC Joint Research Centre*

**The EC DG-JRC / EASME Technical Workshop**

**“Channelling knowledge from European projects into the Raw Materials Information System (RMIS)”**

**Online event, 3<sup>rd</sup> December 2020**

# Outline

- JRC & RMIS role in raw materials related knowledge management
- Current ways of integration (examples)
- Future ways of integration & co-operation
- Concluding remarks

# JRC & RMIS

## ROLE IN KNOWLEDGE MANAGEMENT

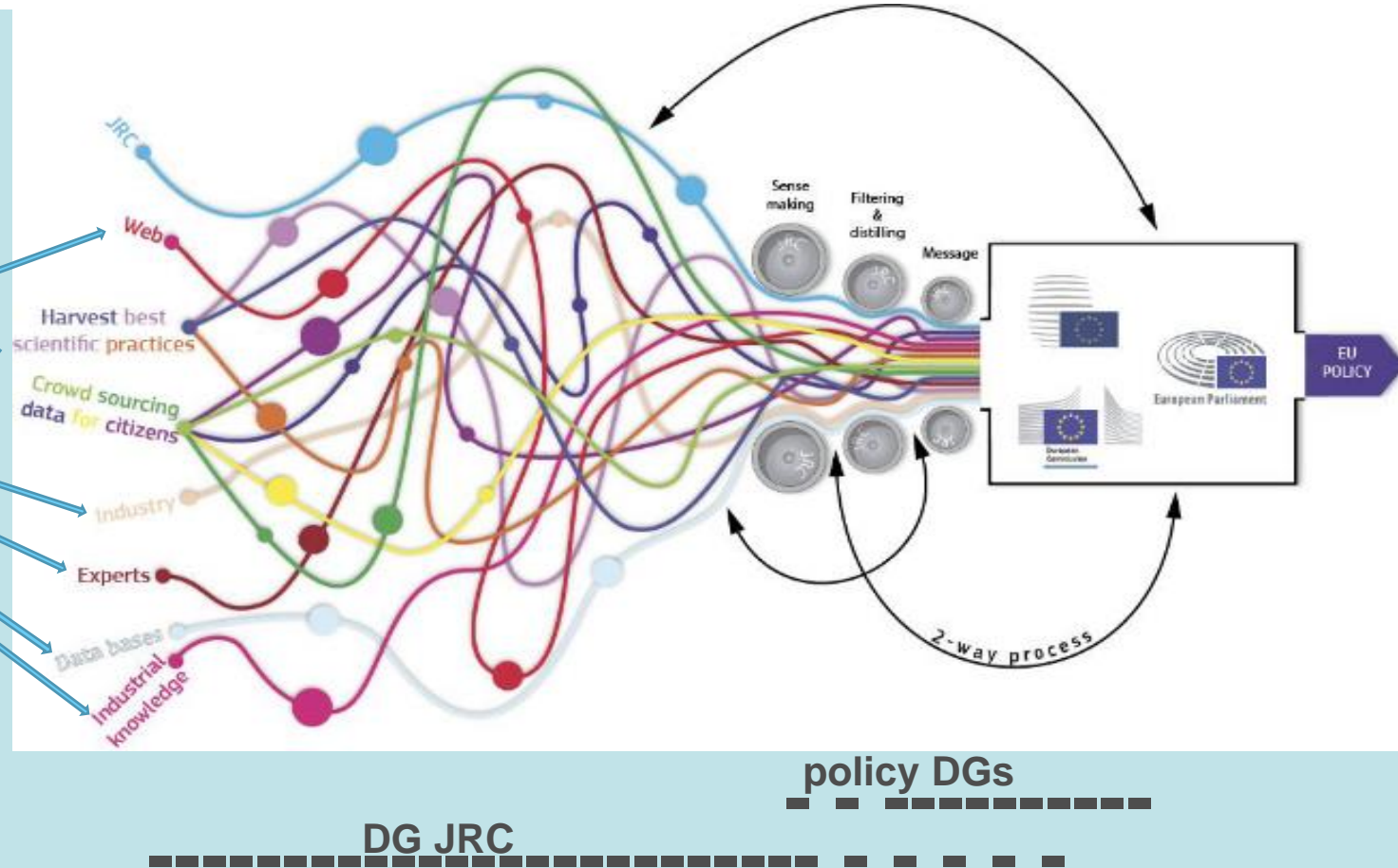


The Joint Research Centre is the European Commission's in-house science and knowledge service. It creates, manages and makes sense of knowledge, delivering the best scientific evidence and innovative tools for the policies that matter to citizens, businesses and governments.

# JRC & RMIS & H2020 PROJECTS

## ROLE IN KNOWLEDGE MANAGEMENT

H2020 (& Horizon Europe) projects' potential contribution



# CURRENT WAYS OF INTEGRATION

- **„direct” integration**
- **processed integration (incl. database)**
- **archivation with smart search**
- **data & information use**
- **profiles of selected projects**
- **embedded references**

# CURRENT WAYS OF INTEGRATION – DIRECT (ONE-TO-ONE) INTEGRATION



## Minerals policy, regulatory framework, relevant legislation in Germany

- Minerals policy profile (MIN-GUIDE) ←
- Minerals permitting profile (MINLEX) ←
- Mining Act in English
- Raw Materials Strategy in English

Other relevant legislation in original are accessible at:

<https://rosys.dera.bgr.de/mapapps/resources/apps/rosys/index.html?lang=en>

<https://www.juris.de/jportal/index.jsp>

[www.gesetze-im-internet.de](http://www.gesetze-im-internet.de)

<http://www.rohstoffwissen.org/>

→ The MINVENTORY database provides more information on the topic.

# CURRENT WAYS OF INTEGRATION – DIRECT (ONE-TO-ONE) INTEGRATION



ENVIRONMENTAL DIMENSION	SOCIAL DIMENSION	SUSTAINABLE DEVELOPMENT GOALS	RESPONSIBLE SOURCING
OVERVIEW AND CONTEXT	CONFLICT DIAMONDS AND CONFLICT MINERALS	EU AND INTERNATIONAL INITIATIVES	
	RESPONSIBLE SOURCING OF MATERIALS FOR BATTERIES	RE-SOURCING H2020 PROJECT	



**Responsible Sourcing (RS) is becoming a reality** for more and more businesses, NGOs, and policymakers. Everyone is striving to keep ahead of rapidly evolving ecological and social needs, company practices, business models, government regulations, and initiatives spear-headed by civil society, etc.

In response to the growing challenge of responsible sourcing, **the RE-SOURCING Global Stakeholder Platform has been started in 2020.**

RE-SOURCING, funded under the EU Horizon 2020 programme, is a four-year project coordinated by the Institute for Managing Sustainability, at the Vienna University of Economics and Business. The project's consortium consists of 12 international partners in- and outside the EU working together to create the RE-SOURCING Platform. The project's vision is to **advance and establish Responsible Sourcing as a minimum requirement among EU and international stakeholders.** The project will foster the development of a globally accepted definition of Responsible Sourcing, facilitate the implementation of RS practices through direct knowledge exchange within its network and beyond, and advocate for Responsible Sourcing in international political forums.

To guarantee a thorough and comprehensive Responsible Sourcing framework, RE-SOURCING will take a holistic approach by integrating firms and industries (up- and downstream) **across the mineral value chains of three sectors:** Renewable Energy, Mobility and Electronics – all which play a decisive role in the EU Green Deal and the clean energy transition. As such, RE-SOURCING equally takes into account traditional minerals, conflict minerals and green tech minerals in its approach. The main target groups of the project will be EU and international industry stakeholders, EU policy makers and civil society.

To achieve its intended aims, a variety of physical and virtual events and facilitation tools will be rolled out during the project:

**An opening and closing conference** will raise large-scale awareness for Responsible Sourcing and convene the international community on pressing issues of needs, implementation, regulation, obstacles & opportunities, etc..

**Three sectoral roadmap workshops** to provide industry, policy and civil society stakeholders with concrete courses of action and milestones in their uptake of Responsible Sourcing.

**Three sectoral peer-learning events (flagship Labs)** will foster direct sharing of experiences on challenges and solutions for the implementation of actual RS practices between industry and other players of all sizes.

The agendas of both the roadmap workshops and flagship labs will be set through the publication of **sectoral roadmaps** (one for each sector) as well as the elaboration of **good practice flagship cases.**

The project will organise **three international advocacy forums** for Responsible Sourcing, aimed at connecting actors beyond Europe across global value chains (Latin America, Sub-Saharan Africa and China).

Website: <https://www.re-sourcing.eu/>

To receive the newest information on the RE-SOURCING project [subscribe here](#)

# CURRENT WAYS OF INTEGRATION - PROCESSED

Search RMIS

PROSUM



**! see next presentation for details !**

5 results found

## Contributions of H2020 Projects in **CIRCULAR ECONOMY & SECONDARY RAW MATERIALS** » **SRMS IN SPECIFIC INDUSTRY SECTORS**

...Contributions of H2020 Projects Selected results from the **ProSUM** Project for Secondary Raw Materials arising from Waste Electrical and Electronic Screen Flows ...

## Industry Associations in **OVERVIEW & NEWS** » **STAKEHOLDERS**

...TIAwww.prometia.euAssociationProspecting Secondary raw materials in the Urban mine and Mining wastes**ProSUM**http://...

## Raw Materials Knowledge Gateway in **Raw Materials Knowledge Gateway**

...Overview The **ProSUM** project developed the very first EU-wide and open-access Urban Mine Platform (UMP) located at www.u...

## Raw Materials' Profiles - Lithium in **Raw Materials' Profiles**

...lectric mobility and, to a lesser extent, to portable applications like tablets and cordless tools (**ProSUM**, 2017). Lithium-ion batteries places on market per application, in tonnes of cells ...

## Sources of Data in **CIRCULAR ECONOMY & SECONDARY RAW MATERIALS** » **MONITORING SRMS: DATA, INDICATORS AND TOOLS**

...through a Recycler Information Centre is intended to make recycling procedures quicker and safer.The **ProSUM** project is establishing a European network of expertise on secondary sources of CRMs. ...



# CURRENT WAYS OF INTEGRATION – ARCHIVATION



RMIS Library

Title of the document	Authors
<input type="text"/>	<input type="text"/>
Document type	ISBN/Code
<input type="text"/>	<input type="text"/>
Publisher	Year
<input type="text"/>	<input type="text"/>

EIP SIP relevance

- research & innovation
- technologies for raw materials production (exploration, extraction, processing, recycling)
- substitution (materials for green energy technologies, for electronics, for extreme conditions, for large streams)
- improving EU RM framework (policy, access to deposits, public awareness)
- improving EU waste management framework (product design, quality recycling, illegal waste shipment, optimized recovery)
- knowledge & skills & Material Flows (knowledge base, EIT Community, optimized material flows)
- international cooperation (technology, governance, dialogues, health & safety & environment, skills & education & knowledge, investments)

RMIS topics covered

- Overview
- Policy & Legislation
- Terminology & Library
- Critical Raw Materials
- Raw Materials Scoreboard & Monitoring
- Secondary Raw Materials & Circular Economy
- Environmental & Social Sustainability
- Economics & Trade

Raw material coverage

- 3.7 – Paper waste
- 3.8 – Urban and hazardous (other unspecified industry) waste
- 3.9 – WEEE
- 3.1 – EoL vehicle waste
- 3.11 – Batteries
- 4 – Energy commodities (fossil fuels (incl. uranium)), renewable energy recovery from waste

Advanced search - additional filters

<p>Geographical coverage</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Belgium</li> <li><input type="checkbox"/> Bulgaria</li> <li><input type="checkbox"/> Czechia</li> <li><input type="checkbox"/> Denmark</li> <li><input type="checkbox"/> Germany</li> <li><input type="checkbox"/> Estonia</li> <li><input type="checkbox"/> Ireland</li> <li><input type="checkbox"/> Greece</li> </ul>	<p>Thematic coverage along value chain</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> exploration (incl. survey, prospection too)</li> <li><input type="checkbox"/> extraction</li> <li><input type="checkbox"/> primary and secondary processing</li> <li><input type="checkbox"/> mine closure (incl. remediation, aftercare)</li> <li><input type="checkbox"/> production (incl. fabrication, design, material efficiency, substitution, replacement)</li> <li><input type="checkbox"/> distribution (incl. sustainable consumption, material dissipation)</li> </ul>
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Hide filters

Clear search fields and filters

Search for documents

8 documents found

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	2016
Cobalt: demand-supply balances in the transition to electric mobility	2018
Critical raw materials and the circular economy - background report	2017
Electric vehicles from life cycle and circular economy perspectives	2018
Li-ion batteries for mobility and stationary storage applications - Scenarios for costs and market growth	2018
Materials dependencies for dual-use technologies relevant to Europe's defence sector	2019
Prospecting Secondary Raw Materials in the Urban Mine and mining wastes (ProSUM) - Final Report	2017
Sustainability Assessment of Second Life Application of Automotive Batteries (SASLAB): JRC Exploratory Research (2016-2017): Final technical report: August 2018	2018

# CURRENT WAYS OF INTEGRATION – ARCHIVATION: HOW TO SERVE WITH YOUR REPORTS 2021+



**2018 survey result**

Proposal for developing the RMIS Library and/or the Thematic Gateway:

- an xls with attributes to be filled for each report by the project co-ordinator
- send to RMIS with the pdf report in attachment

The scale of potential input (also beyond SC5):

- ORAMA mapped ca. **600** projects, selected 40-50 with relevant info (ie. network and/or database)
- EIT RM: **200** projects (+EIT Innoenergy?)
- EIP RM commitment consortia: **100+**
- ERAMIN, ERAMIN2, GEOERA, ERAMET: **50+**
- Interreg, ERC, RFCS, NER300 ...: **50+**
- Member States: **???**

**IN TOTAL: >1000 projects (4-5000 reports)**

# CURRENT WAYS OF INTEGRATION – DATA USE



SRMS IN THE CE ACTION PLAN

MONITORING SRMS: DATA, INDICATORS AND TOOLS

SRMS IN PRIORITY AREAS OF THE CE AP

SRMS IN SPECIFIC INDUSTRY SECTORS

Availability of data, indicators and tools is a necessary condition for the development of a dynamic market for Secondary Raw Materials within Europe. Raw Materials Information System and EU-wide research on raw materials flows address this need by providing a comprehensive overview of:

- Available data from Eurostat
- Available data from Horizon 2020 projects and Member State projects
- Scoreboard indicators
- Tools and Methods
- Future data needs

SOURCES OF DATA

SCOREBOARD INDICATORS

TOOLS & METHODS

FURTHER DATA NEEDS

## H2020 projects

According to the Executive Agency for Small and Medium-sized Enterprises (EASME) of the European Commission, a number of relevant **H2020 projects** concerns Waste and Recycling and hence Secondary Raw Materials. A description of the main projects is provided hereinafter.

**CloseWEEE** develops integrated solutions for pre-processing of WEEE, in particular proper dismantling upstream processes. The project focuses on the recovery of SRMs (including CRMs) and on advanced recovery of valuable plastic streams, such as PC-ABS and ABS. The goal of improving the flow of information to recyclers through a Recycler Information Centre is intended to make recycling procedures quicker and safer.

The **ProSUM** project is establishing a European network of expertise on secondary sources of CRMs. ProSUM will produce a centralised database of all available data and information on arising, stocks, flows and treatment of WEEE, end of life vehicles (ELVs), batteries and mining wastes. Such an information would serve to improve Europe's position on raw material supply, with the ability to accommodate more wastes and resources in future.

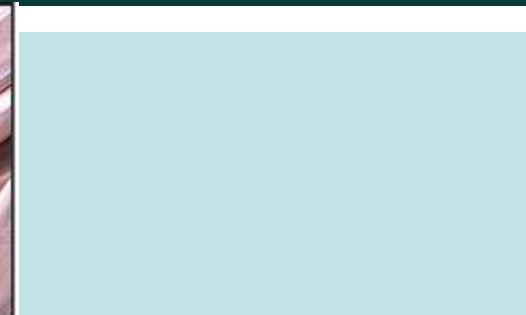
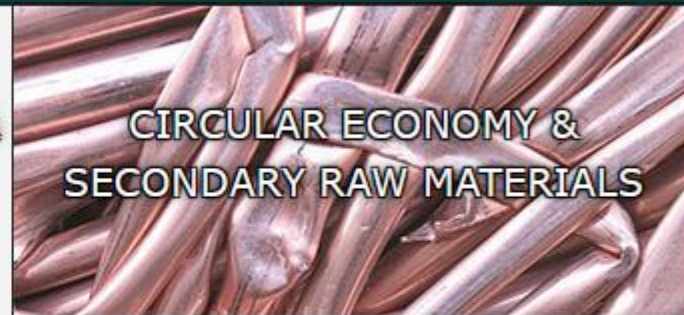
**SMART GROUND** intends to support resource recovery from both urban solid waste landfill sites and mine waste disposal sites. One of the main goals of the project is to improve the availability and the accessibility of data and information on SRMs. In particular, the database includes volumes of SRMs in EU anthropogenic deposits (e.g. landfills), integrating data from existing databases and new information.

**MSP-REFRAM** aims to develop a comprehensive study of the entire value chain of key refractory metals including mining, processing, recycling and final applications (and potential substitution opportunities). Such an analysis takes into account several aspects: policy/society, technology and market. The main objective of this project is to strengthen the refractory metals supply chain in Europe.

Other relevant projects are the following:

- **Erecon**: European Rare Earths Competency Network
- **SCREEN**: Solutions for Critical Raw materials - a European Expert Network
- **New Mine**: EU Training Network for Resource Recovery Through Enhanced Landfill Mining
- **Mica**: Mineral Intelligence Capacity Analysis

# CURRENT WAYS OF INTEGRATION – INFORMATION USED IN RMIS OUTPUTS, e.g. SCOREBOARD



+ a number of other references on ORAMA, ProSUM, STRADE, MINLAND

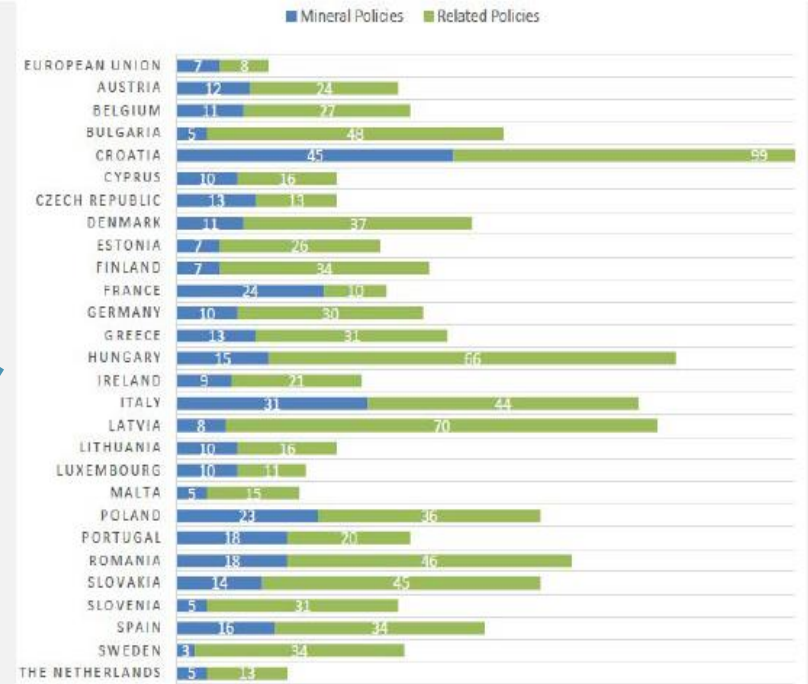


Figure 1.2: Number of mineral policy documents and other related policy documents in EU countries in 2018<sup>68</sup>. The recently finished MINLAND project studied national minerals policies in the context of spatial development and land use planning. The sterilisation, i.e. becoming inaccessible, of minerals



# CURRENT WAYS OF INTEGRATION – STAKEHOLDERS LIST



- OVERVIEW
- NEWS & EVENTS
- KNOWLEDGE NEEDS
- STAKEHOLDERS
- FUTURE FORESIGHT
- FUNDING OPTIONS

A wide spectrum of stakeholders is involved at most stages of the raw material value chain. This section focuses on stakeholders interested in R&I activities and in the permitting of relevant new installations.

- NATIONAL R&I ENTITIES
- INDUSTRY ASSOCIATIONS
- CERTIFIED PROFESSIONAL EXPERTS

European Rare Earth Competency Network	ERECON	<a href="http://ec.europa.eu/growth/sectors/raw-materials/specific-interest/erecon/">http://ec.europa.eu/growth/sectors/raw-materials/specific-interest/erecon/</a>	Network
FORAM Project - Towards a World Forum on Raw Materials	FORAM	<a href="http://www.foramproject.net">www.foramproject.net</a>	Project
Global Material Flows and Demand-supply Forecasting for Mineral Strategies	MinFuture	<a href="http://cordis.europa.eu/project/rcn/206335_en.html">http://cordis.europa.eu/project/rcn/206335_en.html</a>	Project
International Raw Materials Observatory	INTRAW	<a href="http://www.intraw.eu">www.intraw.eu</a>	Project

# CURRENT WAYS OF INTEGRATION – KNOWLEDGE GATEWAY



RAW MATERIALS KNOWLEDGE GATEWAY »

## Raw Materials Knowledge Gateway

**NATIONAL LEVEL** **EUROPEAN LEVEL**

European Institutions | European Data Services | European Industry Associations | EU Funded Projects

EU Funded Projects

Select a data provider from the drop-down list:

- BIORECOVER
- INTERMIN
- MICA
- MIN-GUIDE Minerals Policy Guidance for Europe
- MinLand
- ORAMA
- STRADE – Strategic Dialogue on Sustainable Raw Materials for Europe
- TARANTULA**
- Urban Mine Platform (ProSUM)

## TARANTULA



[TARANTULA homepage](#)

- Overview
- Raw materials knowledge
- Research and innovation
- Links and contacts

# CURRENT WAYS OF INTEGRATION – EMBEDDED REFERENCES

Search RMIS

H2020

15 results found

Contributions of H2020 Projects in [CIRCULAR ECONOMY & SECONDARY RAW MATERIALS](#) » [SRMS IN SPECIFIC INDUSTRY SECTORS](#)

EU H2020 Funds in [OVERVIEW & NEWS](#) » [FUNDING OPTIONS](#)

Future foresight in [OVERVIEW & NEWS](#)

...t all scales. This section gathers information of such prospective studies primarily on basis of EU **H2020** consortia, JRC, and international entities hereby below. The European Innovation Partnership o...

National R&I Entities in [OVERVIEW & NEWS](#) » [STAKEHOLDERS](#)

... be sorted by fields of expertise or specific topics. In addition, the catalogue of R&I projects in **H2020**, Societal Challenge 5 - 201... and the catalogue of EU funded projects in environmental research of ...

Overview and context in [ENVIRONMENTAL & SOCIAL SUSTAINABILITY](#) » [RESPONSIBLE SOURCING](#)

...conomic sustainability in the supply chain through production data', while a report of the EU **H2020** project STRADE argues that "responsible sourcing" objective is to ensure and demonstrat...

Raw Materials Knowledge Gateway in [Raw Materials Knowledge Gateway](#)

...llurgical processing. More information will become available as the project progress at: [https://h2020-tarantula.eu/public-deliverables/Raw materials of interest](https://h2020-tarantula.eu/public-deliverables/Raw%20materials%20of%20interest) Tungsten (W), niobium (Nb) and tantalum ...

Raw Materials' Profiles - Borates in [Raw Materials' Profiles](#)

...tential use of boron minerals as flux in chromite smelting process2015 - 2016Source : CORDIS, **H2020**, LIFE, ERA-NET, EIT Raw Materials websites and databases, ORAMA project,,Environmental concerns tha...

Raw Materials' Profiles - Platinum in [Raw Materials' Profiles](#)

...potential companion or minor by-products only. (FODD, 2017), (SCREEN, 2018a), (Boliden, 2018b).The **H2020** SCREEN project provided an update of the available information on geological occurrences of PGM in...

Raw Materials' Profiles - Ruthenium in [Raw Materials' Profiles](#)

... million)ObjectivesProject yearsPLATIRUSPlatinum-group metals recovery using secondary raw materials**H2020**7.0Upscale to industrial level an innovative and cost-efficient recovery process for PGMs from autoc...

RE-SOURCING H2020 project in [ENVIRONMENTAL & SOCIAL SUSTAINABILITY](#) » [RESPONSIBLE SOURCING](#)

Artisanal & small-scale mining in [ENVIRONMENTAL & SOCIAL SUSTAINABILITY](#) » [SOCIAL DIMENSION](#)

...age between estimates from BGR (2019), OECD (2019) and CSO representatives consulted within the JRC **project** Surebatt (Reference year: 2019). Sapphires, Gold, Tantalum, Tin and Diamonds - (IGF 2017). (Referen...

Climate change & decarbonisation in [ENVIRONMENTAL & SOCIAL SUSTAINABILITY](#) » [ENVIRONMENTAL DIMENSION](#)

... derived from energy use, emissions intensity and emissions reductions. Also the Climate Disclosure **Project**, to which companies report emission savings and saving targets. Both reporting initiatives c...

Conflict diamonds and conflict minerals in [ENVIRONMENTAL & SOCIAL SUSTAINABILITY](#) » [RESPONSIBLE SOURCING](#)

...hat produce the metals tantalum, tin and tungsten (often referred as 3TG). Evidence from the Enough **Project**, published in 2009, showed that besides copper and diamond, the 3TG are reported to be traded by ar...

EIP Monitoring and Evaluation in [RAW MATERIALS SCOREBOARD & MONITORING](#)

...icular the progress made by the so-called EIP Raw Materials Commitments (RMC) and the raw materials **projects** actually implemented.The EIP on Raw Materials? Monitoring and Evaluation scheme tracks progress on...

EIT & EIT Raw Materials in [OVERVIEW & NEWS](#) » [FUNDING OPTIONS](#)

...oclaw, Poland);Nordic CLC (Luleå, Sweden);Southern CLC (Rome, Italy);Western CLC (Leuven, Belgium). **Projects**KAVAs are directly funded by the EIT (Budapest) and are separate from the KCAs. EIT Raw Materials i...

EU Community Structural & Cohesion Funds in [OVERVIEW & NEWS](#) » [FUNDING OPTIONS](#)

...d development in various regions of the EU.European Social Fund (ESF) ? supports employment-related **projects** throughout Europe and invests in Europe?s human capital: its workers, young people and all those s...

EU Country Profiles - Austria in [EU Country Profiles](#)

...action and permitting procedures for exploration and exploitation in the EU, final report of MINLEX **project**, 2017, <https://publications.europa.eu/en/publication-detail/-/publication/18c19395-6dbf-11e7-b2f2-0...>

EU Country Profiles - Belgium in [EU Country Profiles](#)

...action and permitting procedures for exploration and exploitation in the EU, final report of MINLEX **project**, 2017, <https://publications.europa.eu/en/publication-detail/-/publication/18c19395-6dbf-11e7-b2f2-0...>

EU Country Profiles - Portugal in [EU Country Profiles](#)

...I 43-101) InferredZinc-None102.93Million tonnes2.85%Historic Resource Estimates Source: Minerals4EU **project** Estimated reserves Data to be updated Commodity Sub-Commodity Reporting code Quantity Unit...

Land use & soil in [ENVIRONMENTAL & SOCIAL SUSTAINABILITY](#) » [ENVIRONMENTAL DIMENSION](#)

...a include both active mines and mining sites currently not operational.On an EU scale, the Minatura **project** has analysed the location of the main mineral deposits and its possible competition with other curr...

Mining Waste and Landfills in [CIRCULAR ECONOMY & SECONDARY RAW MATERIALS](#) » [SRMS IN SPECIFIC INDUSTRY SECTORS](#)

...rials from mining tailings and industrial waste, as in the case of the Penouta mine, the CHROMIC **project**, biohydrometallurgy at the Kasese mining site, and the REDMUD ...



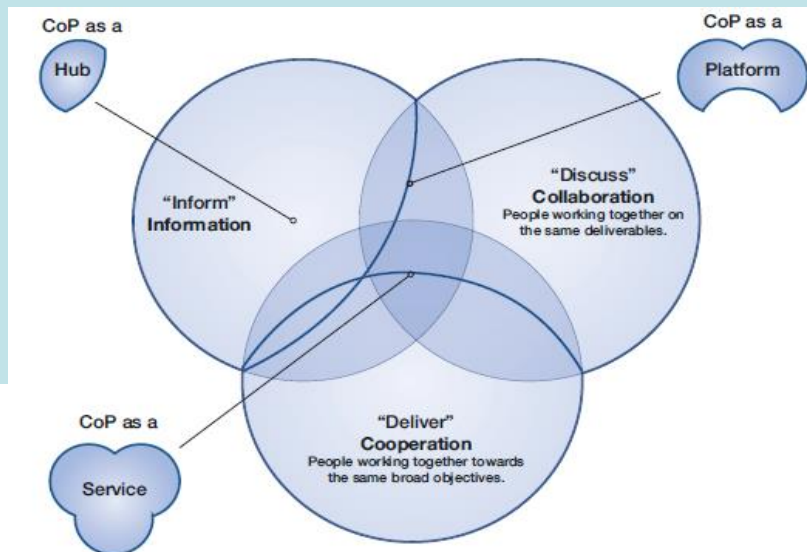
# PRACTICAL STEPS

- please assess which form(s) of integration you prefer
- the „low hanging fruits“:
  - send reports (pdf) and their searchable attributes (xls)
  - send project profile for the Gateway
- also think about the sophisticated ways
- please always put [rmis@ec.europa.eu](mailto:rmis@ec.europa.eu) in cc
- register for the RMIS newsletter

# FUTURE WAYS OF INTEGRATION & CO-OPERATION

Beyond the current practices, new ways to be considered:

- copy/transfer „ready made applications”
- database transfer and update through established APIs
- advanced knowledge management (Community of Practice?)



# CONCLUDING REMARKS

- RMIS is a sustainable information system with sound legal mandate, stable infrastructure and expert capacity to host your data and information free of charge
- RMIS is a popular website with already lots of information coming from H2020 projects, it complements very well EASME's data hub <https://sc5.easme-web.eu/?theme=green>
- Co-operation and joint efforts with consortia are needed to develop new, enhanced ways of integration of information

# Thank you!

Website: [rmis.jrc.ec.europa.eu](https://rmis.jrc.ec.europa.eu)  
Contact: [ec-rmis@ec.europa.eu](mailto:ec-rmis@ec.europa.eu)  
[tamas.hamor@ec.europa.eu](mailto:tamas.hamor@ec.europa.eu)



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# Integrating H2020 ProSUM / ORAMA results in RMIS

Example of electronics, batteries and vehicles raw materials information

*Jaco HUISMAN*

*RMIS workshop, Dec. 3 - 2020*



# Policy context (1)

- Green Deal (2019): “low carbon technologies”, “digital Europe” -> batteries

- Circular Economy Action Plan (2020):

- Specific chapter on mobility and batteries;



- The global dimension of CE (towards a Global CE Alliance?)

- “An EU market observatory on secondary raw materials” (?)

- Critical Raw Materials Resilience (2020)

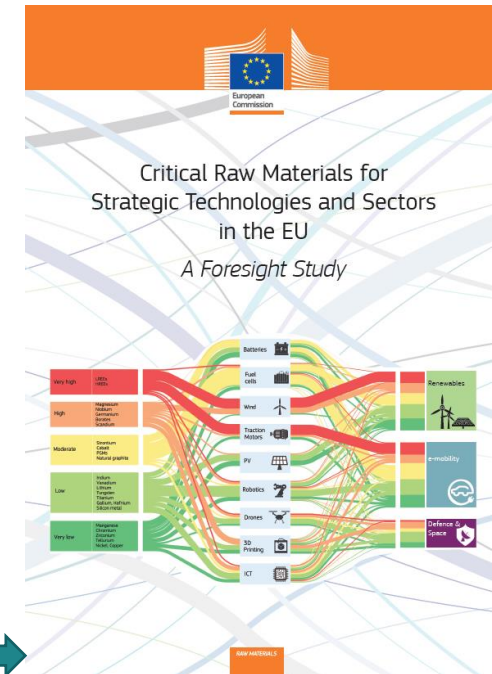
- Battery raw materials explicitly mentioned (forward looking)
- Battery as key EU industrial ecosystem (cf. Battery Alliance)
- Further development of the RMIS

## 3. KEY PRODUCT VALUE CHAINS

### 3.2. Batteries and vehicles



Sustainable batteries and on enhancing the sustain and boost the circular pr a new regulatory frame evaluation of the Batterie consideration of the followin



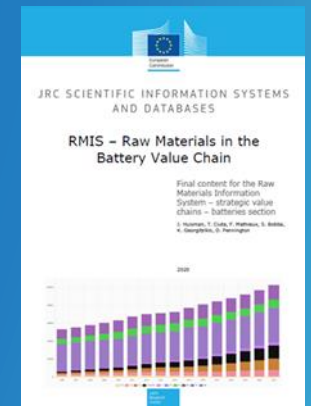


## Policy context (2)

- Publication of (an ambitious!) EU regulation on sustainability requirements for batteries in November 2020;
  - Related to e.g. collection rate, recycled content, recycling efficiency, responsible sourcing
  - JRC may support the implementation of several aspects (JRC-Ispra, Petten and Seville)
- Support of the review of end-of-life vehicles Directives
  - JRC will support work on recycled contents on plastics;
- EU-Africa strategy

# Incorporating updated ProSUM data in RMIS

Battery information from TU Berlin and Recharge

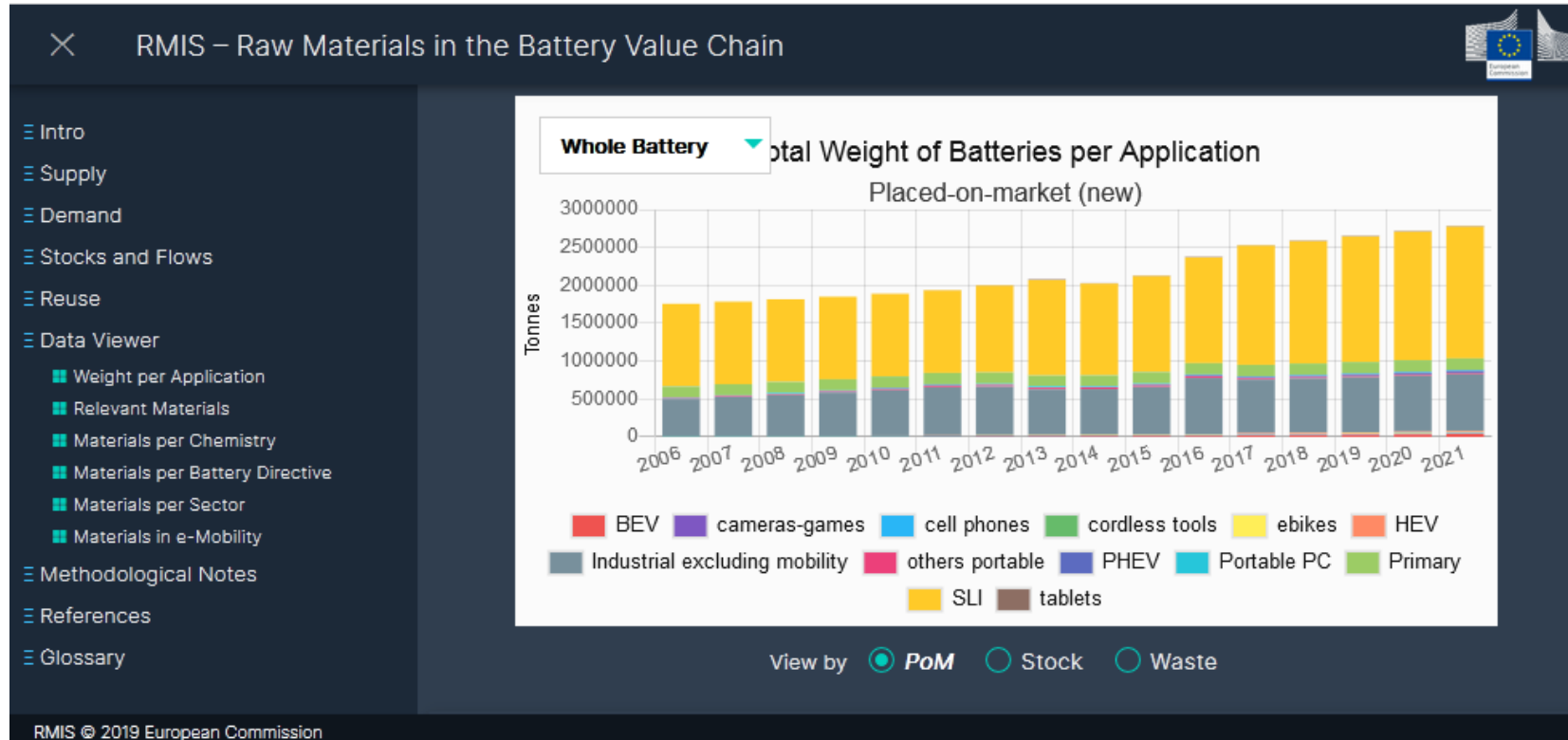


*Jaco HUISMAN*

*RMIS workshop, Dec. 3 - 2020*



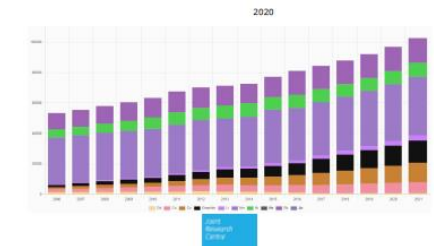
# Follow-up activity 1: (TU Berlin/ RECHARGE) RMIS battery raw materials



JRC SCIENTIFIC INFORMATION SYSTEMS  
AND DATABASES

## RMIS – Raw Materials in the Battery Value Chain

Final content for the Raw  
Materials Information  
System – strategic value  
chains – batteries section  
J. Huismans, T. Cluza, F. Mathieux, S. Bobba,  
K. Georgilzakis, D. Pennington



<https://rmis.jrc.ec.europa.eu/apps/bvc/#/>

More detailed info:

<http://www.urbanmineplatform.eu/urbanmine/batteries/weightpercapita>

# 2020 activities:

CRMs in strategic technologies and sectors

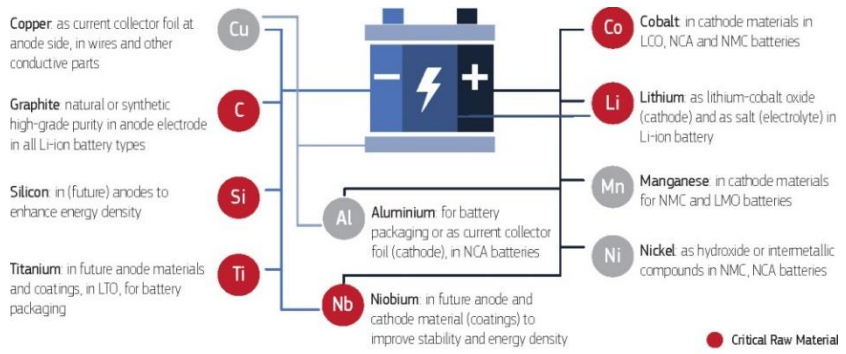
Battery Data and scenario analysis for DG GROW



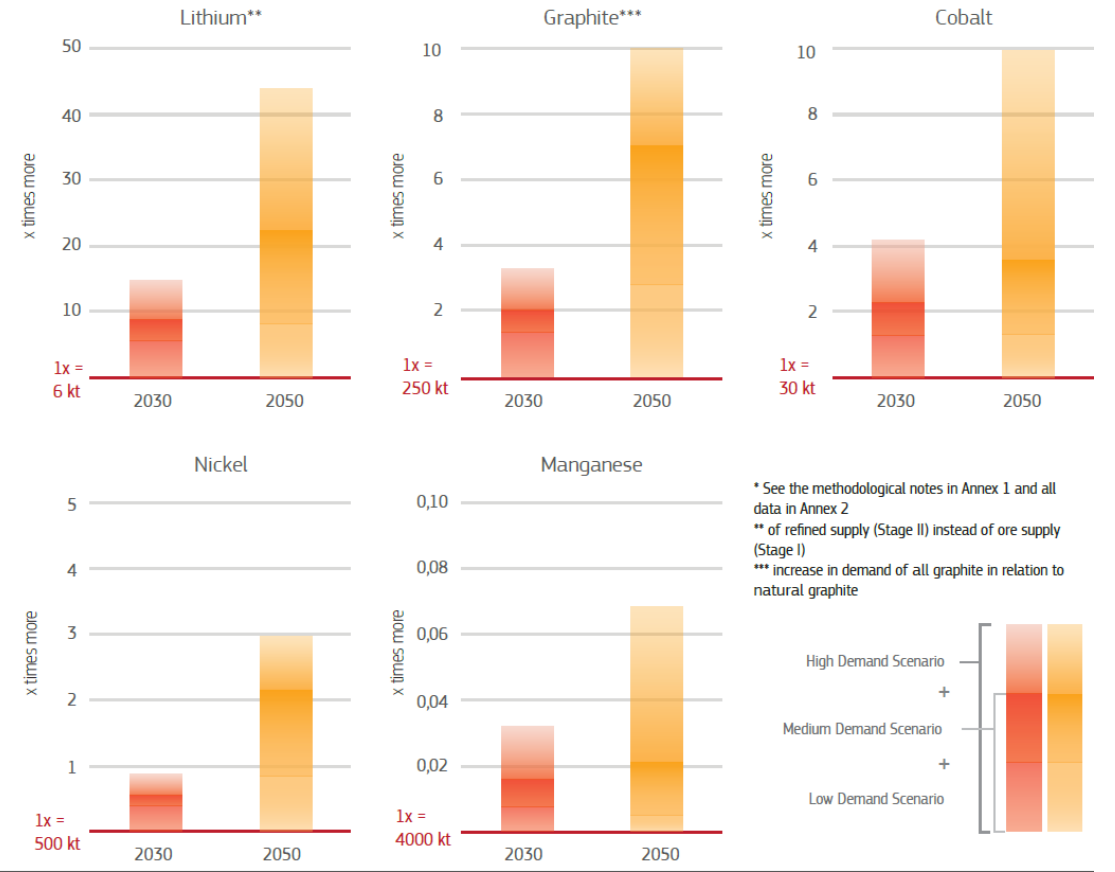
*Jaco HUISMAN*

*RMIS workshop, Dec. 3 - 2020*

# Follow-up activity 2: (JRC and DG GROW) CRMs in strategic technologies and sectors – a foresight study



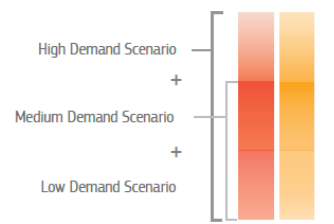
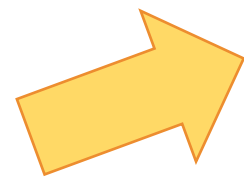
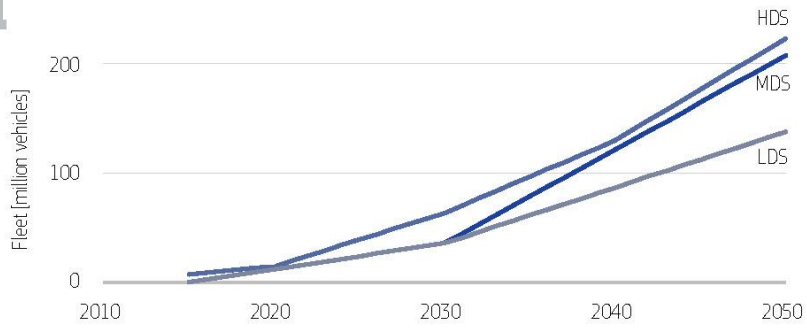
Additional material consumption for batteries in **e-mobility only** in 2030/2050 compared to current EU consumption\* of the material in **all applications**



\* See the methodological notes in Annex 1 and all data in Annex 2  
 \*\* of refined supply (Stage II) instead of ore supply (Stage I)  
 \*\*\* increase in demand of all graphite in relation to natural graphite

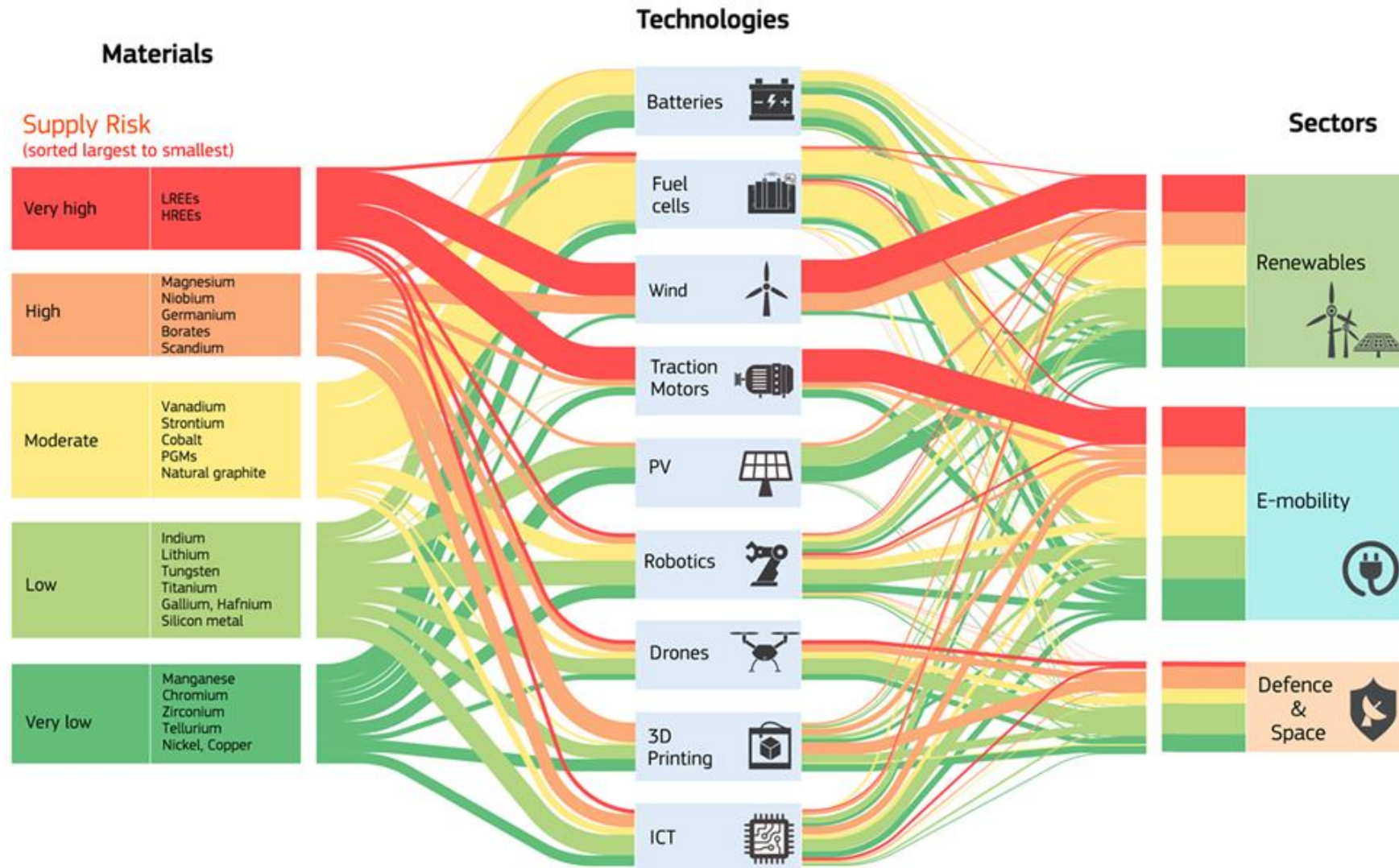


EU – Electric Vehicle/Plug-in Hybrid Electric Vehicle Fleet



# Follow-up activity 2: (JRC and DG GROW)

## CRMs in strategic technologies and sectors – a foresight study



# Follow-up activity 3: (JRC and DG GROW)

## Battery supply – demand modelling for DG GROW – ‘AA Task 5.2’



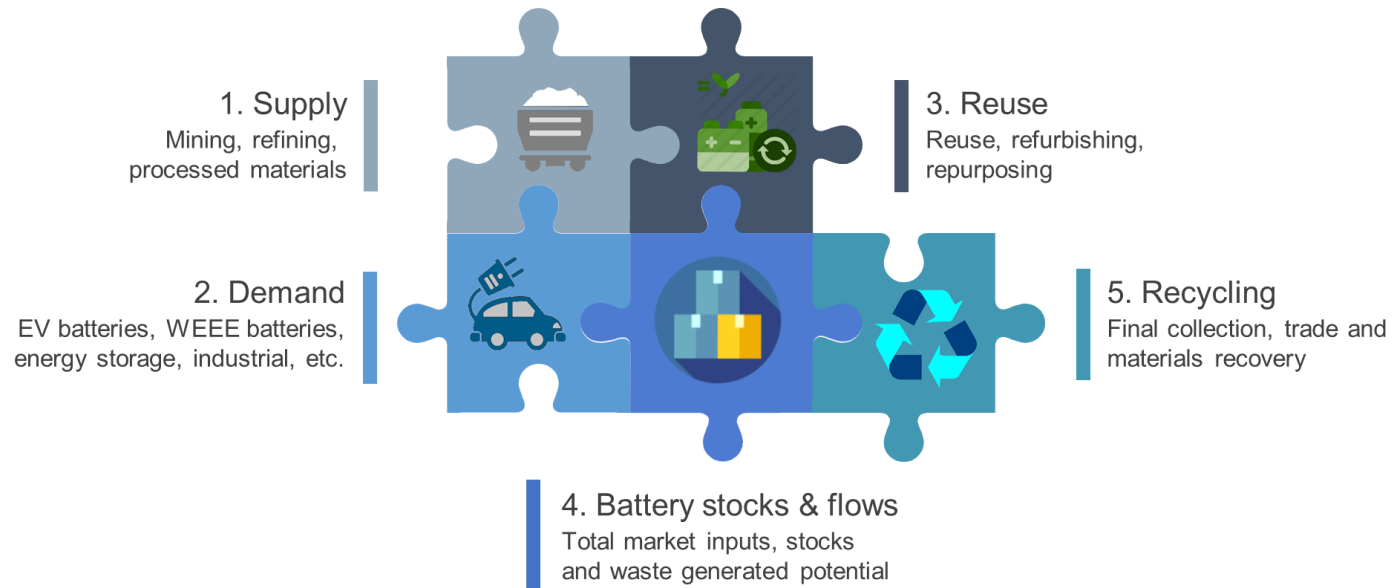
Lists, specs

Uniform specifications  
for all life-cycle stages



Model

There is a need to cover  
all life-cycle stages more  
consistently



Data  
collection

There is a fast growing amount of  
battery forecasts, but key data gaps  
remain on raw material content



Scenarios

There is a large amount of  
unpredictability related to policy  
scenarios, market uptake, cross-  
linkages between sectors



Indicators

There is a need for novel indicators  
for policy evaluations



# 2021 activities:

Towards a Global Battery Waste Monitor

Updating vehicle data in RMIS

*Jaco HUISMAN*

*RMIS workshop, Dec. 3 - 2020*

# Follow-up activity 4 - 2021

## Towards a global battery waste monitor



Feasibility study planned  
for March 2021

### Feasibility study for a Global or Regional **Waste Battery Monitor**

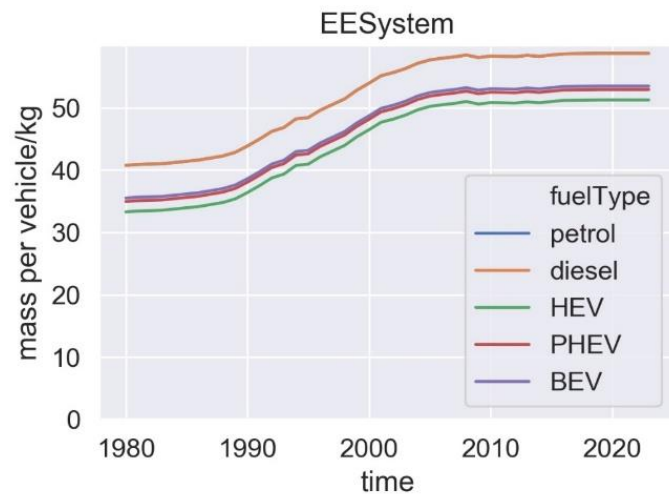
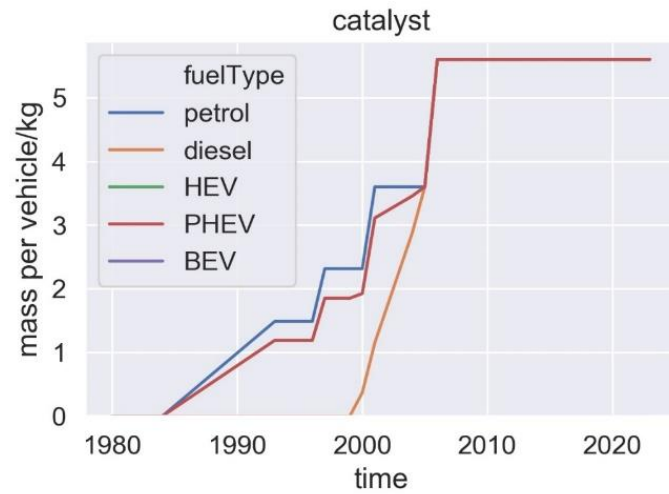
- *Concept note* -



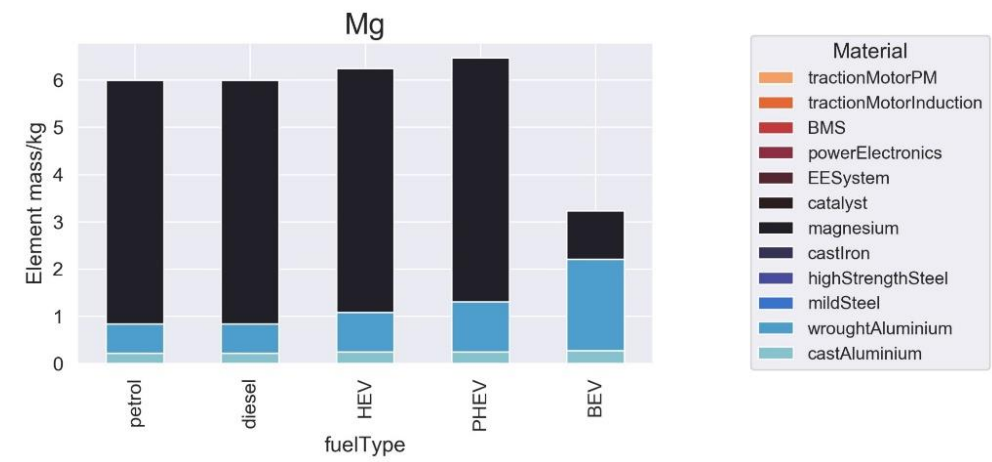
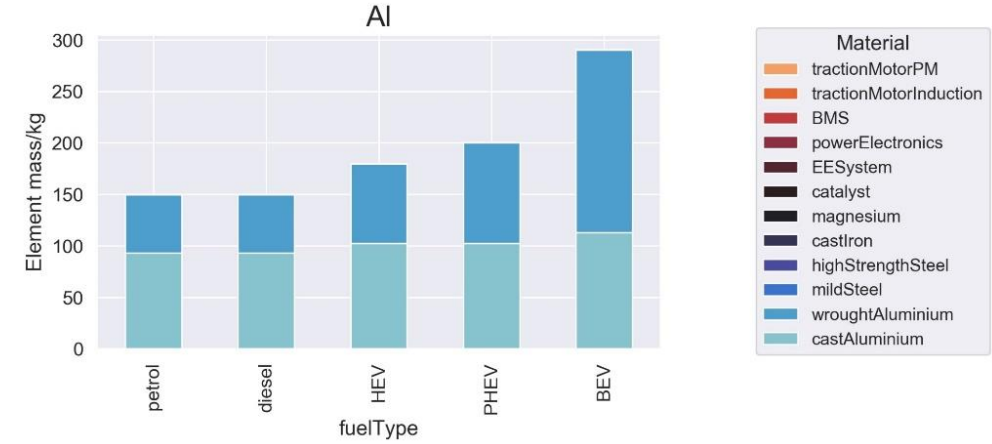
Long term objective: To develop and publish a Global Battery Waste Monitor to inform policy makers, recyclers, the civil society and battery waste management

# Follow-up activity 5: (EMPA/ Chalmers)

## Update of vehicle fleet and composition data



Updated component  
→ raw material trends



Have a look at:  
<http://www.urbanmineplatform.eu/urbanmine/vehicles/quantity>



# Conclusions

- RMIS is a natural receiver of H2020 projects information
- Data on (secondary) raw materials is highly welcomed by many stakeholders
- Data is supporting co-creation of policy relevant analysis and datasets
- More foresight studies upcoming. Further data will become relevant for newer projects like f.i. SCRREEN 2 and PANORAMA

Past H2020 projects do continue in **newer** cooperation formats

# Thank you



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# Integration of knowledge output into RMIS

IT technical guidelines

# Four modes of integration of external information into RMIS

- ✓ Library
- ✓ RM Knowledge Gateway
- ✓ Raw Data
- ✓ Web-Apps

# RMIS Library

- Reports, papers, articles, projects summaries
- RM relevant documents

## RMIS Library

Title of the document <input type="text"/>	Authors <input type="text"/>
Document type <input type="text"/>	ISBN/Code <input type="text"/>
Publisher <input type="text"/>	Year <input type="text"/>

### Advanced search - additional filters

Geographical coverage	Thematic coverage along value chain
<input type="checkbox"/> Belgium <input type="checkbox"/> Bulgaria <input type="checkbox"/> Czechia <input type="checkbox"/> Denmark <input type="checkbox"/> Germany <input type="checkbox"/> Estonia	<input type="checkbox"/> exploration (incl. survey, prospection too) <input type="checkbox"/> extraction <input type="checkbox"/> primary and secondary processing <input type="checkbox"/> mine closure (incl. remediation, aftercare) <input type="checkbox"/> production (incl. fabrication, design, material efficiency, substitution, replacement)
EIP SIP relevance	
<input type="checkbox"/> research & innovation <input type="checkbox"/> technologies for raw materials production (exploration, extraction, processing, recycling) <input type="checkbox"/> substitution (materials for green energy technologies, for electronics, for extreme conditions, for large streams) <input type="checkbox"/> improving EU RM framework (policy, access to deposits, public awareness) <input type="checkbox"/> improving EU waste management framework (product design, quality recycling, illegal waste shipment, optimized recovery)	

<https://rmis.jrc.ec.europa.eu/?page=library>

# Raw Materials Knowledge Gateway

- General profile - overview
- Key activities related to RM
- Project's description
- Summaries, outputs, results
- Relevant linkages

Raw Materials Knowledge Gateway

NATIONAL LEVEL EUROPEAN LEVEL

European Institutions European Data Services European Industry Associations EU Funded Projects

European Institutions

Select a data provider from the drop-down list:

Joint Research Centre ▾

**Joint Research Centre (D3 Unit)**

[Joint Research Centre \(D3 Unit\) homepage](#)

**Overview**

The European Commission's science and knowledge service, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle. The JRC Land Resources Unit (JRC-D3) of the Sustainable Resources Directorate has the mission to: (1) provide information to balance competing land use demands whilst securing access to natural resources and maintaining ecosystem services; (2) focus on understanding the interaction between humans and the biosphere and trends in land condition and management, along with how these respond to changing environmental, societal and economic conditions; (3) develop the Raw Materials Information System.

Activities on raw materials

The following paragraphs describe the main dossiers developed by JRC-D3 on Raw materials.

**The European Commission's Raw Materials Information System (RMIS)** is the web-based knowledge platform on non-fuel, non-agricultural raw materials from primary and secondary sources. It focuses on both abiotic and biotic materials, covering the entire value chain. The overarching goal of the RMIS is to facilitate: (1) The availability, coherence, and quality of knowledge required by specific EU raw materials policies and EC services; (2) Access to key raw materials information from the knowledge base, within and beyond Europe.

Raw Materials Scoreboard is a joint publication prepared with DG GROWTH. It provides an overview of challenges and opportunities along the raw materials value chain. The Scoreboard presents information for policymaking and will be used to

<https://rmis.jrc.ec.europa.eu/?page=rmkg>



# Web Applications

- Foreign-developed Single-Page web Applications (SPA):
  - Slim, self-contained, data-driven web-apps
  - Favoring open-source over vendor locked-in software tools
  - Prerequisite: compatibility, simplicity, straight-forward integration into RMIS, first-class UX/UI, well-documented, low maintenance
  - Technical requirements:
    - SPA with all resources included/bundled within
    - without external dependencies or direct calls to foreign domain APIs, CDNs
    - static or no back-ends
    - static database - datasets as files: SQLite, json, html





# Thank you

## Detailed guide for download:

[https://rmis.jrc.ec.europa.eu/uploads/Technical\\_guidelines\\_for\\_knowledge\\_transfers\\_into\\_RMIS.pdf](https://rmis.jrc.ec.europa.eu/uploads/Technical_guidelines_for_knowledge_transfers_into_RMIS.pdf)

Contact: [ec-rmis@ec.europa.eu](mailto:ec-rmis@ec.europa.eu)

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