

Increasing Knowledge on Raw Materials in Europe: The EC-JRC Raw Materials Information System

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Main Topics

- 1. DG JRC Mandate and the EU Policy Context for Raw Materials**
- 2. JRC Activities supporting the EIP on Raw Materials**
- 3. A Circular Economy for Raw Materials**
- 4. Monitoring Raw Materials Sectors**
 - a. The EU Raw Materials Scoreboard
 - b. The JRC/EC Raw Materials Information System

JRC and the EU Policy Context for RM

JRC Mandate: To provide science-based support to EU policies

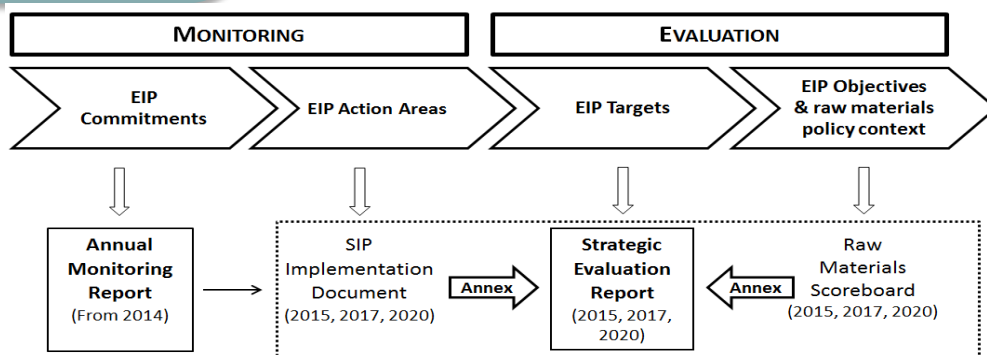
Policy Mandate on Raw Materials:

- Raw Materials Initiative (COM(2008)0699)
- European Innovation Partnership (EIP) on Raw Materials (COM(2012) 82) and its Strategic Implementation Plan
- Circular Economy Action Plan (that is related to the 3rd pillar of the EIP's implementation plan) (COM(2015) 614)
- For a European Industrial Renaissance (COM(2014) 014)

JRC Support to Raw Materials

EIP Raw Materials (since 2012)

- Methodology for List of Critical Raw Materials
- Support the EU Raw Materials Knowledge Base
- Support EU Raw Materials Scoreboard
- Support the Evaluation of EIP RM targets (3 pillars according to Strategic Implementation Plan)



JRC Support to Raw Materials

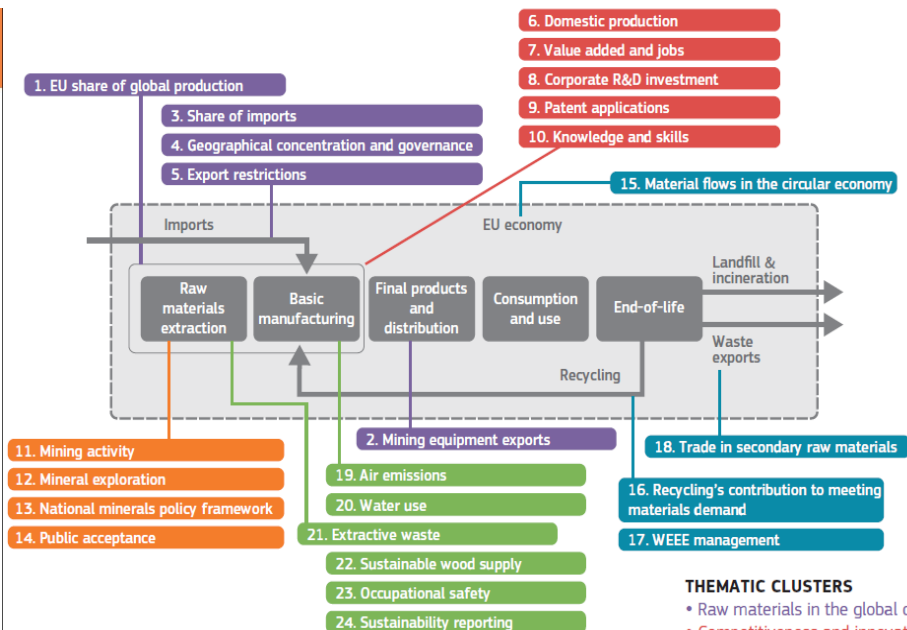
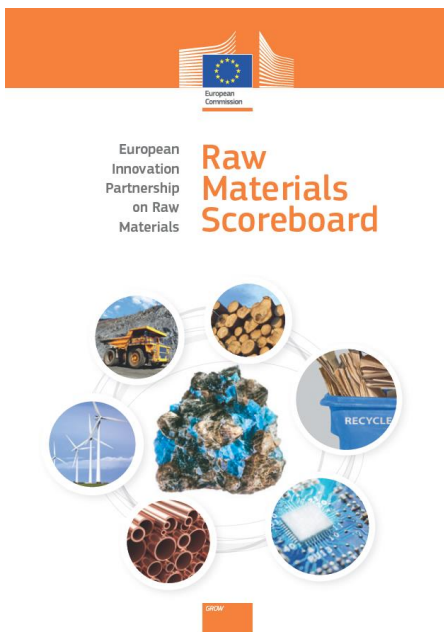
Circular Economy Action Plan (since 2015)

- Monitoring the Circular Economy
 - Co-author with DG GROW the EU Raw Materials Scoreboard
 - Produce indicators for the EU Resource Efficiency Scoreboard (Soil Indicators)
- Develop the **Raw Materials Information System** (replace the EU RM Knowledge Base) and analyze the evolutions of EU market for secondary raw materials
- Support **Report on Critical RMs** (2017)
- Support methodology & standards for Electronic and Electric Waste (**WEEE Directive**), focus on supply chains of CRMs

Commission is examining other barriers to the smooth circulation of waste in the EU. To improve the availability of data on secondary raw materials the Commission will further develop the recently initiated Raw Materials Information System and support EU-wide research on raw materials flows. It will also support the improvement of data reporting on

Monitoring Raw Materials: EU RM Scoreboard

(non-food, non-fossil fuel, primary/secondary, biotic/abiotic)



THEMATIC CLUSTERS

- Raw materials in the global context
- Competitiveness and innovation
- Framework conditions for mining
- Circular economy and recycling
- Environmental and social sustainability

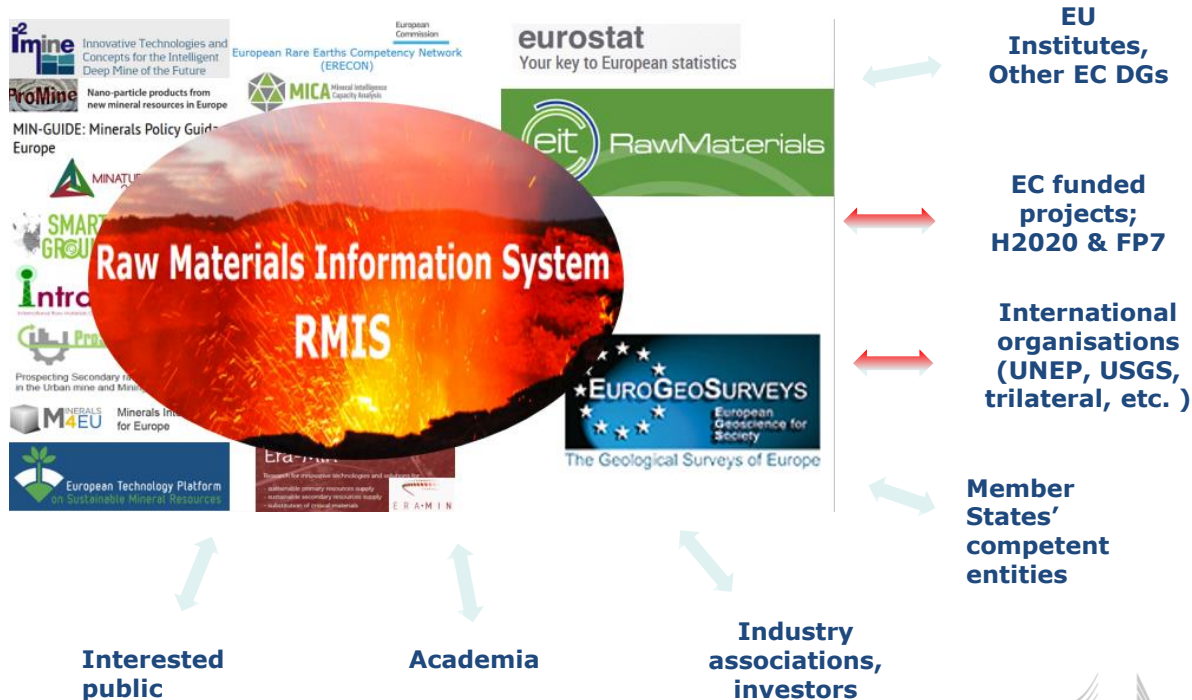
Monitoring Raw Materials: Towards (DG JRC) Raw Materials Information System 2.0



RMIS 2.0 will provide structured information with the aim of achieving:

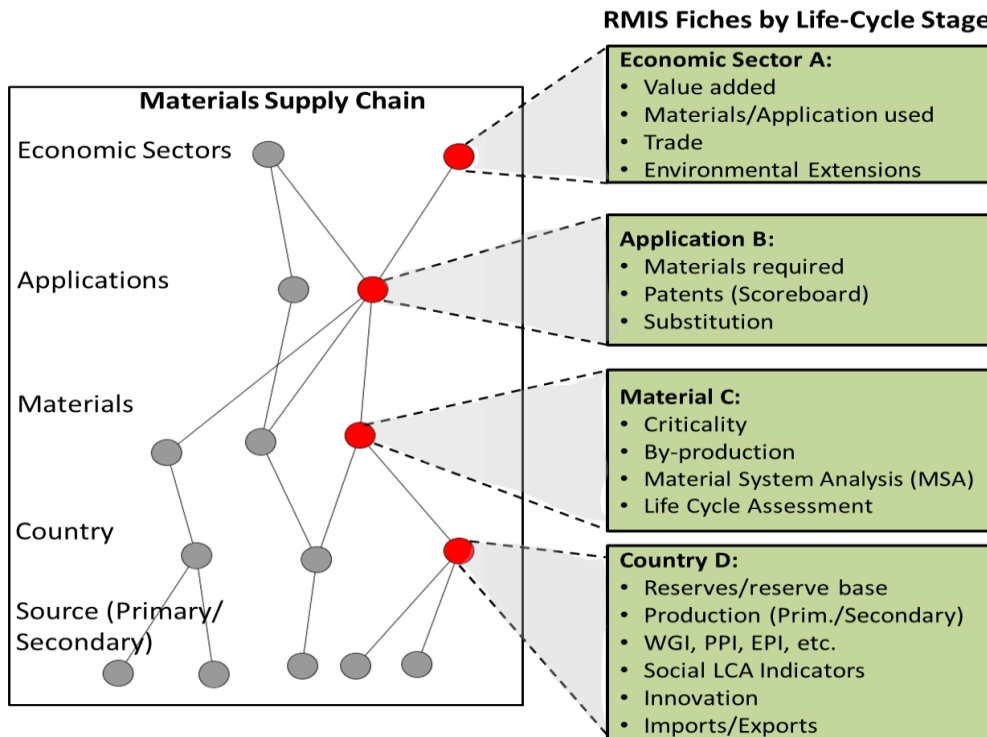
- Higher availability of data on secondary RM (market)
- Better understanding and mapping of RM flows along their value chains
- Deeper consideration of RM criticality and security of supply
- Improved data collection and information service at Member States level

The EU Knowledge Base on Raw Materials and the RMIS



Towards RMIS 2.0

Material-specific part: visualisation options



Towards RMIS 2.0

Selection of the material(s) of interest for development of factsheets

H																	He						
3 Li Lithium	4 Be Beryllium											5 B Boron	6 C Carbon	7 N Nitrogen	8 O Oxygen	9 F Fluorine	10 Ne Neon						
11 Na Sodium	12 Mg Magnesium											13 Al Aluminum	14 Si Silicon	15 P Phosphorus	16 S Sulfur	17 Cl Chlorine	18 Ar Argon						
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton						
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon						
55 Cs Cesium	56 Ba Barium	57 La Lanthanum	58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium							
87 Fr Francium	88 Ra Radium	89 Ac Actinium	90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium							
																		111 Uut	112 Uuq	113 Uup	114 Uuq	115 Uus	116 Uuo

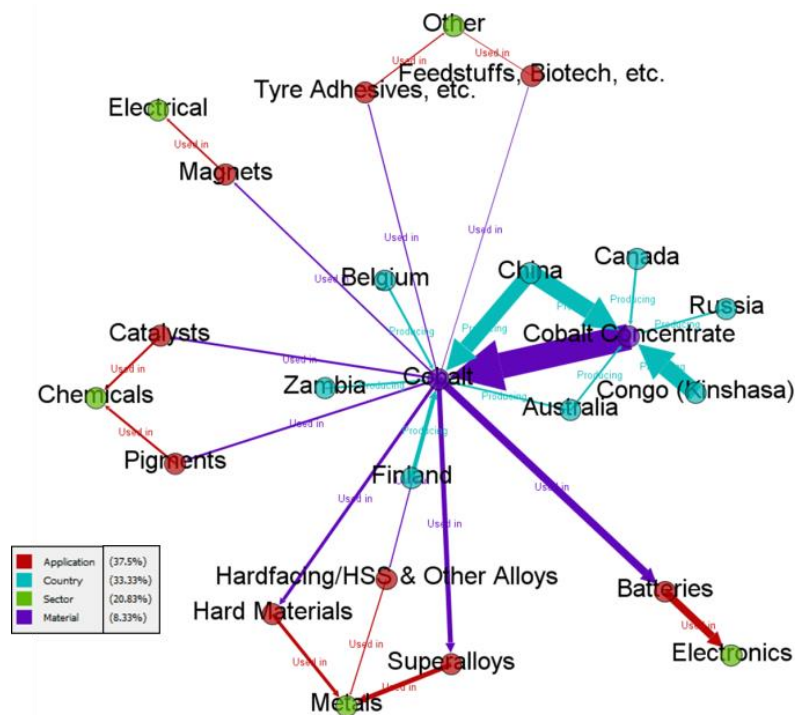
TABLE

SPHERE

HELIX

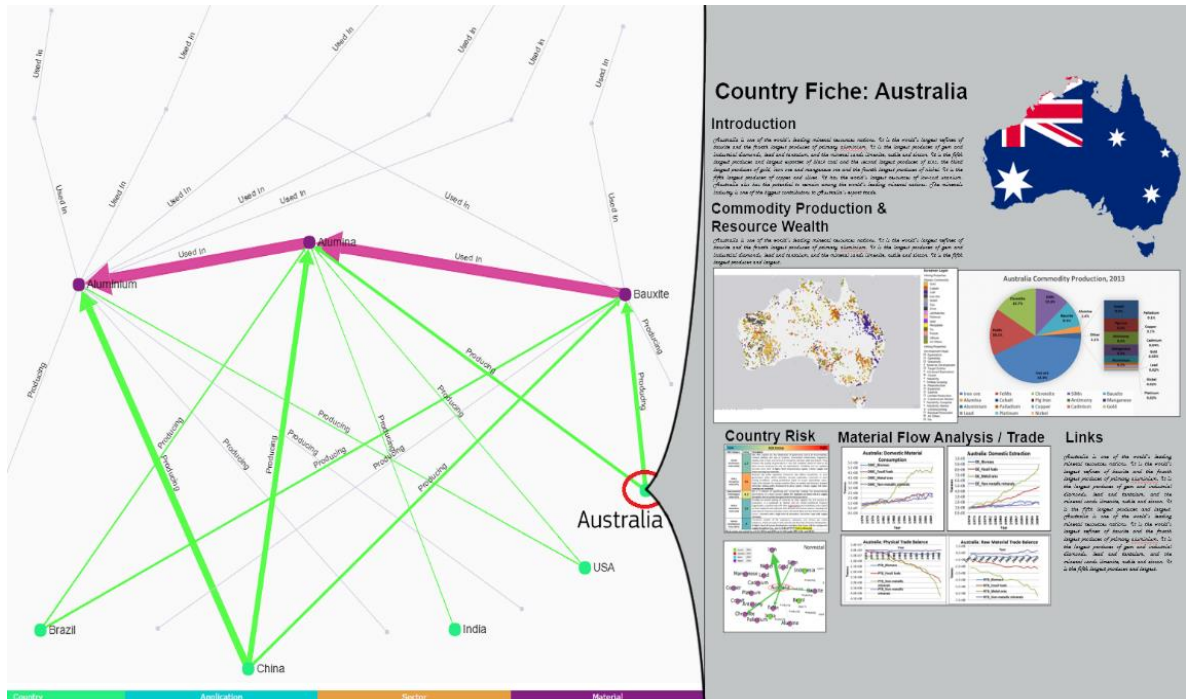
Towards RMIS 2.0

Example: Cobalt material supply chain



Towards RMIS 2.0

Example of Country-specific factsheet: Australia



Other JRC activities related to Raw Materials

Monitoring the results of the Horizon 2020 Calls under Societal Challenge 5, Raw Materials (calls 13-15) – explicit addition to 2016 revision

Production of knowledge on raw materials and sustainability (social, economic, environmental) assessments of activities along the RM supply chains

- Internal studies (ex. Foresight study on non-ferrous metals industry/sector; energy-intensive raw materials database – SETIS; conflict minerals; security of supply; fertilizers; mining waste)
- Co-operation with Consortia, academia, associations, NGOs and other stakeholders

Recent focus on end-of-life (LC approach), increasing resilience & ensuring security of supply, preserving social and environmental European (citizen/consumers) values

Giving (secondary) raw materials knowledge a product-centric approach...

Why?

- End-of-life products are homogeneous waste streams containing similar mixes of materials
- Product approach can be deployed at **production** (e.g. Ecodesign, REACh), **consumption** (e.g. Labelling) and **waste management** stages

How? - JRC proposal

- By deploying the REAPro (Resource Efficiency Assessment of Products) method, developed by JRC
- Criteria: recyclability; recycled content; presence of precious / critical materials, hazardous substances; durability/repairability/re-usability

Key development: CEN/CENELEC standardisation efforts on material efficiency of products, WEEE, etc.

- Aim: define appropriate parameters and methods to assess material efficiency (for it to be verifiable, comparable)



Wrap up – Way Forward

Why EC-JRC RMIS?

- DG JRC is a permanent EC body, the EC's in-house science service; should ensure continuity with a web-based platform providing comprehensive info/data/knowledge on RM
- RMIS has got recently strong, formal political mandate
- RMIS intends to become the reference one-stop platform for primary/secondary info on RM, collecting and organising extended data/info/knowledge, covering widest users' needs

Synergies with other Horizon 2020 commitments/projects

H2020 projects are in focus due to their unique capability of generating relevant knowledge on RM

- RMIS can help to highlight policy/business knowledge needs and how (H2020) projects then fit into fulfilling these needs
- RMIS can facilitate further dissemination of their results, while supporting coherence and linkages between knowledge
- RMIS can help make their results more visible and available beyond the duration of individual projects, while also enabling updates and follow-ups

Thank you for your attention!



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