

Raw materials for the energy transition, existing data harmonization problems in Europe and possible solutions, recent results from **ORAMA** project.

ORAMA

- Optimizing quality of information in Raw Material data collection across Europe
 - Both primary & secondary raw materials
- From 12/2017 to 11/2019
- 16 partners, 14 countries, 1.7 M€
- Advisory Board: 6 stakeholder organisations
 - Including EFG
- Technical, scientific and overall coordination: GTK
 - Coordinator: Perttu Mikkola, perttu.mikkola@gtk.fi
- www.orama-h2020.eu

Partners

- Geological Surveys:

- Finland
- UK
- France
- Norway
- Ireland
- Slovenia
- Denmark and Greenland
- Spain
- Hungary

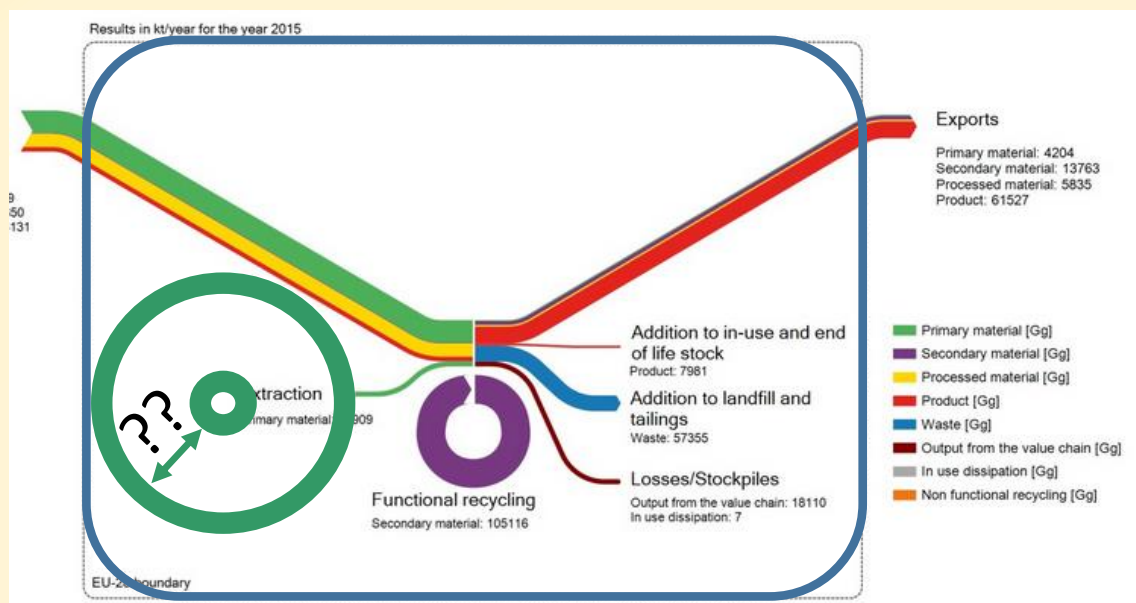
- Other institutions:

- Joint Research Centre
- EMPA
- UNU
- WEEE Forum
- Technische Universität Berlin
- Chalmers Tekniska Högskola
- Universiteit Leiden

The inability to easily produce reliable statistics about reserves, resources, stocks, and flows of raw materials needed for the energy transition (or anything else for that matter) is a major issue for EU/EC



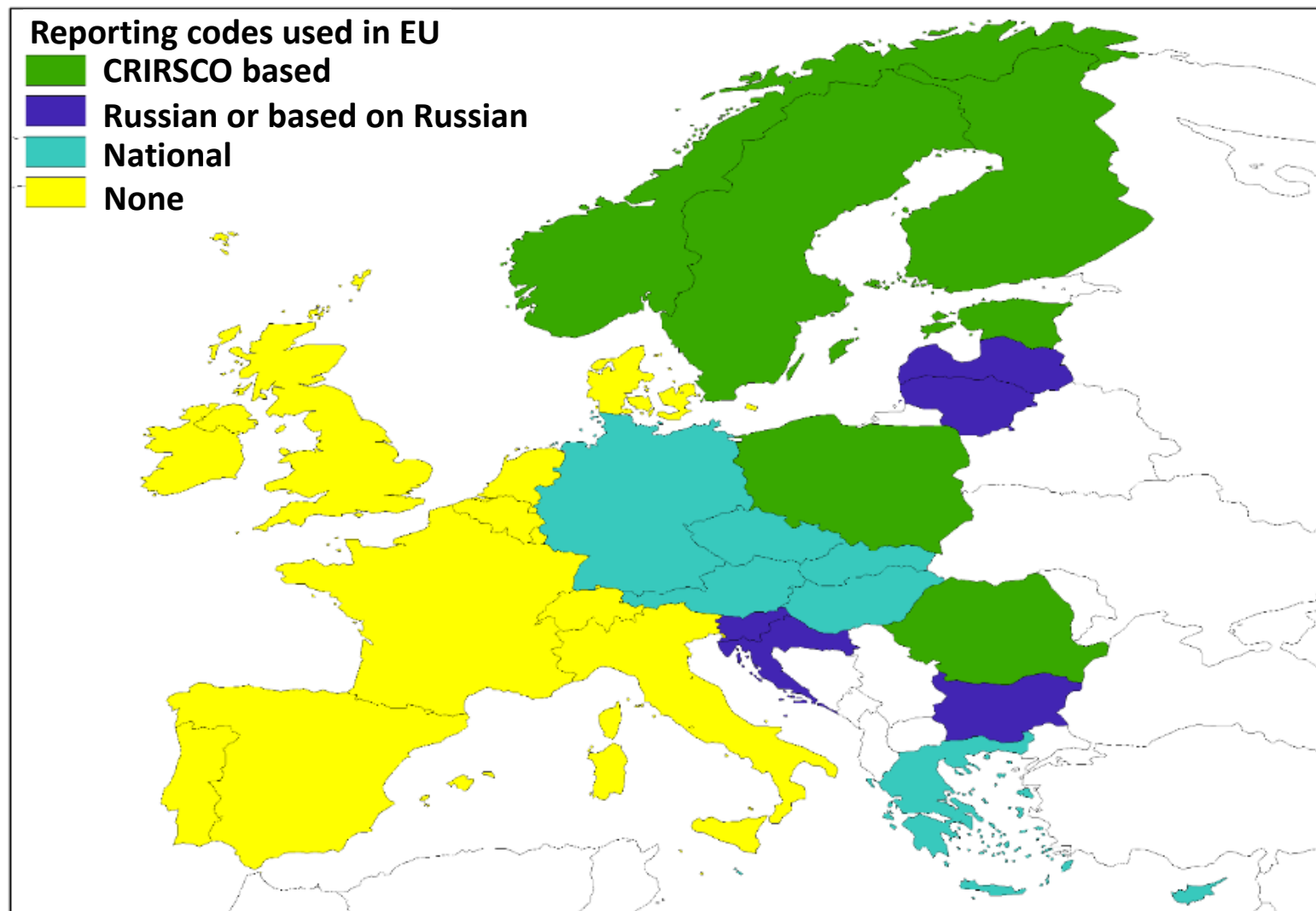
How do evaluate the amount of primary resources within EU?



The amount of resources available in short term vs. the amount of resources available in long term

Current state, primary raw materials

- National databases
 - Differ in content, system used, updating frequency etc.
- European platforms have been developed
 - Eg. European Minerals Knowledge Data Platform by Minerals4EU, <http://minerals4eu.brgm-rec.fr/>
 - Compiled automatically by harvesting the national databases
 - Meaningful resource/reserve numbers only in fraction of deposits and mineralizations -> adding up doesn't produce European resources/reserves

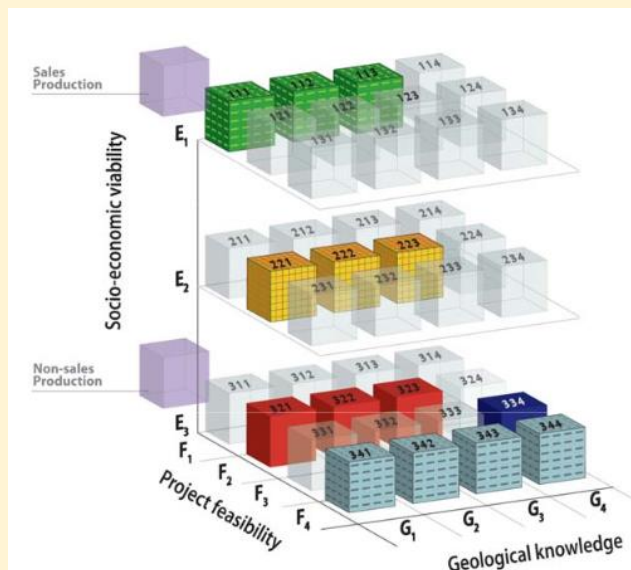


CRIRSCO-template & the like

- Clear rules, reliable numbers
 - Numbers not directly comparable between systems
- Good for:
 - Doing business
 - “now” and “near future” numbers
- Not so good for long term EU-wide statistics
 - Can’t handle currently sub-economic deposits, early stage exploration or historical data

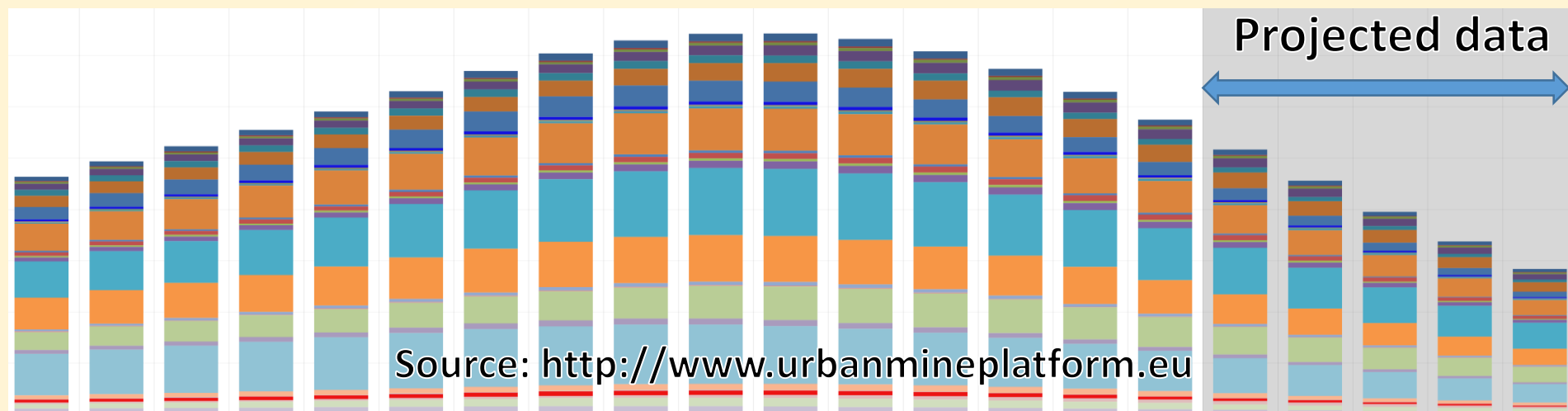
UNFC system

- Can deal with less constrained data
 - Better possibilities for “all there is” numbers
- Bridging documents from other systems exist and new ones can be compiled
- Widely known but not widely used
 - Benefit or drawback?
 - Plenty of extra work or fresh start?



Secondary raw materials data

- Several projects / plenty of work put in
- Theoretically easier
 - Made, used and disposed by rational? humans
 - So shouldn't we know the tons and grades?



Tons of lead in WEEE / year / member state

SRM challenges

- Even more scattered than primary raw materials
- Different waste groups
- National differences in data collection
- Lack of compositional data
- Confidentiality issues
- Complimentary waste flows
- Example: $\sim\frac{1}{2}$ of the end of life vehicles “disappear”

Summary

- CRIRSCO/national codes are needed also in future
- UNFC has high potential in solving the challenges
 - Flexibility in respect to both data quality & raw material
- Data on both PRM and SRM need to be comparable, if for nothing else than helping the mining and/or recycling discussion

Challenge

- How to motivate the possible double reporting?
- Stick or carrot?
- If you have e.g. CRIRSCO compliant resource estimate conversion to UNFC not exceedingly time consuming (but what's the motivation?)
- If exploration project doesn't result in compliant resource estimate, UNFC based one could still be made

Accessing the results from ORAMA

- Homepage <https://orama-h2020.eu/>
 - Register as stakeholder
 - All deliverables available for download
- Webinars coming up, early autumn
- Final event
 - ½-day Planned to be in connection with/during EU “Raw materials Week” in November

The road to better RM data:
Slow & bumpy, but drivable

