Introduction to mining Data Information in Europe

MINGUIDE: Results of the compilation of EU level mineral projects and mineral statistics availability

Luis Jordá Bordehore
Geological Survey of Spain
1) Introduction to mining data information in Europe

2) Overview of results of the compilation of EU level minerals projects

3) Some ideas on mineral statistics availability: a case study

4) Introduction of the Policy Labs Streams (Session 1 and Session 2), their content and general overview of the cases
### The MIN-GUIDE work packages

**Common approach**

| WP1 | Minerals policy guide development and conceptual basis |

**Core content**

| WP2 | Stock-taking of EU and EU MS mineral policy |
| WP3 | Innovative exploration and extraction |
| WP4 | Innovative processing |
| WP5 | Innovative waste management and mine closure |
| WP6 | Raw materials knowledge and information base |

**Cross-cutting management and engagement**

| WP7 | Stakeholder management, communication and dissemination |
| WP8 | Project management |

This lab aim to study mineral data and knowledge, find gaps and explore future pathways
You can download it at: https://www.min-guide.eu/project-results

Gap identification and future steps in this laboratory and to be included in next deliverable.
This task has three clearly differentiated but complementary parts:

1. identification and description of European H2020 projects in progress or recently completed (from 2009 onwards) on or related to mineral Raw Materials and closely related subjects.

2. reviewing existing mineral statistics and data availability, gaps identification, etc

3. review of the current situation of mineral resources reporting systems and the standards
Why this WP?

European Commission, (EIP) on Raw Materials, aims to raise the industry's contribution to the EU’s GDP, to around 20% by 2020, by securing its access to raw materials.

One of the pillars of such commitment, is the knowledge information systems and making available reliable data on mining and minerals. In summary EU policies, need good and reliable statistics, accessible data, friendly and maybe in the right level of disaggregation for the analysis of the various commodities.
Do this figure include industrial minerals, aggregates and building stones? Maybe the figure could be less dramatic? Need more info?
• distorted reality thinking in mining as a whole not including quarries, aggregates and industrial minerals
  • magnesite, fluorspar, sepiolite, kaolin, and potash, Europe is today a world relevant producer.

• It is important to highlight other interesting figures which are not easy to find in official records
  • CRM_ barite, graphite, vanadium, tungsten or cobalt
Problems to be answered

• The situation at this very moment in the EU is that the available official sources (European Commission sites and national ministries and geological surveys) of mining and mineral information are very scattered

• we find that it is difficult to conduct a rapid analysis of the existing resources and mining statistics in Europe.

• As we will see later, from the results of our survey questionnaires, many mining researchers use the already existing yearbooks but they randomly use official EU data and websites

• On the other hand a non-specialised user can find it very difficult to find official information and reliable data. For example: At this moment it is extremely difficult, to answer this simple question: **What is the production of each of the CRMs in Europe? How many mines are there?**
Identification and description of relevant EU projects on mining and mineral Raw Materials addressing the state of the art of mineral statistics, exploration, production, trade and reserves and resources.

We have analyzed 66

desktop research - complemented with a questionnaire:
• via email
• direct interview at the Policy Lab 4 in Athens.

Questionnaire:
Mineral Raw Materials project database (Part1)
mining statistical knowledge base (part2).

¿Where do researchers look for info and which is the degree of knowledge of the MINGUIDE stake holders about this topics? This will help us to identify gaps in the information systems and websites (more friendly sites?)
1. Part 1: Identification and description of relevant EU projects

<table>
<thead>
<tr>
<th>related to MINGUIDE</th>
<th>mineral statistics info</th>
<th>TYPE OF RESULTS: database, map, report, other</th>
<th>total cost €</th>
<th>eu contribution €</th>
<th>WEBSITE</th>
<th>CORDIS LINK</th>
<th>leader</th>
<th>particip. (excluding leader)</th>
<th>last update within this database</th>
</tr>
</thead>
<tbody>
<tr>
<td>database</td>
<td>closely related</td>
<td>all topics</td>
<td>2.784.588,00</td>
<td>1.999.000,00</td>
<td><a href="http://www.minerals4eu.eu/">http://www.minerals4eu.eu/</a></td>
<td><a href="http://cordis.europa.eu/project/rcn/109373_en.html">http://cordis.europa.eu/project/rcn/109373_en.html</a></td>
<td>GEOLOGIST TUTKIMUSKES KUS Finland</td>
<td>31</td>
<td>24/08/2017</td>
</tr>
</tbody>
</table>
The average number of partners involved in each project is between 11 and 15.
Compilation of EU level mineral projects

- Issue: availability of updated information once the project is over
Compilation of EU level mineral projects

Country leading project - coordinator

- France: 8 projects (13%)
- Finland: 7 projects (11%)
- Germany: 5 projects (8%)
- United Kingdom: 5 projects (8%)
- Greece: 5 projects (8%)
- Belgium: 5 projects (8%)
- Netherlands: 5 projects (8%)
- Austria: 5 projects (8%)
- Switzerland: 1 project (2%)
- Poland: 1 project (2%)
- Denmark: 1 project (2%)
- Slovenia: 1 project (2%)
- Norway: 2 projects (3%)
- Sweden: 3 projects (5%)
- Spain: 3 projects (5%)
- Ireland: 1 project (2%)
- Portugal: 1 project (2%)
- "Board": 1 project (2%)

Total projects: 69
Among the 28 countries, 17 have been leading at least one project, 2 are non EU Members (Norway and Switzerland), 11 EU countries have not lead a RM project (at least of those analysed). These countries are Bulgaria, Cyprus, Croatia, Czech Republic, Estonia, Latvia, Lithuania, Luxemburg, Malta, Romania and Slovakia. Involve them!!
However, the Raw Materials Initiative makes no impact if the potential European mining projects never have the opportunity to start...

→ Mining and society
Main findings: minerals and society

The MINLEX highlighted obstacles or barriers to the development of "greenfield" mining projects are the environmental aspects another important barrier to mining in Europe: The European public opinion overall is not in favor of mining projects in its territory (the "not in my backyard" theory).

In addition to environmental issues, we must also point out the need of a "social licence" or social acceptance, which are critical for mining projects in Europe. It is important to bring mining and raw materials closer to Society.

Possibly the "Achilles heel" of all European projects –such as those that have been analysed- is the way they share the results with the public in the EU.
It is widely accepted that Social Acceptance of mining begins with information in early stages of education and public awareness, there are very few initiatives within the activities and projects funded by the European Commission oriented towards society including primary and secondary schools (as mentioned during the Raw Materials Week 2017):

- Suscritmat (www.suscritmat.eu)
- EIT – RM@Schools (www.rmschools.isof.chr.it)
- European Minerals day (www.mineralsday.eu)
We focus on three aspects:

• EU funded projects that provide information on mining statistics and mining resources in Europe
• Non EU official sources of information on mining statistics and data
• EU official sources of information (mainly EU web sites)
Unofficial EU Mineral Statistics

The most comprehensive yearbooks with relevant information on European mining industry data information and statistics.
Example of a downloadable excel file with Prodcom-Eurostat statistics and search for commodity

http://ec.europa.eu/eurostat/web/prodcom/data/excel-files-nace-rev.2

Aggregated data: 07291500 includes 3 metals: lead, zinc and tin, and also ore production and concentrates
Case study: How and where to find information on EU mineral and mining statistics. Aim is to In this part we highlight the difficulty of accessing official data and their interpretation.

The commodities chosen for the exercise were:

- Gold
- Lead
- Tungsten (is a CRM)
- Salt (NaCl)
- Potassium chloride- sylvite and carnalite (KCl)
- Fluorspar (is a CRM)
- Granite

Countries: Spain and Greece

Years: 2012 and 2016
### Part 2: Mineral Statistics

<table>
<thead>
<tr>
<th>Commodity (mineral production)</th>
<th>Type of mineral</th>
<th>PRODCOM code</th>
<th>Description</th>
<th>Year</th>
<th>EU Official Statistics</th>
<th>National Official Statistics</th>
<th>Other statistics (non official)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gold</strong> (Au)</td>
<td>Precious metal</td>
<td>07.29.14.00</td>
<td>Precious metal ores and concentrates</td>
<td>2012</td>
<td>C (confidential)</td>
<td>0</td>
<td>1,625 (units)</td>
</tr>
<tr>
<td><strong>Lead</strong> (Pb)</td>
<td>Base metal</td>
<td>07.29.15.00</td>
<td>Lead, zinc and tin ores and concentrates</td>
<td>2012</td>
<td>C (confidential)</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Tungsten</strong> (W)</td>
<td>Non-ferrous metal</td>
<td>07.29.19.00</td>
<td>Other non-ferrous metal ores and concentrates</td>
<td>2012</td>
<td>C (confidential)</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Salt</strong> (NaCl)</td>
<td>Industrial mineral</td>
<td>08.91.30.00</td>
<td>Salt (including dehydrated salts but excluding salt suitable for human consumption) and pure sodium chloride, whether or not in aqueous solution or containing added anti-caking or flow agents</td>
<td>2012</td>
<td>C</td>
<td>4,542,044 t</td>
<td>40,000 t</td>
</tr>
<tr>
<td><strong>Geologically saline (Potassium-Gypsum) (K&lt;sub&gt;2&lt;/sub&gt;CO&lt;sub&gt;3&lt;/sub&gt;)</strong></td>
<td>Industrial mineral</td>
<td>No code</td>
<td>No code</td>
<td>2012</td>
<td>2,689,113 kg (C)</td>
<td>5,156,43 kg sold volume</td>
<td>3,053,43 kg Total volume</td>
</tr>
<tr>
<td><strong>Fluorspar</strong> (CaF&lt;sub&gt;2&lt;/sub&gt;)</td>
<td>Industrial mineral</td>
<td>08.91.19.00</td>
<td>Other chemical and fertiliser minerals</td>
<td>2012</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Granite</strong></td>
<td>Construction mineral</td>
<td>08.11.12.32</td>
<td>Granite, crude or roughly trimmed</td>
<td>2012</td>
<td>661,603 kg (C)</td>
<td>0</td>
<td>573,507 t (not only granite)</td>
</tr>
<tr>
<td><strong>Granite</strong></td>
<td>Construction mineral</td>
<td>08.11.12.36</td>
<td>Granite merely cut into rectangular including squared blocks or slabs</td>
<td>2012</td>
<td>661,603 kg (sold / total volume)</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Very difficult to find reliable data and figures for a non expert user: eg policy maker, economic researcher, journalist, etc

Not updated

We will focus on this during parallel sesión 3
PRODCOM

Using PRODCOM codes it is not easy to find a commodity in the tables: first it is necessary to go to the legend list and match the code with the mineral or commodity, then surf each of the codes.

- Gold is not disaggregated in PRODCOM, so it is not possible to find the gold production itself. The code is 07291 Precious metal ores and concentrates.
- no specific category for lead. Lead is aggregated in 07291500 Lead, Zinc and tin, ores and concentrates.
- Tungsten which is a CRM is under 07291900 “Other non-ferrous metal ores and concentrates”
- Carnalite and sylvite: Spain is a major producer with underground mines. We have not found a specific category for these minerals. We assume that they are to be found under 08911900 “other chemical and fertilizer minerals”.
- Fluorspar has no category and is a CRM with relevant EU production.
- Granite is recorded under the category: 08111233 “Granite, crude or roughly trimmed, the quantity is abnormally low. There is another category 08111236 granite merely cut into rectangular block or slabs with no production for Spain and Greece, which is seems strange, because both countries are producers
MATERIAL FLOW ACCOUNTS

The drawbacks of this statistics are:

- Gold is not disaggregated, but put together with Gold, silver, platinum and other precious metals (code MF226).
- Lead is disaggregated in the MFA (which is not the case in Prodcom): code MF223.
- There is no specific code for tungsten under Other non ferrous metals MF229.
- There is no specific code for potassium chloride, KCl sylvite and carnalite and fluorspar. We assume that they are to be found under Chemical and fertilizing mineral Code MF34.
- Granite is not available as a separate data item, but aggregated into MF31: Marble, granite, sandstone, porphyry, basalt, other ornamental or building stone (excluding slate). These commodities are completely different and have no coherent geological nor similar processing or export practices etc.

**Session 1:**
Knowledge: Mining and minerals for society
Facilitator: Luis Jorda

**Session 2:**
Using data and resources standards in the mining industry
Facilitator: Manuel Regueiro

13:00 – 14:00 Lunch break

14:00 – 14:15 Feedback on the session 1+2 and results in the plenary
Parallel sessions

Why this sesión? Is not data but knowledge

This projects could help to improve the way statistical and rough data is presented to society and non experts

Wide society learning is relevant? Why why not? Maybe is the first step towards SLO and SLO is key to begin projects

We have less mining because we have no well-informed citizens?
Part 3: Standards for resources classification

- Economic and social oriented systems: The United Nations Framework Classification
- Industrial and investors oriented systems: The CRIRSCO template family and PERC

Discuss: in which cases we use one an the other, European standard, are there projects where use both?

More data available - more exploration? Other factors?
1. We have identified 66 EU projects related to mineral raw materials, but only 12% related to mineral statistics and data. And this, in spite of the fact that reliable statistical data and easy to find information, is crucial for policy makers and industrial stakeholders.

2. One of the main problems that have been detected in many of the projects analyzed, is the availability of updated information once the project is over.

3. Social aspects of these projects and “teaching” mining and minerals to society can be improved.

4. We do not need more statistical data, what is needed is accessible and easy to find information that can then reach society. Common citizens must find information easily available and with a simple vocabulary.

5. Information and knowledge needs to be official, readily available in an easy and understandable way and from official sources to decision-makers and all stakeholders.

6. We need more research projects and permanent databases addressing minerals and mining data and knowledge (including statistics) oriented to society at all levels, from primary schools to policy and decision making stakeholders.