Report on the project to harmonize the Hungarian classification (MFGI) and development of a EuroGeoSurveys - Mineral Resources Expert Group (MREG) position

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Geneva
Mapping the interest for the harmonization

What is the harmonization? The context.

National project (MFGI-Hungary)
  - Non-metallic mineral resources
  - Coals
  - Hydrocarbons

European level survey - EuroGeoSurvey MREG TT

Summary and conclusions - position
Increasing interest for harmonization of national classification systems by international standards and the UNFC-2009 framework can be detected based on UNECE EGRC data.
Global level: UNFC-2009 is the only comprehensive, effective classification framework and management system that itself may be a guidance for primary and secondary resources.

EU level: INSPIRE Directive for data service and recommendation for the use of CRIRSCO type system (ESMA)

International standards for reporting and classification framework

- **EU information framework**
  - uniform Earth-scientific, economical, technological, environmental, social data (AHWG 2014)

- **national registration**
  - reports of contractors with experts (not CP but national expert)

- **national reporting**
  - due to related legislation, methodology
  - national expert

- **national classification**
  - exploration outcomes methodology
  - national expert

UP TO DATE MINERAL RESOURCE CLASSIFICATION & INVENTORY

Role of Competent Persons
Introduction of the MFGI

The Geological and Geophysical Institute of Hungary (MFGI) was established in April 2012, merging the former Geological Institute of Hungary (MÁFI, est. 1869) and the Eötvös Loránd Geophysical Institute (ELGI, est. 1907). MFGI is a public research institute operating under the Ministry of National Development. MFGI’s mission is to support Hungary’s economic competitiveness, the effectiveness of public services and policy by providing up-to-date geoscientific information for the government and the society.

Departments

Department of Data Management
Department of Earth Physics
Department of Earth Resources (project for harmonization of mineral resource classification)
Department of Engineering Geophysics
Department of Environmental Geology
Department of Geochemistry and Laboratories
Department of Geodesy
Department of Geoinformatics
Department of Geological and Geophysical Collections
Department of Geological Research
Department of Geophysical Mapping
Department of Hydrogeology
Department of Quality Management and Coordination
Department of Seismic Research
National Adaptation Center and Libraries

Activity, projects: www.mfgi.hu
Data for resources: www.mbfh.hu
Structure and activity of the Hungarian project

Harmonization of the National Mineral Resources Classification System with International Standards, Codes and UNFC-2009
Modernization of the National Mineral and Geothermal Energy Resources Inventory since 2013

Meetings/stakeholder consultations:
2013-2015: for all types of resources and for the use of geological formations between the four types of organizations = four working groups (research, authority, mining and civil) + other stakeholders (e.g. ministry). (18 meetings, ~ 80 people).
Steps


2. Bridging between CRIRSCO family, SPE-PRMS, Geothermal codes and UNFC-2009

3. Stakeholder consultations: authority, experts, entrepreneurs

4. Proposals based on tests and demonstration for the harmonization

5. A guideline and a scientific publication are in progress
## Harmonization: UNFC-2009

### Recent classification

<table>
<thead>
<tr>
<th>Recent classification</th>
<th>UNFC G</th>
<th>Possible UNFC G sub-categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>G1.1</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>G1.2</td>
</tr>
<tr>
<td>1st, 2nd, and 3rd complexity groups of C1</td>
<td>1</td>
<td>G1.3</td>
</tr>
<tr>
<td>4th complexity group of C1</td>
<td>2</td>
<td>G2.1</td>
</tr>
<tr>
<td>C2</td>
<td>2</td>
<td>G2.2</td>
</tr>
<tr>
<td>D1 (not included in mineral resource inventory)</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>4</td>
<td>-</td>
</tr>
</tbody>
</table>

### Non-metallic solid minerals – based on the inventory

<table>
<thead>
<tr>
<th>The status of the mine</th>
<th>UNFC F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 On Production</td>
<td>1</td>
</tr>
<tr>
<td>2 On Hold</td>
<td>2.2</td>
</tr>
<tr>
<td>3 Closed</td>
<td>2.3</td>
</tr>
<tr>
<td>0 Explored Area</td>
<td>3</td>
</tr>
</tbody>
</table>

*no data collection for „E“ - indirect information*
### Harmonization: CRIRSCO

#### Non-metallic minerals

<table>
<thead>
<tr>
<th>UNFC</th>
<th>CRIRSCO</th>
<th>Hungarian (Russian)</th>
</tr>
</thead>
<tbody>
<tr>
<td>111</td>
<td>Commercial project</td>
<td>Proved Reserves</td>
</tr>
<tr>
<td>112</td>
<td>Probable Reserves</td>
<td>Exploitation Reserves in fully explored deposits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(No reserves in the Hungarian system)</td>
</tr>
<tr>
<td>221</td>
<td>Potentially commercial project</td>
<td>Measured Resources</td>
</tr>
<tr>
<td>222</td>
<td>Indicated Resources</td>
<td>Resources of category <strong>C1</strong> in deposits of 1st, 2nd, and 3rd complexity groups and categories <strong>A</strong> and <strong>B</strong></td>
</tr>
<tr>
<td>223</td>
<td>Inferred Resources</td>
<td>Resources of category <strong>C2</strong> in deposits of all complexity groups and category <strong>C1</strong> in deposits of the 4th complexity group</td>
</tr>
<tr>
<td>334</td>
<td>Exploration project</td>
<td>Exploration Results</td>
</tr>
</tbody>
</table>

#### Elements of the Technical Operation Plan for exploitation

- **Modifying factors**
- **Hungarian inventory**

**Based on:**

- **FGU GKZ - CRIRSCO 2010:** Guidelines on Alignment of Russian minerals reporting standards and the CRIRSCO Template – Moscow.


**Competent Person is necessary!**
Case study: Great Hungarian Plain

Non-metallic mineral resources of 5 counties

Original classification

CRIRSCO - without Modifying Factors

CRIRSCO - with Modifying Factors

UNFC
Synergies between exploration, reporting, inventory, scientific research (data revaluation – classification – feasibility studies – decisions for concessions)

7997 volume blocks
>100 attributes

GIS support
10 coal basins
248 sites
17 Tematic maps

1. Water protection
2. Water amount
3. Dip of seams
4. Status of the project
5. Geology
6. Ignition heat
7. Ash content
8. Sulphur content
9. In situ temperature
10. Type of overburden
11. Type of underburden
12. Rate of exploration
13. Depth
14. Seam thickness
15. Natural protection
16. Rate of resources
17. Type of reservoirs
Conversion: Hydrocarbons (Zsolt Kovács)

<table>
<thead>
<tr>
<th>UNFC Classification</th>
<th>Hungarian inventory</th>
<th>State of Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>E category</td>
<td>F category</td>
<td>Producing reservoirs in producing fields</td>
</tr>
<tr>
<td>1.1</td>
<td>1.1</td>
<td>Intermission of producing of reservoirs in producing fields (produced but non producing in the time of evaluation)</td>
</tr>
<tr>
<td>1.1</td>
<td>1.2</td>
<td>Non producing reservoirs in producing fields (never produced)</td>
</tr>
<tr>
<td>1.1</td>
<td>1.3</td>
<td>Non producing reservoirs in non producing fields</td>
</tr>
<tr>
<td>2</td>
<td>2.1-2.2</td>
<td>Development Pending or On Hold</td>
</tr>
<tr>
<td>3.2-3.3</td>
<td>2.2-2.3</td>
<td>Development Unclarified or Not Viable</td>
</tr>
<tr>
<td>3.3</td>
<td>4</td>
<td>Additional Quantities in Place</td>
</tr>
</tbody>
</table>

Zala-Dráva Basin
South Transdanubia, Hungary

G1+G2 quantity data distribution based on reservoir and field production and HC quality analysis
(source: Hungarian Inventory of Mineral Resources)
Secretary General of the EGS: Luca Demicheli - *Geological Survey of Italy – ISPRA*

Minerals Resources: [http://www.eurogeosurveys.org/topics/mineral-resources/](http://www.eurogeosurveys.org/topics/mineral-resources/)
Do National Geological Surveys have sufficient data for „E‟, „F‟ and „G‟ categories?

Legend

National geological survey has sufficient data to accurately assess the categories of UNFC

- All of them (categories E, F and G)
- Categories F and G
- Category G
- None of them
- See in text
- No data

Countries having projects for harmonization

(17 Members think that harmonization projects would be useful.)
EGS Members lead or participate in EU-funded projects that contribute to the development of the joint language for mineral resources and reserves and to the RM data management

- **MINVENTORY**: EU raw materials statistics on resources and reserves. [www.minventory.eu](http://www.minventory.eu)
- **MINERALS4EU**: Minerals Intelligence Network for Europe. [www.minerals4eu.eu](http://www.minerals4eu.eu)
- **MICA**: Mineral Intelligence Capacity Analysis
- **EURARE**: [www.eurare.eu](http://www.eurare.eu). An ongoing project inventing and studying REE mineral systems in Europe
- **COST – MINEA**: Mining in the European Antroposphere. [http://www.cost.eu/COST_Actions/ca/CA15115](http://www.cost.eu/COST_Actions/ca/CA15115)
- **SNAP SEE**: Sustainable Aggregates Planning in South East Europe. [www.snapsee.eu](http://www.snapsee.eu)
- **Other projects** are in progress in relation to the H2020 calls
Summary and Conclusions

- Harmonization can be done if additional data service (complexity) is realized. CRIRSCO/PERC then UNFC-2009 seem to be appropriate for adaption.
- Without the contribution of CP data may be informative but not authorized.
- The concept, recommendations, forms for data service are ready, stakeholder consultations were organized. Recently hydrocarbons have the best progress.

- Synergies between scientific approach, modernization of inventory and harmonization
- Guidelines for EU and global levels would be useful: implementation of harmonization may depend on the growth of the mining sector and industry, dissemination, communication. Declaration of the importance of minerals, the joint classification in mineral policies on different levels may be a key. EU projects may facilitate harmonization.
Summary and Conclusions

- The **need for harmonization** between national mineral resources classification/inventories and international standards/classification framework **has been uniformly agreed on by all NGSs.**

- **NGSs should develop the concept of harmonization and support collaboration projects.** Terminology for harmonization of “resources” and “reserves” should be adopted from international standards.

- **UNFC is more encompassing and more suitable to be used by governments as it covers solid, fluid type resources, uranium, renewables and integrates sustainability indicators. It facilitates long-sighted resource governance by integrating environmental and social considerations.**

- The **involvement of Competent Persons in national geological surveys, authorities and ministries that are responsible for mineral resources management is necessary** (skills).

- Particularly the **UNFC category “E” may require co-operations with other organizations (regional authorities, ministries and agencies) in the progress of the harmonization. This process can also significantly contribute to the common objectives of the mineral policy on national and EU-levels.**

- The **EGS MREG is in favour of collaboration with the UNECE-EGRC** to promote the transfer of knowledge and speak for the interests of the National Geological Surveys and other key stakeholders in the mineral resources community.
THANK YOU FOR YOUR ATTENTION!

40 Years Listening to the Beat of the Earth

EuroGeoSurveys, Brussels

Geological and Geophysical Institute of Hungary, Budapest