

EIT HEI Initiative

Innovation Capacity Building
for Higher Education



Raw Materials Sustainability and the Circular Economy approach

4 March 2024

PUBLIC MINING SERVICE

SUSTAINABLE MINERAL RESOURCES MANAGEMENT - Slovenian approach



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Geological Survey of Slovenia

Content:

- Background - Mineral inventory and legal framework
- Public Mining Service - tasks and activities
- Licencing procedure support
- Mining Registry Book
- Mineral data accessibility and publishing
- Mineral data harmonisation and standardisation
- Mapping to UNFC

Mineral inventory



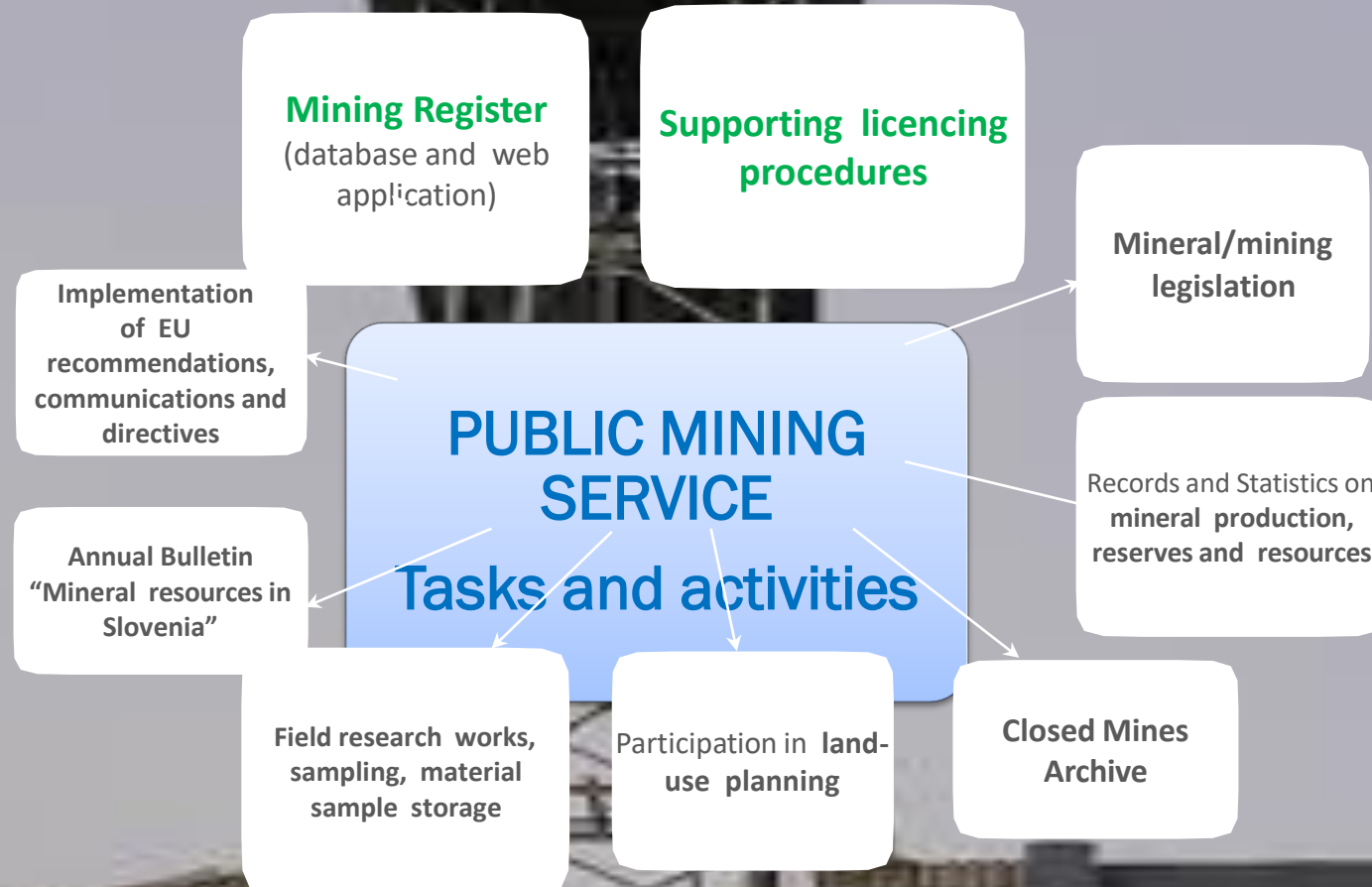
- Mineral inventory is the base for coherent and successful mineral management in every county
- Provision of mineral resource data for national resource management/planning is one of key role for national Geological Surveys
- Mineral reserves data are publicly available – but only in summarized form according national Law
- Reserves and resources are reported only for areas under concessions

Legal framework



- In Slovenia all the mineral commodities are **owned by the State** (aligned to the Constitution),
Ministry responsible for mining performs tasks related to mining legislation and licencing strongly **supported by GeoZS,**
- **Public Mining Service** is established within **GeoZS**, authorised by the Government in accordance with Mining Act in force (*Official Gazette of the Republic of Slovenia, No. 14/14 – official consolidated version, 61/17 – BA and 54/22*).
- **National Committee for Determining Mineral Reserves** provides the statements of mineral reserves and resources on the national level. Committee is lead by GeoZS expert.

Mineral Resource Management

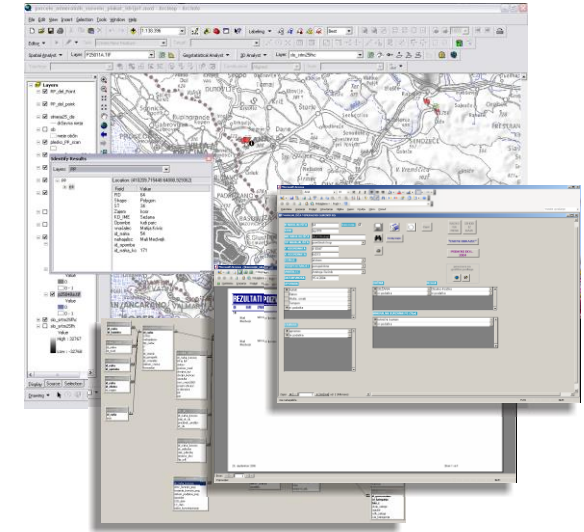


How **Public Mining** Service (GeoZS) supports licencing procedure:

- **Data are collected for primary raw materials** by the Geological Survey of Slovenia (via the ministry responsible for mining),
- The **Mining Act** creates a **statutory obligation** on mineral **operators**/mining right holders to **provide the data annually** (reporting forms for reserves, resources, production, extraction/exploration area,).
- Annually **Reporting forms**:
 - **volume of extracted** mineral commodities (t/m³)
 - **degraded area** (ha)
 - **reserves/resources remaining** in situ (m³)
- no metal mines are currently operating, but still have data on metal reserves and resources for closed mines and known metal other deposits.

Data accessibility

- The data are held/owned by the relevant Ministry
- They are stored on a **national centralized database** (GeoZS)
- The data is spatially referenced and **INSPIRE compliant**
- Data on production and reserves/resources for a particular deposit are not publicly accessible, but **summarized data at the national level are open accessed via *Bulletin Mineral Resources*** and
- **web application "*Mining Registry Book*"**



Web application Mining Registry Book

- **open access** to public data on exploitation and mining areas with concession
- **official attributes**, documents and cadastre maps of mineral deposits
- **national and English language**
- **no charge** for data

Web application MINING REGISTRY BOOK <https://ms.geo-zs.si/en-GB>



Pridobivalni prostor*

-  105. člen ZRud
-  17. člen ZRud
-  ZRud-1

Raziskovalni prostor*




-  105. člen ZRud
-  17. člen ZRud
-  ZRud-1

*Različni odtenki se uporabljajo zaradi razlikovanja različnih koncesionarjev v istem nahajališču

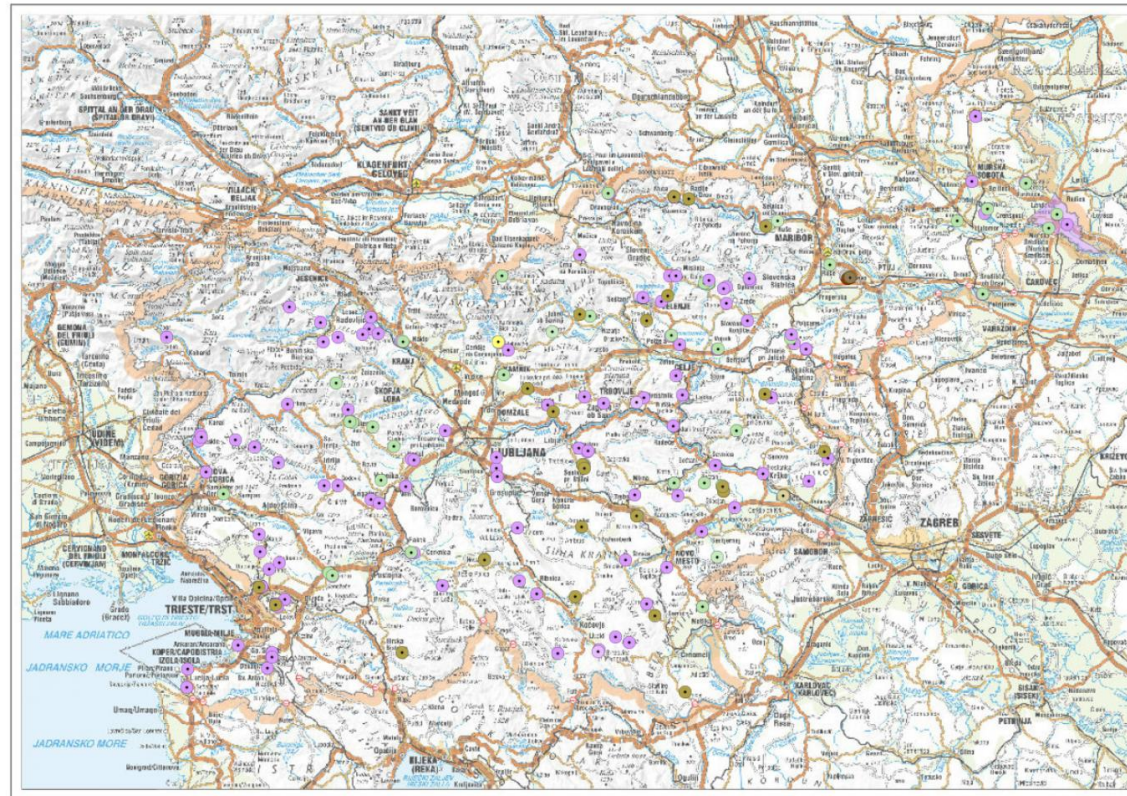
Ostalo

-  prenos rudarske pravice
-  ni dovoljenja za izkoriščanje
-  dovoljenje za izvajanje del
-  dovoljenje
-  ukinitvev pravic in obveznosti

Zemljiški kataster

-  občine
-  katastrske občine
-  parcelne meje

50 km

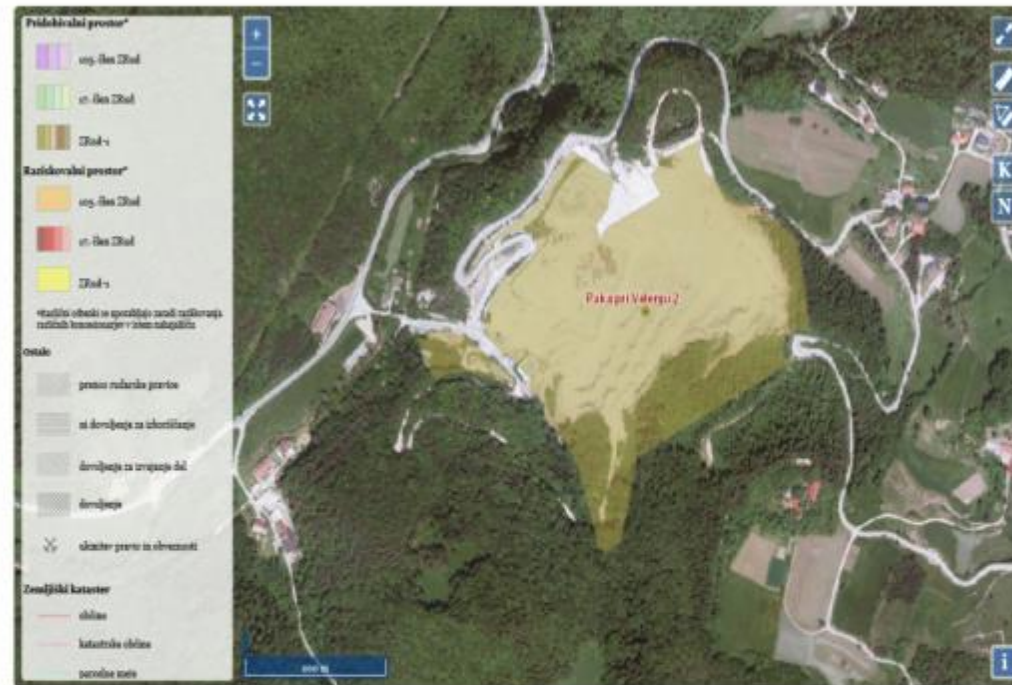


Web application MINING REGISTRY BOOK (in detail)

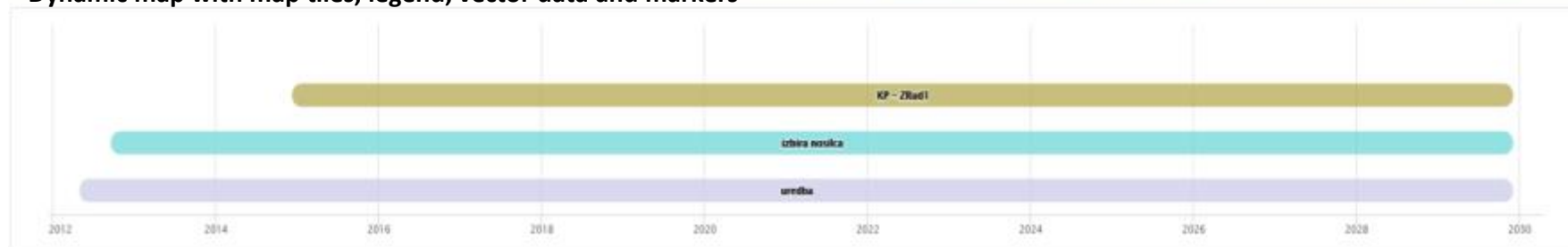
Paka pri Velenju 2

Rudarska pravica izkoriščanje
Min. surovina tehnični kamen - apnenec in dolomit (5.12.2014-5.12.2029)
Občina Mestna občina Velenje
Koncesionar RGP d.o.o., rudarski gradbeni programi
Rudarska cesta 6
3320 Velenje
matična št. 5513065000, davčna št. SI81182791
Površina 12,1175 ha
Pogodba ZRud-1: 0141-47/2011-DE/26
5. december 2014 - 5. december 2029
Uradni list 30/12, zap. št. 12
79/14, zap. št. 1

[Prenesi karto prostora \(pdf\)](#)



Dynamic map with map tiles, legend, vector data and markers



Mining Registry Book - illegal and abandoned extraction sites



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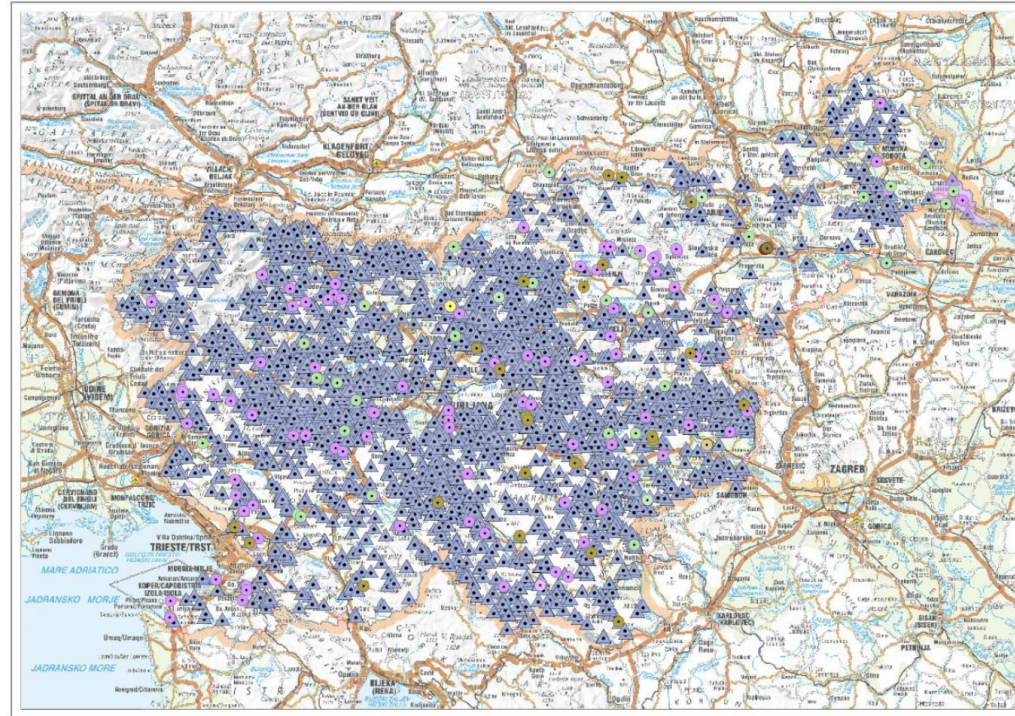
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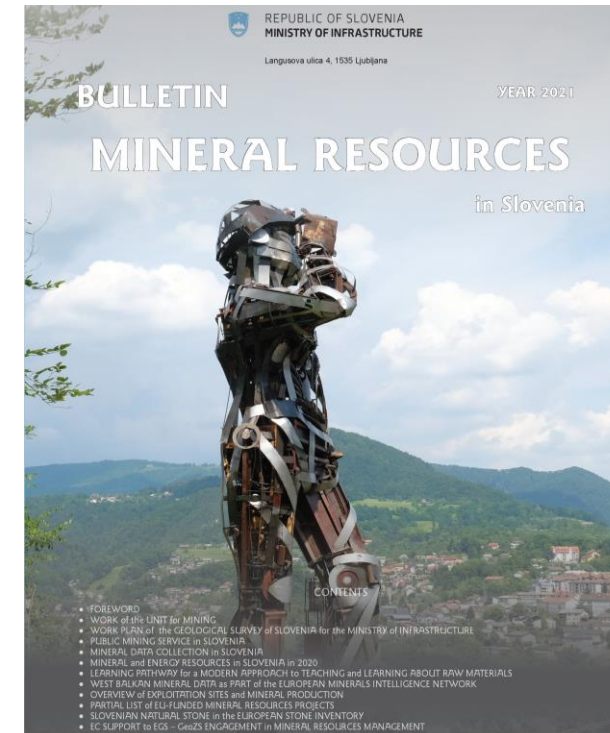
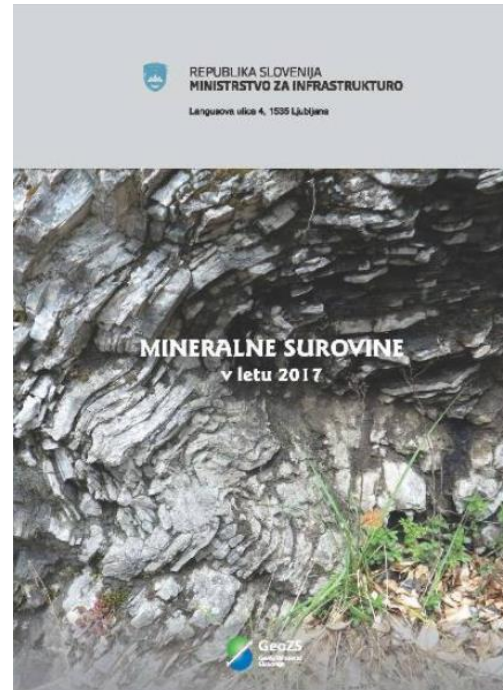


- 95 % of Slovenia already detected
- protection of access to deposits
- new data of mineral potential

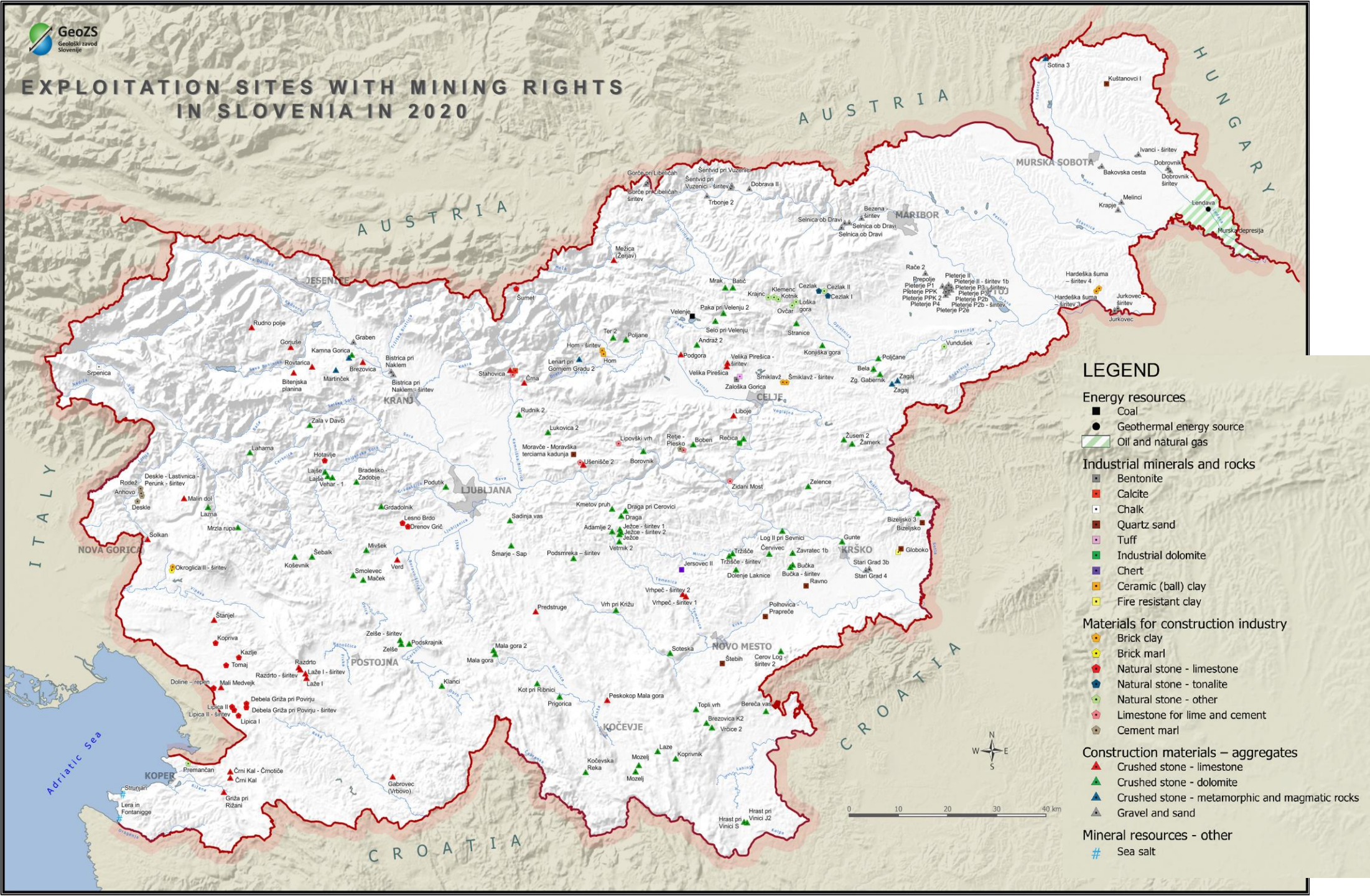
Bulletin Mineral Resource

<https://www.geo-zs.si/index.php/en/products/publications2/periodicals/mineral-resources>

- annual publications (EN, SI)
- data on mineral production, reserves and resources summarised on national level



EXPLOITATION SITES WITH MINING RIGHTS IN SLOVENIA IN 2020



LEGEND

Energy resources

- Coal
- Geothermal energy source
- Oil and natural gas

Industrial minerals and rocks

- Bentonite
- Calcite
- Chalk
- Quartz sand
- Tuff
- Industrial dolomite
- Chert
- Ceramic (ball) clay
- Fire resistant clay

Materials for construction industry

- Brick clay
- Brick marl
- Natural stone - limestone
- Natural stone - tonalite
- Natural stone - other
- Limestone for lime and cement
- Cement marl

Construction materials – aggregates

- Crushed stone - limestone
- Crushed stone - dolomite
- Crushed stone - metamorphic and magmatic rocks
- Gravel and sand

Mineral resources – other

- Sea salt

		2018	2019	2020
Bentonite		113	99	77
Calcite		04.914	221.767	229.111
Kaolin				
Chalk				
Quartz sand		43.683	311.954	325.318
Tuff		8.633	9.133	8.257
Industrial dolomite		29.821	102.619	88.275
Chert		20.436	20.773	21.485
Ceramic clay		42.052	6.412	5.354
Industrial minerals and rocks		49.652	672.757	677.877
Brick clay		59.615	180.088	273.771
Natural stone	limestone	91.231	69.155	58.109
	tonalite	41.793	25.078	17.839
	other	3.615	2.660	16.370
Natural stone		36.639	96.893	92.318
Raw materials for lime		12.883	1.186.037	1.025.514
Raw materials for cement		05.518	1.551.728	1.532.796
Materials for construction industry		14.655	3.014.746	2.924.399
Crushed stone	limestone	57.905	4.557.967	4.447.674
	dolomite	16.316	4.984.010	4.484.334
	other	7.781	8.662	51.910
Crushed stone		82.002	9.550.639	8.983.918
Gravel and sand		10.666	1.437.101	1.869.851
Construction materials – aggregates		92.668	10.987.740	10.853.769
TOTAL		56.975	14.675.243	14.456.045
brown coal				
lignite		16.735	3.218.696	3.259.309
coal		16.735	3.218.696	3.259.309
oil		270	267	247
gas condensate		499	223	138
gas		14.423	6.225	4.815
oil and gas		15.192	6.715	5.200
sea salt		2.018	1.437	805

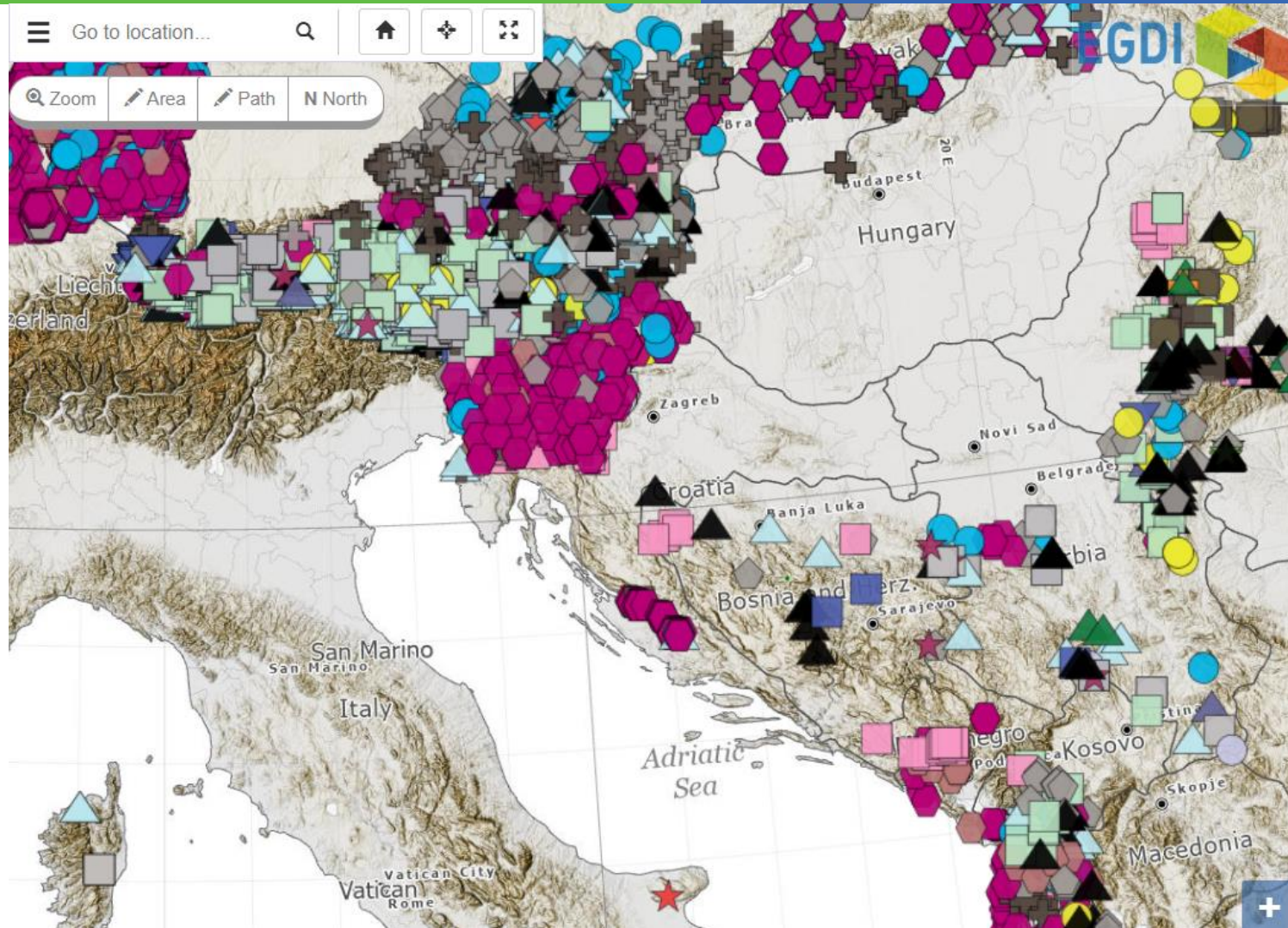
Data Users

- **Ministry** responsible for mining, Mining inspectorate
- **spatial planning sector**
- **industry**
- **local communities**
- **general public, media,**
- **education** institutions
- **authors** of mining technical documentation

Mineral data harmonisation via EU funded projects

- EuroGeoSource,
- **Minerals4EU,**
- Geo-ERA Mintell4EU,
- EIT RM MineService, RESEERVE...
-
- **GSEU**

Slovenia mineral data on EGDI portal



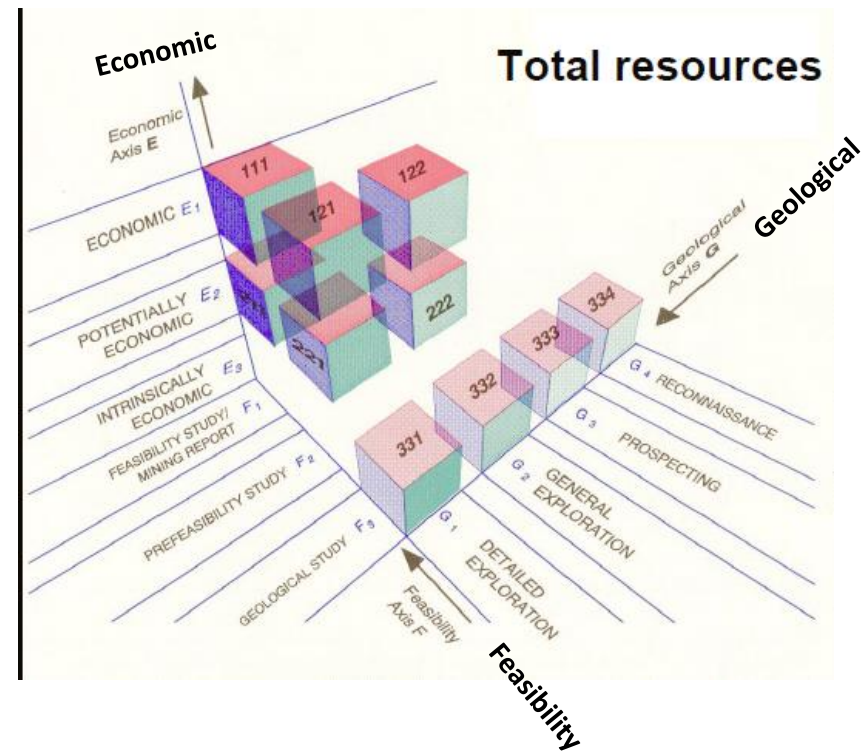
Data on Reserves and Resources- harmonisation and standardisation

- **National mineral classification** in official use (similar to the “*Russian classification*”),
- **Bridging documents** in terms of transformation **to UNFC codes** are created by **GeoZS experts**,
- GeoZS is participating within INSPIRE expert group, EGDl expert team and **UNFC network of practitioners** (NoPe).



Data harmonization (UNFC) - issues and challenges

- Reserves and resources classified only in **active mining and exploration areas** (with concession)
- “*bridging doc*” to transform national classification into UNFC (using E,F and G axis) prepared by GeoZS
- applying UNFC system to report into pan-European mineral inventory and MineralYearBook



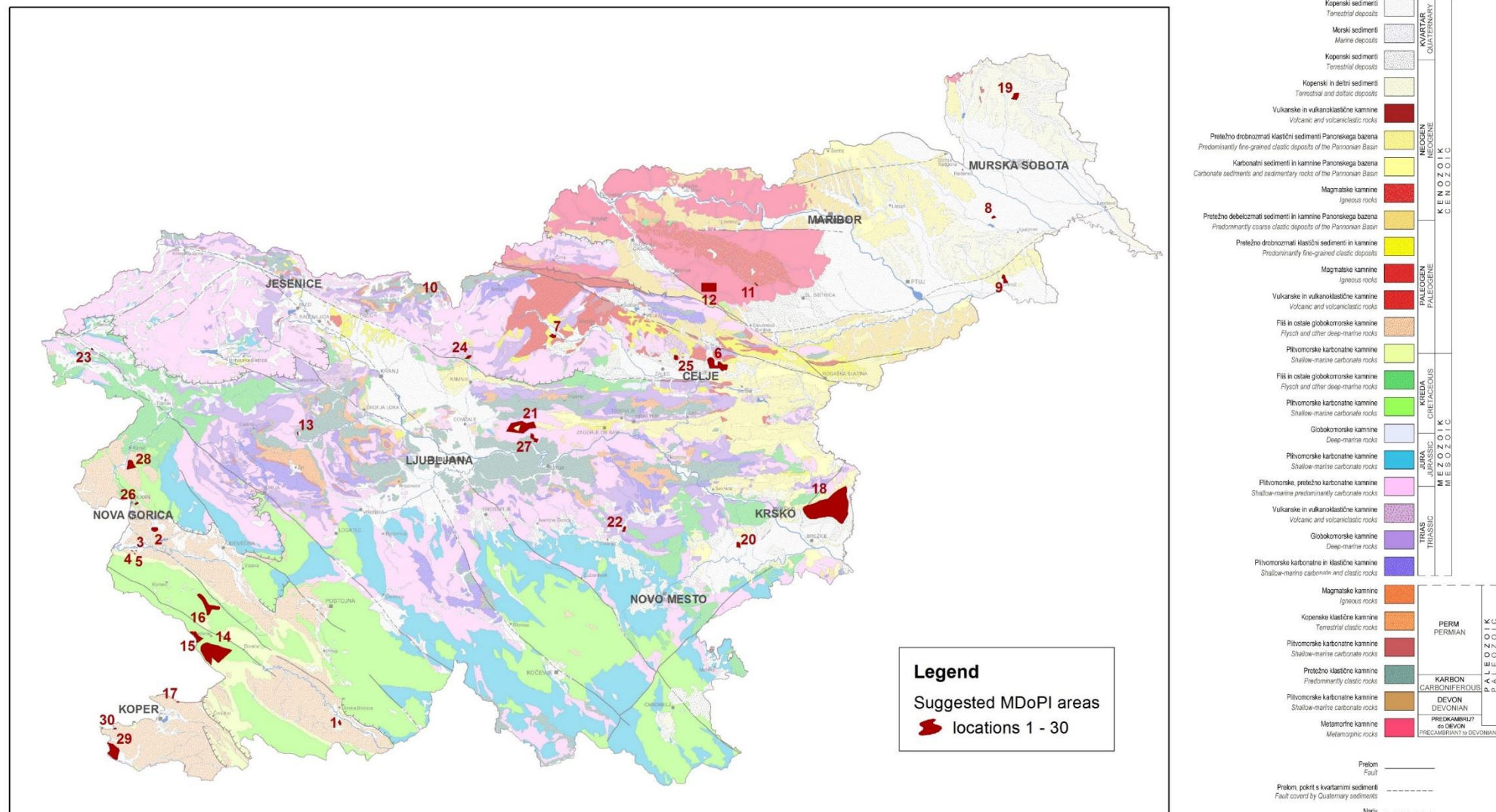
How Slovenian national classification can be mapped/transformed into UNFC-9 (simplified ...)

fundamental characterization	economic efficiency	categories (national classification)	UNFC E_{axis}	UNFC F_{axis}	UNFC G_{axis}
economic	proved reserves	A, B, C ₁ , C ₂	1	1	1, 2, 3
potentially economic		A, B, C ₁ , C ₂	2	2	1, 2, 3
non-economic	measured resources	A, B, C ₁ , C ₂	3	2	1, 2, 3

Slovenian mineral reserves codes transformed into UNFC

	Extracted	Sales Production			
		Non-Sales Production ^a			
		Class	Categories		
			E	F	G ^b
Total Commodity Initially in Place	Future recovery by commercial development projects or mining operations	Commercial Projects ^c	1	1	1, 2, 3
	Potential future recovery by contingent development projects or mining operations	Potentially Commercial Projects ^d	2 ^e	2	1, 2, 3
		Non-Commercial Projects ^f	3	2	1, 2, 3
	Additional quantities in place associated with known deposits ^g		3	4	1, 2, 3
	Potential future recovery by successful exploration activities	Exploration Projects	3	3	4
	Additional quantities in place associated with potential deposits ^g		3	4	4

Mineral potential in Slovenia



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Thank you!

