



REPUBLIC OF SLOVENIA
MINISTRY OF NATURAL RESOURCES AND SPATIAL PLANNING

BULLETIN

YEAR 2024

MINERAL RESOURCES

in Slovenia

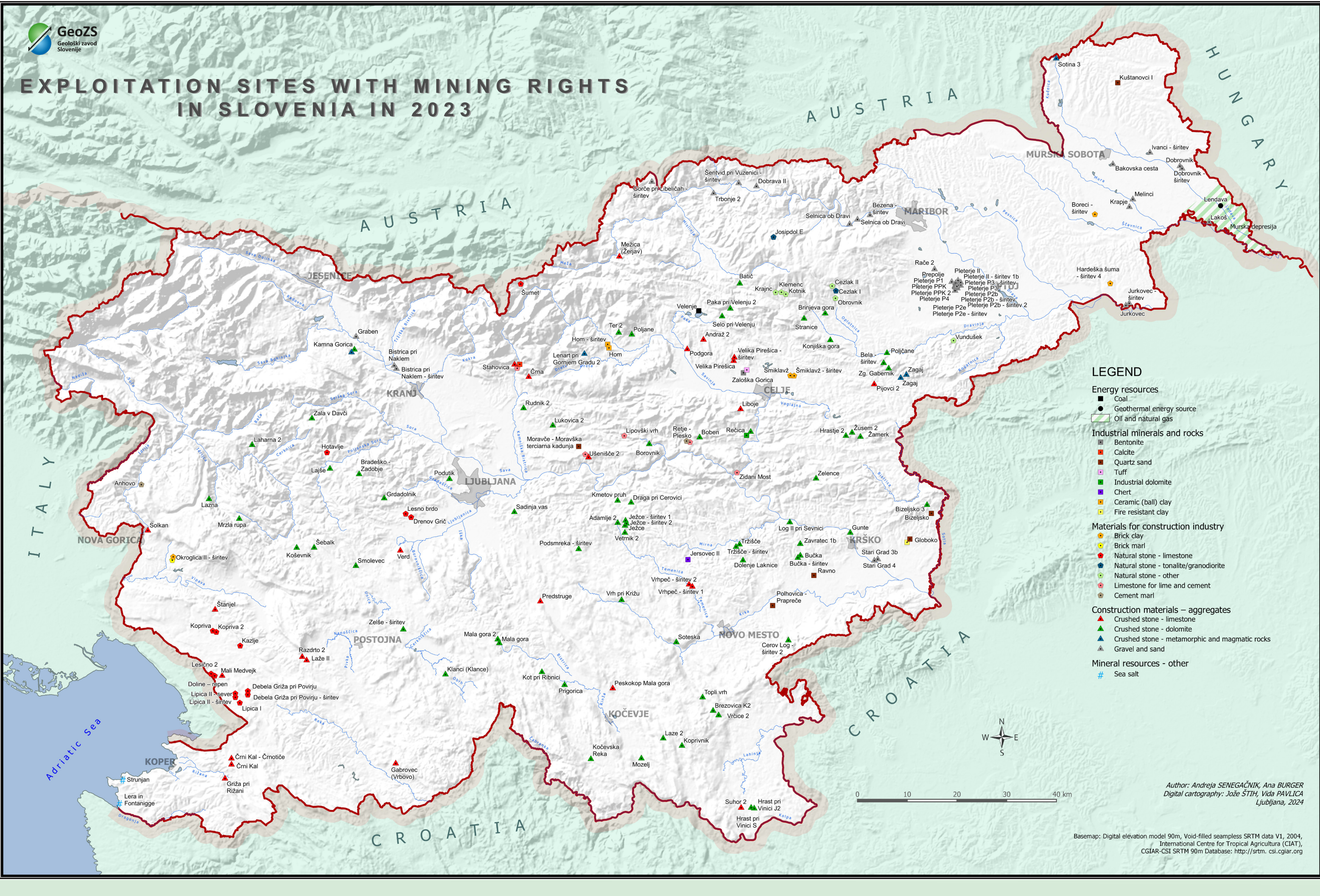
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GeoZS
Geološki zavod
Slovenije

EXPLOITATION SITES WITH MINING RIGHTS IN SLOVENIA IN 2023



LEGEND

Energy resources

- Coal
- Geothermal energy source
- Oil and natural gas

Industrial minerals and rocks

- Bentonite
- Calcite
- 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/granodiorite
- 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



Author: Andreja *SENEGAČNIK*, Ana *BURGER*
Digital cartography: Jože *ŠTIH*, Vida *PAVLICA*
Ljubljana, 2024

Basemap: Digital elevation model 90m, Void-filled seamless SRTM data V1, 2004,
International Centre for Tropical Agriculture (CIAT),
CGIAR-CSI SRTM 90m Database: <http://srtm.csi.cgiar.org>

FOREWORD

The year 2024 issue of the Bulletin Mineral Resources is published in a year that brought significant changes in the field of mineral resources in Europe. The crisis at the outbreak of the COVID-19 pandemic and the war in Ukraine directly and violently confirmed the long-standing warnings of the mineral resource's experts, how sensible is the stability of the supply of certain raw materials, especially those that are absolutely necessary to achieve the set goals of the green and digital transition. The supply chain crisis did not come as a surprise to the profession. Europe imports most of these important raw materials from only a few countries in the world. To reduce the unacceptable risk posed by such a high



dependence of the development of advanced technologies, the European Union adopted two important regulations in 2024 (CRMA and NZIA). The implementation of the regulations, especially the CRMA, will stimulate new large-scale geological research as well as enable the development of potential projects for the extraction and processing of critical mineral resources in the European Union and in strategic partner countries with high ethical standards. The implementation of both regulations will boost the progress in geological, mining and related professions in the coming years and decades.

The Geological Survey of Slovenia is ready to take over the tasks that the regulation directly or indirectly imposes on national geological organizations. In addition, GeoZS supports the implementation of CRMA through a large European project within Horizon Europe - the establishment of the Geological Service for Europe (GSEU), within the framework of which, among other things, it is responsible for the establishment of the European International Center of Excellence for Sustainable Resource Management (EU ICE SRM). Even though the GSEU program was prepared and started to be implemented before the adoption of the CRMA, it is to a large extent calibrated to pan-European support for the supply of (critical) raw materials. In support of CRMA implementation, the EU ICE SRM in establishment, organized training for United Nations Resource Classification experts - UNFC (Train the trainer), who will be able to spread this knowledge needed for the implementation of the regulation further in their countries.

It is clear that the green and digital transition and many new carbon-free technologies will not happen without certain raw materials. The need for these raw materials will increase drastically in the coming years. Without new deposits and extraction areas for these critical raw materials, there will be no technological progress either. All this represents the basis for the revival of the geological and mining profession in Europe and a new era of development of geological research and mining technologies.

The Slovenian and European profession is ready for a revival, and we look forward to the middle of 2025, when, in accordance with the request of CRMA, Slovenia as well as other EU member states will start implementing national research programs for the general research on critical raw materials and minerals carriers of critical raw materials.

Ljubljana, september 2024

dr. Miloš Bavec
Director

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Cover photo by Martin Gaberšek: Entry to the haulage tunnel at the historical Mežica Mine
Other photos from GeoZS archive
Mineral data up-dated to 2023

WORK OF THE UNIT FOR MINING



REPUBLIC OF SLOVENIA
MINISTRY OF NATURAL RESOURCES AND SPATIAL PLANNING

The Unit for Mining (responsible for mineral resources), organized within the Nature Directorate at the Ministry of Natural Resources and Spatial Planning, carries out various administrative, expert, coordinative, supervisory, and other tasks in the field of mineral management related to exploration and exploitation, including the remediation of degraded areas and procedures related to mine closures.

The main activities consist in the following:

- development of mining legislation in line with the Mining Act and National Mining / Mineral Strategy,
- granting mining rights (exploration permits and mineral exploitation concessions),
- administrative procedures referring to payments for concessions and remediation,...

UNIT FOR MINING

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WORK PLAN OF THE GEOLOGICAL SURVEY OF SLOVENIA FOR THE MINISTRY OF NATURAL RESOURCES AND SPATIAL PLANNING

The basic starting points for the annual GeoZS work program are defined in an annual contract between GeoZS and the ministry responsible for mining and is adjusted according to both the EU mineral sector and the needs of the responsible ministry (Nature Directorate - Unit for Mining).

The work program performed by GeoZS is divided into sets of tasks according to the requirements of the Unit for Mining:

• EXPERTISE

- expertise for National Mining / Mineral Strategy and legislation,
- expertise in spatial planning,
- support for licensing procedures,
- expertise relevant to EU mineral sector activities.

• MINERAL DATA INFRASTRUCTURE

- development and maintenance of the web application “Mining Registry Book”,
- Bulletin Mineral Resources publication,

- national statistics on mineral reserves and resources,
- thematic maps,
- archive of closed mines.

• RESEARCH WORK

- monitoring of geological research and storage of samples,
- evaluation of exploitation sites,
- geothermal resources studies,
- impacts of mine closures.

• OTHER

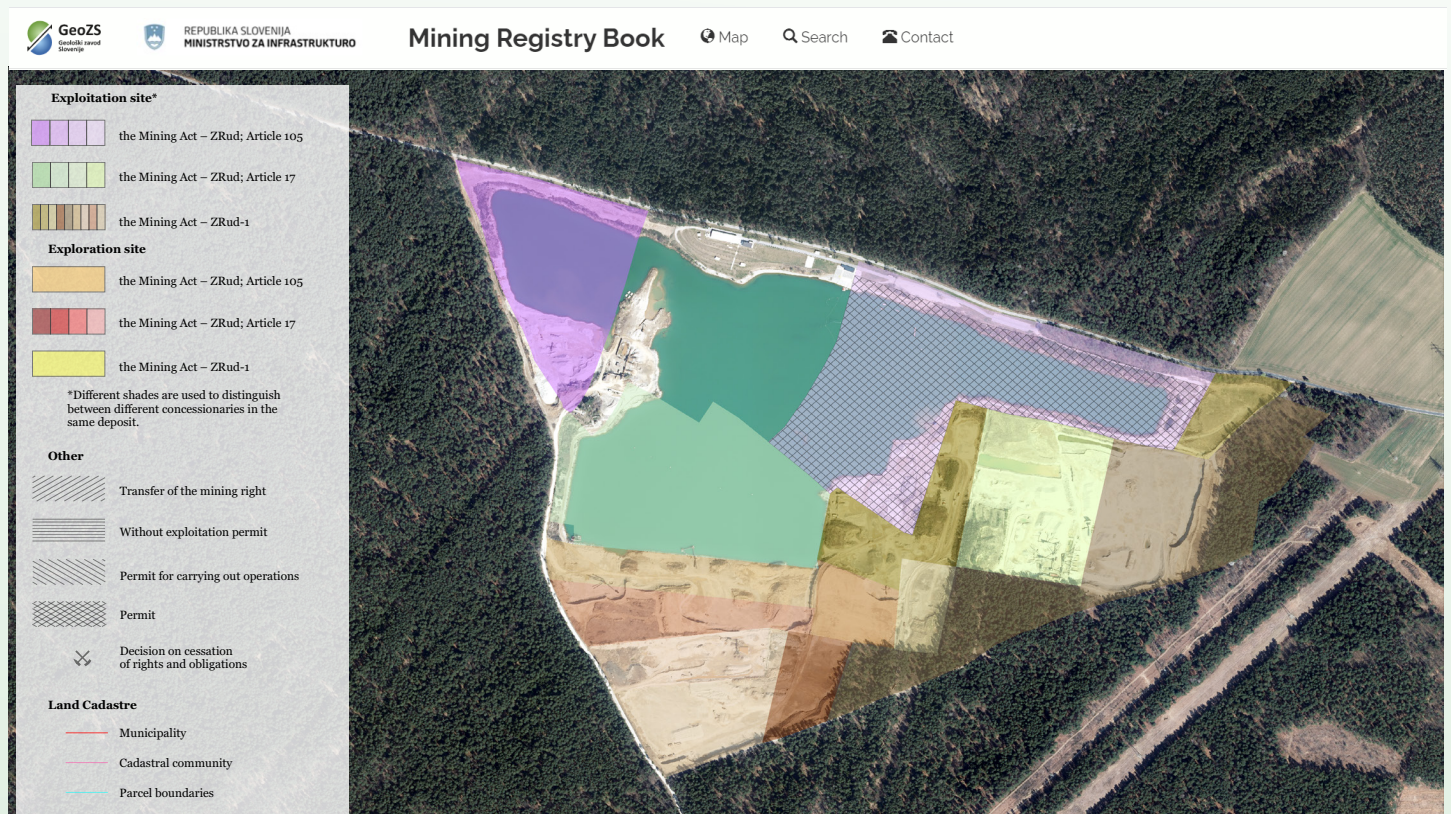
- Participation in the Commission charged with determining mineral reserves and resources. The Commission determines the relevance of annual reports of reserves and resources.
- Organization of thematic workshops and congresses, the results of which are published in scientific and professional publications.

PUBLIC MINING SERVICE IN SLOVENIA

In accordance with Articles 17 and 18 of the Mining Act (*Official Gazette RS, No. 14/14 – official consolidated text a 61/17, 54/22-GZ and 78/23-ZUNPEOVE*), the Geological Survey of Slovenia, in its role of Public Mining Service, supports the ministry responsible for mining in terms of sustainable mineral management and mineral policy.

Tasks performed by the Public Mining Service:

- provides expertise for the National Mining / Mineral Strategy,
- spatial planning on the national level and municipality level,
- sampling and material storage, archive of documentation on closed mines,
- management and maintenance of the Mining Registry Book on the national level, including a chronology of mining rights granted:
 - Mining database,
 - Legislation,
 - Mining and geological studies,
 - Mining notification forms,
 - Register of certified persons in the mining industry.
- geological prospecting and mapping, evaluation of mineral reserves and resources as they relate to support for licencing.



Screenshot from "Mining Registry Book" – detailed map of mining area.

MINERAL DATA COLLECTION IN SLOVENIA

All Slovenian concessionaires are required to report annually on production, degraded surfaces, reserves, and resources in their mining areas (Reporting forms on mineral resources). Mineral data is collected by the responsible ministry. The data collected is further processed and evaluated by GeoZS for the purposes of mineral related statistics on the national level.

Mineral resources in Slovenia are divided into:

- **ENERGY**
 - lignite,
 - oil and natural gas,
 - geothermal energy,
 - brown coal (production until 2012).
- **METALS** (no production in past decades)
- **NON-METALS**
 - **industrial minerals and rocks:** chert, bentonite, quartz sand, calcite, tuff, industrial dolomite, ceramic / ball clay and lake chalk (production until 2003),
 - **materials for the construction industry:** brick clay, natural stone (limestones, tonalite, other natural stones), raw materials for the lime and cement industry),
 - **construction materials – aggregates:** crushed stone (limestone, dolomite, magmatic and metamorphic rocks), gravel and sand.
- **OTHERS**
 - sea salt.

In 2023, one exploration site and 179 exploitation sites held mining rights in Slovenia covering 24 different rocks and minerals and run by 116 mining rights holders. Exploitation sites where two or more mineral resources are extracted are accordingly counted several times (*List of exploitation sites with mining rights in Slovenia in 2024, page 8 and 9*), so the actual number of exploitation sites is 179.

MINERAL AND ENERGY RESOURCES IN SLOVENIA IN 2023

Overview of mineral and energy resources in Slovenia

In Slovenia, which is situated between the Alps, the Pannonian Basin, the Dinarides, and the Adria Plate, metallic, non-metallic, and energy resources occur in different geological formations.

Mining enjoys a long tradition in Slovenia. In the past, this consisted of the exploitation of a significant quantity of mercury ore in Idrija (second largest mercury mine in the world); today, however, mining activity involves the technologically advanced underground extraction of lignite in Velenje. After 1990, several underground coal mines, as well as uranium, mercury, and lead and zinc mines, were closed. Only open pit mines of non-metallic mineral resources and one underground lignite mine were still active in 2023. Lignite is produced at Premogovnik Velenje (Velenje Lignite Mine), while the production of “hard brown coal” in the Trbovlje-Hrastnik Mine concluded in 2012. Similarly, oil production in the Petišovci Field concluded in 2021.

On the metallogenic map of Slovenia, more than 220 locations of metal mineral deposits and occurrences are marked, a few dozen of which were once mining sites (ore deposits), while the rest represent ore occurrences only. No metal mines are currently active. Potential economic significance can be attributed primarily to sites bearing mercury (Idrija), lead and zinc (Mežica, Litija), uranium (Žirovski Vrh) and to a lesser extent copper (Sovodeni), molybdenum (Mežica), antimony (Trojane), manganese (Karavanke), and iron and bauxite.

The majority of concessions in Slovenia are granted for materials for the construction industry and aggregates that prevail in Slovenia. Higher-market-value non-metallic mineral resources (industrial minerals and rocks) occur to a subordinate degree. These materials are extracted from some 180 quarries and open pits across the country, while only a few building/architecture stone deposits are mined underground in “galleries”. The most visible of the industrial minerals and rocks are calcite, quartz sand, and chert; their semi-products and final products are largely exported for casting, refractories, fullers, agriculture etc.



Deposit of construction materials/aggregates.

Brick clays and dimension (architecture) stones are used in the construction industry. Clays are largely used as raw material for bricks and roof-tiles manufacturing domestically, while a great variety of dimension stones are valued for high-value design products, which are also exported abroad. Bulk mineral resources such as crushed stone (mostly dolomite and

limestone), sand, and gravel are essential raw materials for domestic construction of infrastructure and housing. Other types of limestones and marls are also processed in the domestic lime and cement industries as well.

Energy resources include lignite and subbituminous coal, oil and natural gas, uranium, and geothermal energy. The uranium mine at Žirovski Vrh, which is the only underground mine in Slovenia opened after the Second World War, has been in the process of closing since 1991. Production of mercury ore in Idrija ended in 1991, and in Mežica the last tonnes of lead and zinc ore were excavated in 1994. Otherwise, the mines in Idrija and Mežica have been in the process of closing since 1987 and 1988, respectively. The Litija Mine already closed and concluded production of lead and zinc in the 1960s.

Those coal-bearing areas with the greatest resources and proven reserves occur in the Velenje Basin (N Slovenia; Pliocene lignite), the Sava Basin (Eastern Central Slovenia; Oligocene subbituminous (“hard brown”) coal), and the Pannonian Basin (E and NE Slovenia; Miocene lignite and meta-lignite). Uranium ore occurs mainly in the area of Žirovski Vrh west of Ljubljana, in the Permian Val Gardena/Gröden Formation. The most promising area for oil and gas generation and accumulation is the Pannonian Basin. In other areas, hydrocarbons may have been generated in various known source rocks (from the Palaeozoic to Early Tertiary) but were lost (not trapped) during subsequent geological processes. Slovenia has only one oil and gas field in operation – the Petišovci-Dolina field, which has been in operation since 1942. For decades now, oil production has been less than 300 tons/year. Gas production in the last 15 years has not exceeded 8 million Sm³ annually, with the exception of 2018, when almost 18.5 million Sm³ of gas was produced, mainly due to the activation of the two most recent wells Pg-10 and Pg-11A from 2011.

Coal mining in Slovenia began in the second half of the 18th century. Almost all coal-mining sites known today were discovered in the 18th and 19th century and were subsequently thoroughly explored and mined. In the 20th century, they were increasingly exploited, especially for the railways and later for the production of electricity. Among the more than 100 coal-mining sites, many had only local significance, as can be gleaned from various historical documentation and maps; but a number operated as full-blown collieries, which produced tens to hundreds of thousands of tons of coal annually. Between 1950 and 1990, annual coal production (mostly underground) increased from 2 to almost 7 million tonnes (Mt). In the period 1962–1976, the run-of-mine calorific value of all excavated coals (lignites and subbituminous coals) in Slovenia from 11 mines averaged at around 13 megajoules per kg (MJ/kg). Peak annual productions reached 6.75 Mt in the 1980s (3.35 t/cap.) from 7 coal mines. In the 1980s, the total calorific value of all Slovenian coal production was slightly less than 10 MJ/kg, and coal was used almost exclusively in power plants that produced ca. 37% of the country’s electrical energy (about the same as the country’s hydro power plants). During this period, maximum annual production in Trbovlje reached 1 Mt of subbituminous (“hard brown”) coal, whereas 5 Mt of lignite was produced in Velenje. In the 1990s, coal production was concluded in four coal mines (Laško, Zagorje, Senovo, and Kanižarica), and in 2012 in Trbovlje-Hrastnik. Over the last

decade, lignite production in Velenje decreased from 3.7 Mt to 2.7 Mt per year. Exploitable reserves are sufficient for the next ca. 30 years. However, due to Europe's "exit from coal" strategy lignite exploitation in Velenje is planned to conclude within the coming decade (in 2033).



Underground lignite mining in Velenje.

As can be seen from the brief description herein, the situation in Slovenia has seen a pronounced change in dynamics over the past 30 years in terms of potential mineral resources and overall related economic developments. These changes include the closure of centuries-old metal mines, almost all coal mines except for the Velenje Lignite Mine, and closure of the uranium mine. On the other hand, the country has continued to put significant emphasis on non-metallic mineral resources for the building and construction industries. In view of current trends and economic development programmes, primarily as they relate to infrastructure construction (roads, railways, apartment buildings), we can foresee future needs for individual non-metallic mineral resources – firstly in construction, with other applications also coming into play in the longer term from 2023 onwards. Mineral resources for construction, which will be extracted using surface mining, will continue to represent an important factor in the country's economy and future development. In conclusion, 1 exploration site and 179 exploitation sites with mining rights were operating in Slovenia mining 24 different mineral resources in 2023. These sites were run by 116 mining rights holders.

Utilization of geothermal energy in Slovenia in 2023

The direct use of thermal water and thus geothermal energy continues at 30 sites in Slovenia for heating and cooling, with an emphasis on the use of low-temperature sources for individual space heating and district heating, for heating in greenhouses, and for bathing and swimming (incl. balneology) in spas and health resorts. In north-eastern Slovenia, pre-feasibility studies and explorative project design of high-temperature geothermal reservoirs at depths of 3–5 km for the production of electricity have been initiated. In addition, a pilot geothermal power plant using an abandoned hydrocarbon (gas) borehole Pg-8 at Petišovci, near Lendava, is in the final stages of construction and testing. It should be commissioned in mid-2024 as part of the EEA project Si-Geo-Electricity. Here, the terrestrial heat flow density and geothermal gradient are high enough to enable production of electricity through conductive heat transfer, using ammonia as a working fluid.

In 2023, no new users of thermal water from deep wells or thermal springs appeared. The use of deep geothermal energy from thermal water exclusively consists of direct heat

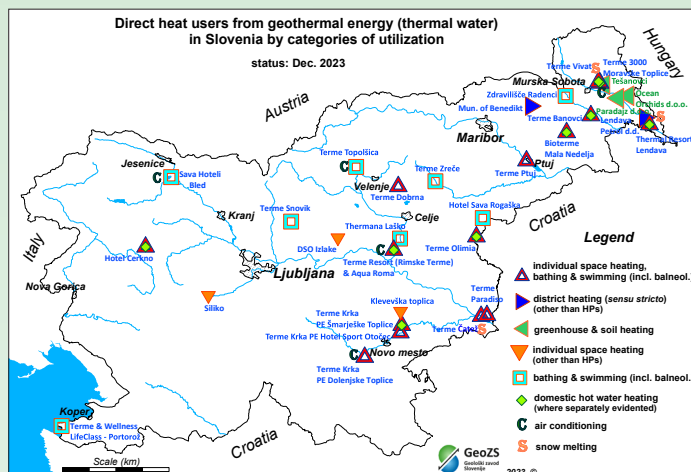


Figure 1: Main categories of direct heat use of geothermal energy from thermal water in Slovenia in 2023 at 30 locations; the Tešanovci greenhouse is considered a separate user, while the district heating system at Benedikt is included as a special case (without thermal water use).

use of thermal water. The latter was utilized from 50 geothermal production wells and 4 thermal springs. Four reinjection wells are also operational, with one deep well in Lendava and three very shallow wells at Izlake. Geothermal energy from thermal water is used directly at 30 locations (Fig. 1), where installed capacity and geothermal energy consumption amounted to 57.9 MW_{th} and 564.2 TJ/yr, respectively. Thirteen users exploited more geothermal energy, most of them at higher production rates of thermal water than the previous year, as well as more efficient use of the heat produced. On the other hand, ten users exploited less geothermal energy. Total extraction of thermal water in 2023 amounted to 6,106,724 m³, which was down 1.7 % compared to 2022. Shallow geothermal energy (heat in the shallow subsurface), which is exploited by approximately 17,369 units of ground-source heat pumps, provided 1,433.8 TJ of geothermal energy out of a total installed capacity of 284.4 MW_{th}. Of these, the bigger GSHP units (>20 kW of rated power), of which there are roughly 1,203, extracted some 461.6 TJ of shallow geothermal energy. The shallow geothermal energy segment accounted for 71.8% of all heat extracted from underground. Considering both deep and shallow geothermal energy, total consumption of geothermal energy for 2023 amounted to 1,998 TJ, with a corresponding installed capacity of 342.2 MW_{th}.

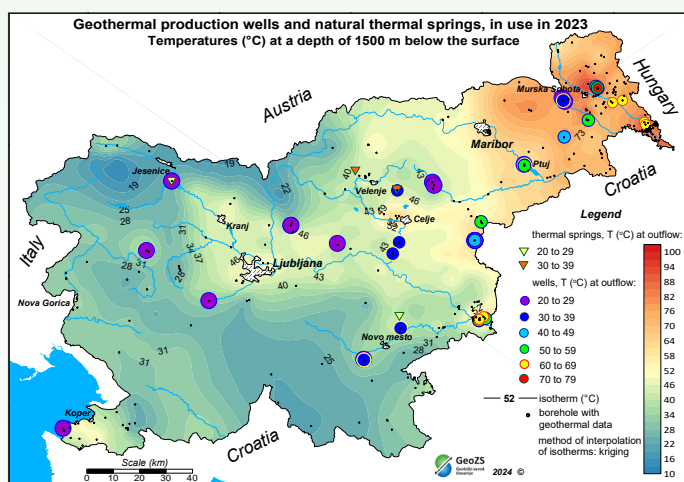


Figure 2: Geothermal production wells and natural thermal springs in use in 2023 in Slovenia (status: Dec. 2023); expected temperatures at a depth of 1500 m below the surface.

Miloš Markič, Duška Rokavec, Nina Rman and Dušan Rajver (GeoZS)

GSEU TRAININGS ON THE UNITED NATIONS FRAMEWORK CLASSIFICATION FOR RESOURCES (UNFC)

The European Regulation establishing a framework for ensuring a secure and sustainable supply of critical raw materials (**Critical Raw Material Act - CRMA**), which entered into force on May 23, 2024, obliges the EU member states to report on critical minerals. Reporting to the European Commission should be carried out when appropriate, in accordance with the UNFC (United Nations Framework Classification for Resources) classification in the second year after the adoption of CRMA.

In line with this requirement, the Geological Survey of Slovenia (GeoZS), in cooperation with the GSEU (Geological Service for Europe) project partners, organized training workshops on the use of the United Nations Framework Classification for Resources (UNFC). The training sessions were held within the activities of the EU International Centre of Excellence for Sustainable Resource Management (EU ICE SRM), which will represent an integral part of the future Geological Service for Europe (GSE).

The purpose of the training was to provide knowledge and support to experts from European geological survey organisations on the implementation of CRMA, especially in reporting on national exploration programs. Our goal was to provide each geological survey, all partners of the GSEU project an opportunity, to train at least two people who will then be able to share their knowledge of UNFC on the national level.

Prior to the sessions, a preparatory meeting was held at GeoZS with UNFC experts, for which we prepared a detailed training programme called »Train-the Trainer« along with training materials.

The structure of the **“Train-the Trainer”** program was based on the three-level approach:

Level 1 - Basic level: the first level training was intended for all participants in the field of mineral resources, regardless of their level of knowledge on UNFC.

Level 2 - User level: the second level training built on the first level and was structured such that participants would be able to use the UNFC classification.

Level 3 - Expert Level: The third level training is an upgraded second level intended to train new UNFC experts who are then able to train further in UNFC at the national level.

The three two-day workshops were held in Ljubljana and hosted participants from most European geological surveys. The sessions were observed by the United Nations Economic Commission for Europe (UNECE) representatives.

The first training – Level 1 – was successfully held on **April 15 and 16, 2024** at the premises of GeoZS, and offered the possibility of online attendance. Participation was exceptional, as the training was attended by 79 participants from 26 European countries, of which 22 are EU member states.

The training sessions that followed were organized as exclusively in-person sessions, as the practical group and individual work of these future experts was essential at these levels. We held the second workshop – Level 2 – on **May 14 and 15, 2024**. The workshop was attended at maximum capacity, where we hosted 44 participants from 20 European countries. The participants built on their theoretical knowledge of UNFC and worked in practice on numerous examples from different countries.

The set of UNFC trainings was completed with the third workshop – Level 3 – which took place on **June 18 and 19, 2024** at GeoZS. Once again, all available places were taken, with us hosting 44 participants from 20 European countries, including 15 EU member states. The intensive two-day training was devoted to practical exercises and discussions, as well as lessons on teaching methods and principles. The participants – newly trained UNFC experts – concluded the »Train-the Trainer« program by preparing a plan on how to share their knowledge on the application of UNFC in their countries.



GSEU UNFC Training at GeoZS

Acknowledgement

Trainers in alphabetic order:

- Zbyněk Gabriel, Czech Geological Survey (CGS)
- Jonathan Hamisi, Geological Survey of Sweden (SGU)
- Janne Hokka, Geological Survey of Finland (GTK)
- Zoltán Horváth, Supervisory Authority for Regulatory Affairs Hungary (SARA)
- Magnus Johansson, Geological Survey of Sweden (SGU)
- Janja Knežević Solberg, Geological Survey of Norway (NGU)
- Tuomas Leskelä, Geological Survey of Finland (GTK)
- Lena Lundqvist, Geological Survey of Sweden (SGU)
- Daniel Monfort Climent, French Geological Survey (BRGM)
- Sebastian Pfeleiderer, GeoSphere Austria (GSA)

- Duška Rokavec, Geological Survey of Slovenia (GeoZS)
- Mark Uwe Simoni, Geological Survey of Norway (NGU)
- Antje Wittenberg, Federal Institute for Geosciences and Natural Resources (BGR)

Supporting the use of UNFC in Slovenia

In order to support of the use of UNFC at the national level, GeoZS experts have translated the basic UNFC document, update 2019, and prepared a description of and brief instructions on the UNFC classification methodology in Slovenia. Both documents are available on the GeoZS website.

For further information on EU ICE SRM and UNFC trainings please contact euicesrm@geologicalservice.eu.

Snježana Miletić, Meta Dobnikar and Duška Rokavec
(GeoZS)

MINING AND GEOLOGICAL PROSPECTING STUDIES AS GUIDANCE FOR MUNICIPAL PLANNING

Mining-geological studies (referred to in Article 11 of the Mining Act) are carried out by the Geological Survey of Slovenia in the territory of individual Slovenian municipalities. In the period 1992–2023, 179 municipalities, i.e. approximately 90% of the national territory, was evaluated.

The studies summarize the geological and mining field logs of abandoned and active quarries and gravel pits (legal and illegal sites) resulting in assessments of the mining potential of specific area.

Over the past 30 years, most of the Slovenian territory has been prospected as part of the task »Assessment and evaluation of the construction materials – aggregates deposits in Slovenia«. Prospecting includes field and office work. In the field, geological, morphological, infrastructural, and environmental conditions are characterized to rank the potential of individual deposit. Deposits are photo-documented and placed on existing geological maps and on the topographic sheets in scale 1:25.000 (DTK 25).

A total of 3,959 mineral deposits in the 179 municipalities have been evaluated so far. Small, abandoned quarries of mainly dolomite and limestone are prevailing, followed by gra-

vel and sand deposits and natural stone quarries representing marble, limestone, tonalite and other building and dimensional stone deposits. The inventory also includes deposits with granted mining rights sand deposits with exploration permits. All evaluated sites are classified in terms of geological features, accessibility and environmental factors into three categories: non-prospective deposits, deposits with limited mining potential, and prospective deposits.

Mining geological studies are important in understanding the raw material base and the self-sufficiency of each municipality and for the wider regions to which it belongs for further mainly infrastructure projects planning. Data from the studies is also valuable in terms of sustainable spatial planning and knowledge of environmental vulnerability, as abandoned quarries often become illegal dumping sites or sites of unregulated illegal excavation.

These expert studies on the territory of Republic of Slovenia should be updated in the future due to changes of already mapped sites and potential new ones.

The reports are publicly available as part of the Mining book web application at <https://ms.geo-zs.si/en-GB/RudGeo-Studije>

GeoZS Geološki zavod Slovenije

Mining Registry Book

Mining Registry Book consists of the mining database, registers and various applications for the preparation and submission of applications and forms provided by the Mining Act.

- Mining database
(database covers information related to mining sector)
- Legislation
- Mining and geological studies**
(reports including crushed stone inventory and locations by municipalities - only in Slovenian)
- Mining notification form [↗](#)
(application for electronic submission of mining notification form)
- Register of certified persons in the mining industry [↗](#)

Anže Markelj and Barbara Karničnik (GeoZS)

Screenshot from "Mining Registry Book" – mining and geological studies.

OVERVIEW OF EXPLOITATION SITES AND MINERAL PRODUCTION

LIST OF EXPLOITATION SITES WITH MINING RIGHTS IN SLOVENIA IN 2023

	Mineral commodity	Exploitation sites	Concessionaire		Mineral commodity	Exploitation sites	Concessionaire
1	Coal	Velenje	PREMOGOVNIK VELENJE, d.o.o.	60	Crushed stone - limestone	Liboje	VOC Ekologija, urejanje okolja d.o.o.
2	Oil and natural gas	Murska depresija	GEOENERGO, raziskave in pridobivanje surove nafte in zemeljskega plina d.o.o.	61	Crushed stone - limestone	Mali Medvejk	P.G.M. INŽENIRING proizvodnja gradbenih in drugih materialov d.o.o
3	Geothermal energy source	Lendava	PETROL, Slovenska energetska družba, d.d., Ljubljana	62	Crushed stone - limestone	Mežica (Žerjav)	GRADBENI MATERIALI, podjetje za proizvodnjo gradbenih materialov d.o.o.
4	Bentonite	Zaloška Gorica	MONTANA, pridobivanje in predelava nekovinskih rudnin, d.o.o.	63	Crushed stone - limestone	Peskopok Mala gora	O-PROJEKT, Gradbeno projektiranje in inženiring d.o.o., Kočevje
5	Calcite	Stahovica	CALCIT, proizvodnja kalcitnih polnil d.o.o.	64	Crushed stone - limestone	Pijovci 2	GRAMOZ - AP proizvodnja, trgovina in storitve, d.o.o.
6	Quartz sand	Bizeljsko	InterCal Slovenija, proizvodnja apna in apnenca d.o.o.	65	Crushed stone - limestone	Podgora	KAMTEH GmbH, Predstavništvo Šmartno ob Paki
7	Quartz sand	Globoko	InterCal Slovenija, proizvodnja apna in apnenca d.o.o.	66	Crushed stone - limestone	Predstruge	KPL, družba za gradnjo in vzdrževanje cest, zelenih površin ter inženiring d.o.o.
8	Quartz sand	Kušanovci I	Murexin, gradbeni materiali, d.o.o.	67	Crushed stone - limestone	Razdrto 2	CPK, d.d., družba za vzdrževanje cest, gradbeništvo in druge poslovne storitve
9	Quartz sand	Moravče - Moravska terciarna kadunja	TERMIT, rudarsko podjetje za pridobivanje kremenovih peskov d.d.	68	Crushed stone - limestone	Solkan	SALONIT ANHOVO, Kamnolomi, d.o.o.
10	Quartz sand	Polhovica - Prapreče	KREMEN d.o.o., industrija in rudniki nekovin	69	Crushed stone - limestone	Stahovica	CALCIT, proizvodnja kalcitnih polnil d.o.o.
11	Quartz sand	Ravno	KREMEN d.o.o., industrija in rudniki nekovin	70	Crushed stone - limestone	Suhor 2	AGM Starešinič, avtoprevozi, gradbeništvo in mehanizacija, d.o.o.
12	Tuff	Zaloška Gorica	MONTANA, pridobivanje in predelava nekovinskih rudnin, d.o.o.	71	Crushed stone - limestone	Štanjel	KAMNOLOM ŠTANJEL IN MINERSTVO DUŠAN ŽERJAL S.P.
13	Industrial dolomite	Rečica	GRATEX, Pridobivanje in predelava dolomitskega agregata in kurivprodaja d.o.o., Laško	72	Crushed stone - limestone	Ušenišče 2	IAK, INDUSTRIJA APNA KRESNICE, d.o.o.
14	Chert	Jersovec II	P-D KREMEN, Pridobivanje drugih rudnin in kamnin, d.o.o.	73	Crushed stone - limestone	Velika Pirešica	APOC, kamnolom in predelava gradbenih odpadkov d.o.o.
15	Ceramic (ball) clay	Hom	Gorenje Keramika, d.o.o.	74		Velika Pirešica - širitev	CM CELJE, d.d. - Ceste mostovi Celje, družba za nizke in visoke gradnje - v stečaju
16		Hom - širitev		75	Verd	KAMNOLOM VERD Podjetje za proizvodnjo kamnitih agregatov, d.o.o.	
17	Fire resistant clay	Globoko	InterCal Slovenija, proizvodnja apna in apnenca d.o.o.	76	Crushed stone - limestone	Vrhpeč - širitev 1	CGP, družba za gradbeništvo, inženiring, proizvodnjo in vzdrževanje cest, d.d.
18	Brick clay	Boreci - širitev	Wienerberger, proizvodnja in prodaja gradbenega materiala, d.o.o.	77	Crushed stone - limestone	Vrhpeč - širitev 2	KAMNOLOM JEŽCE, JOŽE ADAMLJE, S.P.
19	Brick clay	Hardeška šuma - širitev 4	Wienerberger, proizvodnja in prodaja gradbenega materiala, d.o.o.	78	Crushed stone - dolomite	Adamlje 2	GRADBENIŠTVO PERŠE UROŠ PERŠE S.P.
20	Brick clay	Okroglica II - širitev	GORIŠKE OPEKARNE d.o.o.	79	Crushed stone - dolomite	Batič	KLAS PRODAJALNA NOVE IN RABLJENE KMETIJSKE TER GRADBENE MEHANIZACIJE, STARO ZA NOVO STANISLAV HACE S.P.
21	Brick clay	Šmiklavž	VOC Ekologija, urejanje okolja d.o.o..	80	Crushed stone - dolomite	Bela - širitev	AGRAD podjetje za trgovino, gradbeništvo in gostinstvo d.o.o.
22		Šmiklavž - širitev		81		Bizeljsko 3	AGM NEMEC, podjetje za proizvodnjo, trgovino in storitve d.o.o.
23	Brick marl	Okroglica II - širitev	GORIŠKE OPEKARNE d.o.o.	82	Crushed stone - dolomite	Boben	AGM NEMEC, podjetje za proizvodnjo, trgovino in storitve d.o.o.
24	Natural stone - limestone	Debela Griža pri Povirju	KAMNOSESTVO TAVČAR pridobivanje in obdelava kamna d.o.o.	83	Crushed stone - dolomite	Borovnik	AGM NEMEC, podjetje za proizvodnjo, trgovino in storitve d.o.o.
25		Debela Griža pri Povirju - širitev		84	Crushed stone - dolomite	Bradeško - Zadobje	IZKOPI IN PREVOZI JANEZ BRADEŠKO S.P.
26	Natural stone - limestone	Doline - repen	MARMOR, Podjetje za pridobivanje in obdelavo naravnega kamna Sežana, d.d.	85	Crushed stone - dolomite	Brezovica K2	KOGRAD gradbeništvo d.o.o.
27	Natural stone - limestone	Drenov Grič	MINERAL, obdelava naravnega kamna, d.o.o.	86	Crushed stone - dolomite	Brinjeva gora	ECOBETON proizvodnja, trgovina, storitve d.o.o.
28	Natural stone - limestone	Hotavlje	MARMOR HOTAVLJE, družba za obdelavo kamna, d.o.o.	87	Crushed stone - dolomite	Bučka	AVTOPREVOZNIŠTVO - TGM - MKI JOŽEF TOMAŽIN S.P.
29	Natural stone - limestone	Kazlje	MARMOR, Podjetje za pridobivanje in obdelavo naravnega kamna Sežana, d.d.	88		Bučka - širitev	
30	Natural stone - limestone	Kopriva 2	MARMOR, Podjetje za pridobivanje in obdelavo naravnega kamna Sežana, d.d.	89	Crushed stone - dolomite	Cerov Log - širitev 2	CGP, družba za gradbeništvo, inženiring, proizvodnjo in vzdrževanje cest, d.d.
31		Kopriva		90	Crushed stone - dolomite	Dolenje Laknice	CGP, družba za gradbeništvo, inženiring, proizvodnjo in vzdrževanje cest, d.d.
32	Natural stone - limestone	Lesično 2	MARMOR, Podjetje za pridobivanje in obdelavo naravnega kamna Sežana, d.d.	91	Crushed stone - dolomite	Draga pri Cerovici	DRAGA Separacija peska, d.o.o., Litija
33	Natural stone - limestone	Lesno brdo	MINERAL, obdelava naravnega kamna, d.o.o.	92	Crushed stone - dolomite	Grdadolnik	TGM IN PRIDOBIVANJE PESKA FRANC GRDADOLNIK S.P.
34	Natural stone - limestone	Lipica I	MARMOR, Podjetje za pridobivanje in obdelavo naravnega kamna Sežana, d.d.	93	Crushed stone - dolomite	Gunte	CGP, družba za gradbeništvo, inženiring, proizvodnjo in vzdrževanje cest, d.d.
35	Natural stone - limestone	Lipica II - sever	MARMOR, Podjetje za pridobivanje in obdelavo naravnega kamna Sežana, d.d.	94	Crushed stone - dolomite	Hrast pri Vinici J2	PRIDOBIVANJE IN PRODAJA PESKA ZDRAVKO JURŠINIČ S.P.
36		Lipica II - širitev		95	Crushed stone - dolomite	Hrast pri Vinici S	AGM Starešinič, avtoprevozi, gradbeništvo in mehanizacija, d.o.o.
37	Natural stone - limestone	Šumet	MEDARD ŠUMET	96	Crushed stone - dolomite	Hrastje 2	LIO, Storitve in posredništvo, Leja Škoberne s.p.
38	Natural stone - tonalite	Cezlak I	MINERAL, obdelava naravnega kamna, d.o.o.	97	Crushed stone - dolomite	Ježce	PESKOKOP KEPA SUZANA KEPA S.p.
39	Natural stone - tonalite (granodiorite)	Josipdol E	ECOBETON proizvodnja, trgovina, storitve d.o.o.	98		Ježce - širitev 1	
40	Natural stone - other	Cezlak II	MINERAL, obdelava naravnega kamna, d.o.o.	99		Ježce - širitev 2	
41	Natural stone - other	Klemenc	KAMNOLOM KLEMENC SILVESTER KLEMENC S.P.	100	Crushed stone - dolomite	Kamna Gorica	GORENJSKA GRADBENA DRUŽBA, projektiranje, inženiring, gradnja in vzdrževanje objektov visoke in nizke gradnje d.d.
42	Natural stone - other	Kotnik	KAMNOLOM KLEMENC MILAN KLEMENC S.P.	101	Crushed stone - dolomite	Klanci (Klance)	GREDIN gradbeno in transportno podjetje Markovec d.o.o.
43	Natural stone - other	Krajnc	PREDELAVA OKRASNEGA KAMNA SIMON KRAJNC S.P.	102	Crushed stone - dolomite	Kmetov pruh	TRGOGRAD trgovina in gradbeništvo, d.o.o., Litija
44	Natural stone - other	Obrovnik	PRIDOBIVANJE, OBDELAVA IN MONTAŽA ŠKRILNIH PLOŠČ, OBROVNIK ANTON S.P.	103	Crushed stone - dolomite	Kočevska Reka	SNEŽNIK podjetje za proizvodnjo in storitve, d.o.o.
45	Natural stone - other	Vundušek	ŽOLGER JOŽEF S.P. - GRADBENE STORITVE AVTOPREVOZNIŠTVO ŽOLGER	104	Crushed stone - dolomite	Konjiška gora	KONGRAD gradbeno, obrtno, instalacijsko in proizvodno podjetje d.d.
46	Limestone for lime and cement	Lipovski vrh	InterCal Slovenija, proizvodnja apna in apnenca d.o.o.	105	Crushed stone - dolomite	Koprivnik	TRGOGRAD trgovina in gradbeništvo, d.o.o., Litija
47	Limestone for lime and cement	Retje - Plesko	Holcim, prodaja cementa, d.o.o.	106	Crushed stone - dolomite	Koševnik	DOLOMIT GRADBENA MEHANIZACIJA-SEPARACIJA PESKA JANKO KOSMAČ S.P.
48	Limestone for lime and cement	Stahovica	CALCIT, proizvodnja kalcitnih polnil d.o.o.	107	Crushed stone - dolomite	Kot pri Ribnici	KLUN - PESKOKOP, TRANSPORT IN USLUGE TGM KLUN JOŽE S.P.
49	Limestone for lime and cement	Ušenišče 2	IAK, INDUSTRIJA APNA KRESNICE, d.o.o.	108	Crushed stone - dolomite	Laharna 2	RASPET, Podjetje za proizvodnjo materialov in gradbene storitve d.o.o.
50	Limestone for lime and cement	Zidani Most	APNENEC d.o.o., Proizvodnja apnenčeve moke	109	Crushed stone - dolomite	Lajše	TOPOS HOTAVLJE, gradbeništvo, proizvodnja, trgovina in storitve, d.o.o.
51	Cement marl	Anhovo	SALONIT ANHOVO Gradbeni materiali, d.d.	110	Crushed stone - dolomite	Laze 2	RIGLER, peskokop, prevoznništvo in storitve gradbene mehanizacije, d.o.o.
52	Cement marl	Retje - Plesko	Holcim, prodaja cementa, d.o.o.	111	Crushed stone - dolomite	Lazna	SOŠKO GOZDNO GOSPODARSTVO TOLMIN d.o.o.
53	Crushed stone - limestone	Črna	CALCIT, proizvodnja kalcitnih polnil d.o.o.	112	Crushed stone - dolomite	Log II pri Sevnici	CGP, družba za gradbeništvo, inženiring, proizvodnjo in vzdrževanje cest, d.d.
54	Crushed stone - limestone	Andraž 2	EKOMINERAL, svetovanje, storitve, proizvodnja, d.o.o.	113	Crushed stone - dolomite	Lukovica 2	STRABAG gradbene storitve d.o.o.
55	Crushed stone - limestone	Črni Kal	CPK, d.d., družba za vzdrževanje cest, gradbeništvo in druge poslovne storitve	114	Crushed stone - dolomite	Mala gora	TANKO podjetje za nizke gradnje in hidrogradnje in trgovino na debelo, d.o.o.
56	Crushed stone - limestone	Črni Kal - Črnotiče	SALONIT ANHOVO, Kamnolomi, d.o.o.	115		Mala gora 2	
57	Crushed stone - limestone	Gabrovec (Vrbovo)	SALONIT ANHOVO, Kamnolomi, d.o.o.				
58	Crushed stone - limestone	Griža pri Rižani	VOC Ekologija, urejanje okolja d.o.o.				
59	Crushed stone - limestone	Laže II	KOLEKTOR CESTNO PODJETJE NOVA GORICA, Družba za vzdrževanje in gradnjo cest, d.o.o.				

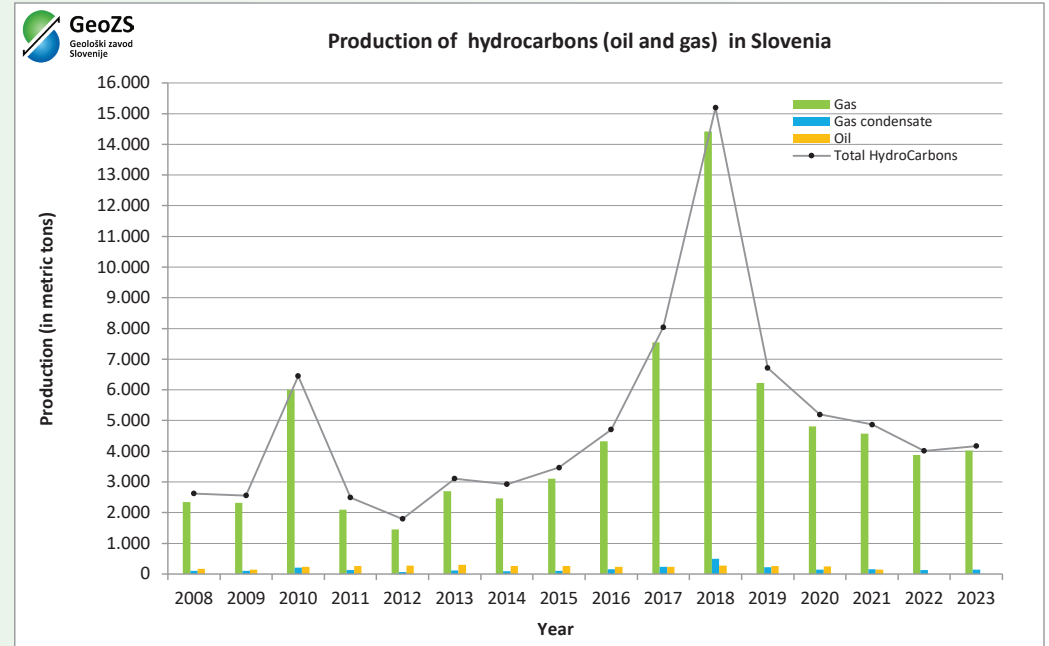
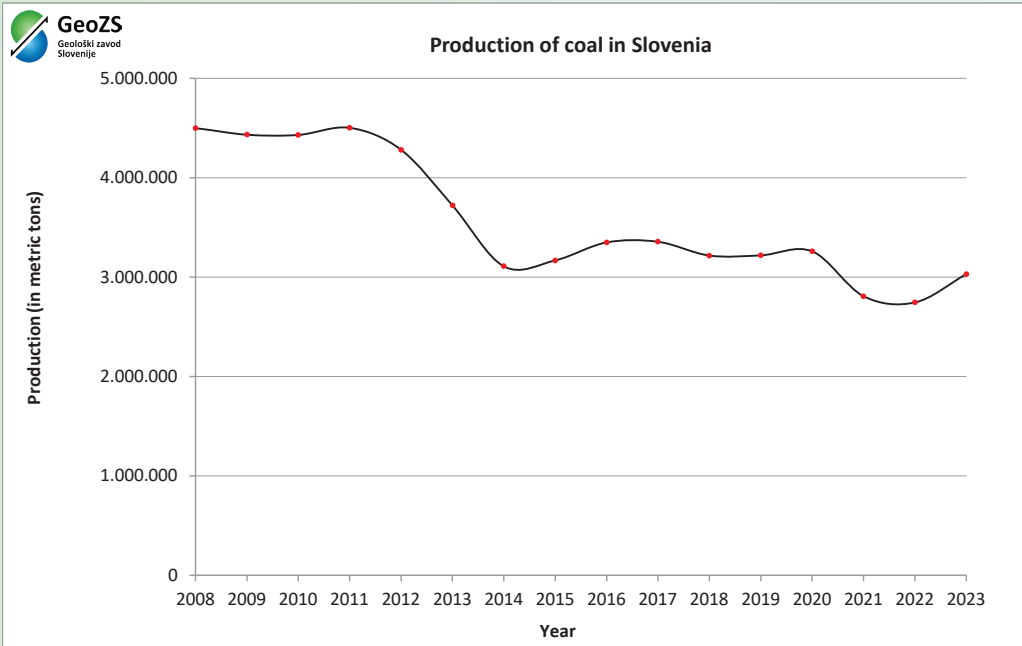
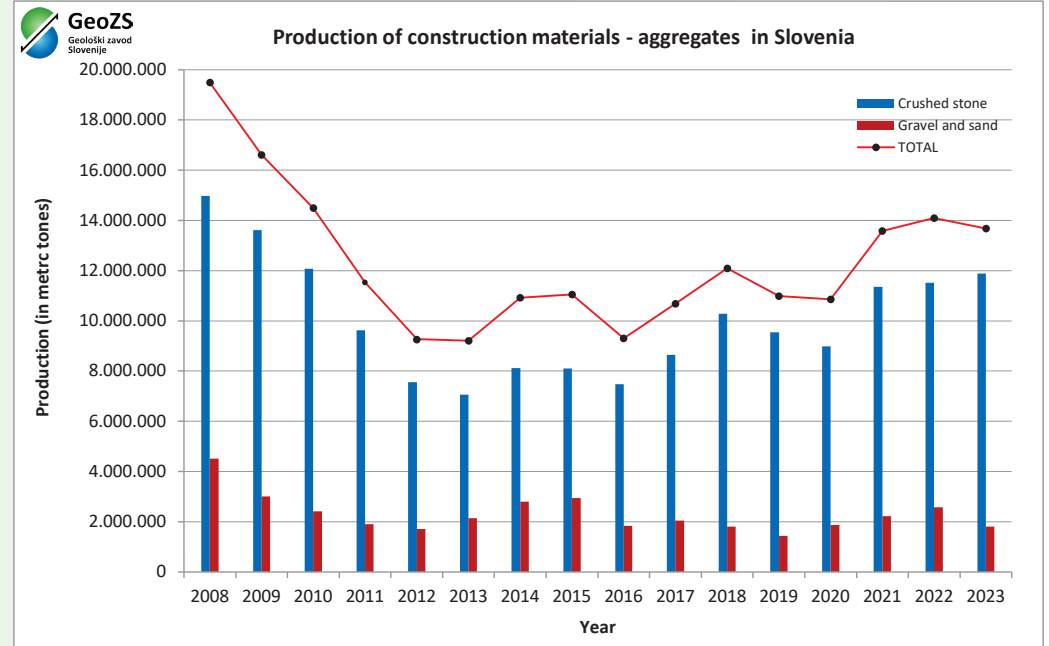
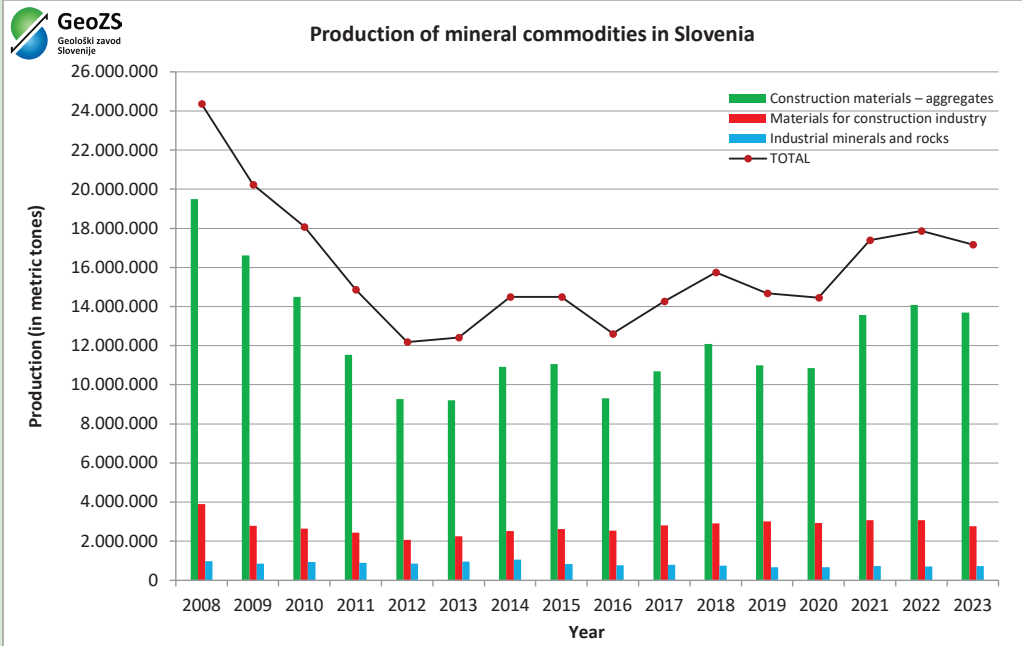
	Mineral commodity	Exploitation sites	Concessionaire		Mineral commodity	Exploitation sites	Concessionaire
116	Crushed stone - dolomite	Mozelj	TRGOGRAD trgovina in gradbeništvo, d.o.o., Litija	151	Gravel and sand	Bakovska cesta	POMGRAD, gradbeno podjetje d.d.
117	Crushed stone - dolomite	Mrzla rupa	"GRAMEH" GRADBENA MEHANIZACIJA BOJAN JEREB S.P.	152	Gravel and sand	Bezena - širitev	SILVA BRAČKO d.o.o., družba za prevoznitvo, gradbeništvo, posredništvo, trgovino in gramoznica Bezena, d.o.o.
118	Crushed stone - dolomite	Paka pri Velenju 2	RGP d.o.o. rekonstrukcije, gradnje, proizvodnja	153	Gravel and sand	Bistrica pri Naklem	GORENJSKA GRADBENA DRUŽBA, projektiranje, inženiring, gradnja in vzdrževanje objektov visoke in nizke gradnje d.d.
119	Crushed stone - dolomite	Podsmreka – širitev	PESKOKOP UNIVERSAL proizvodnja gradbenega materiala d.o.o. Ivančna Gorica	154		Bistrica pri Naklem - širitev	
120	Crushed stone - dolomite	Podutik	KPL, družba za gradnjo in vzdrževanje cest, zelenih površin ter inženiring d.o.o.	155	Gravel and sand	Dobrava II	MARALD-MARSEL gradbena mehanizacija-gramoz d.o.o.
121	Crushed stone - dolomite	Poljane	PREVOZNIŠTVO - PESKOKOP, KRIVEC JANEZ S.P.	156	Gravel and sand	Dobrovnik	NOGRAD, gradbeno in trgovsko podjetje d.o.o.
122	Crushed stone - dolomite	Poljčane	GIC KAMNOLOMI, pridobivanje kamna, d.o.o.	157		Dobrovnik - širitev	
123	Crushed stone - dolomite	Prigorica	RIGLER, peskokop, prevoznitvo in storitve gradbene mehanizacije, d.o.o.	158	Gravel and sand	Goče pri Libelcih - širitev	GRAMOZNICA PAČNIK, separacija, prodaja in storitve, d.o.o.
124	Crushed stone - dolomite	Rečica	GRATEX, Pridobivanje in predelava dolomitskega agregata in kurivprodaja d.o.o., Laško	159	Gravel and sand	Graben	GORENJC, družba za inženirske dejavnosti, d.o.o.
125	Crushed stone - dolomite	Rudnik 2	Avtoprevoznitvo in gradbena mehanizacija Klemen Uršič s.p.	160	Gravel and sand	Ivanci - širitev	POMGRAD, gradbeno podjetje d.d.
126	Crushed stone - dolomite	Sadinja vas	KPL, družba za gradnjo in vzdrževanje cest, zelenih površin ter inženiring d.o.o.	161	Gravel and sand	Jurkovec	ŽIHER podjetje za trgovino, proizvodnjo, prevoznitvo in storitve d.o.o.
127	Crushed stone - dolomite	Selo pri Velenju	VEGRAD d.d. Gradbeno industrijsko podjetje - v stečaju	162		Jurkovec - širitev	
128	Crushed stone - dolomite	Smolevec	STORITVE S TEŽKO GRADBENO MEHANIZACIJO PRIDOBIVANJE PESKA IN GRAMOZA RAJKO ČERIN S.P.	163	Gravel and sand	Krapje	SEGRAP rudarstvo, proizvodnja in gradbeništvo d.o.o.
129	Crushed stone - dolomite	Soteska	GOZDNO GOSPODARSTVO NOVO MESTO d.d.	164	Gravel and sand	Lakoš	E-PREVOZI, prevozniške storitve, d.o.o.
130	Crushed stone - dolomite	Štranice	VOC Ekologija, urejanje okolja d.o.o.	165	Gravel and sand	Melinci	T G P OZMEC - trgovsko, gradbeno in prevozniško podjetje d.o.o.
131	Crushed stone - dolomite	Šebalk	SOŠKO GOZDNO GOSPODARSTVO TOLMIN d.o.o.	166	Gravel and sand	Pleterje II	CESTNO PODJETJE PTUJ D.D.
132	Crushed stone - dolomite	Ter 2	PRIDOBIVANJE PESKA IN GRAMOZA TEREZIJA BURJA S.P.	167		Pleterje II - širitev 1b	
133	Crushed stone - dolomite	Topli vrh	GMP PESKOKOP ALEN MUJAKIČ S.P.	168	Gravel and sand	Pleterje P1	EPSON, trgovina, gostinstvo in storitve, d. o. o.
134	Crushed stone - dolomite	Tržišče	AGM PUNGERČAR, d.o.o., avtoprevoznitvo, gradbena mehanizacija, peskokop	169	Gravel and sand	Pleterje P2b	CESTNO PODJETJE PTUJ D.D.
135		Tržišče – širitev		170		Pleterje P2b - širitev	
136	Crushed stone - dolomite	Vetrnik 2	REKON gradbeništvo, inženiring, trgovina, d.o.o.	171	Gravel and sand	Pleterje P2b - širitev 2	CESTNO PODJETJE PTUJ D.D.
137	Crushed stone - dolomite	Vrčice 2	CGP, družba za gradbeništvo, inženiring, proizvodnjo in vzdrževanje cest, d.d.	172		Pleterje P2e	
138	Crushed stone - dolomite	Vrh pri Križu	GOSTGRAD, Gostinstvo, gradnje in storitve d.o.o. Žužemberk	173	Gravel and sand	Pleterje P2e - širitev	CESTNO PODJETJE PTUJ D.D.
139	Crushed stone - dolomite	Zala v Davči	GORENJSKA GRADBENA DRUŽBA, projektiranje, inženiring, gradnja in vzdrževanje objektov visoke in nizke gradnje d.d.	174	Gravel and sand	Pleterje P3	TLAKOVEC podjetje za proizvodnjo in trgovino d.o.o.
140	Crushed stone - dolomite	Zavrtec 1b	GRADNJE gradbeništvo in prevoznitvo d.o.o. Boštanj	175		Pleterje P3 - širitev	
141	Crushed stone - dolomite	Zelence	STEDO proizvodnja, trgovina in storitve d.o.o.	176	Gravel and sand	Pleterje P4	EPSON, trgovina, gostinstvo in storitve, d. o. o.
142	Crushed stone - dolomite	Zelše - širitev	KAMNOLOM ZELŠE, d.o.o.	177	Gravel and sand	Pleterje PPK	DUJARDIN gradbeno, transportno, špeditsko, trgovsko, gostinsko in proizvodno podjetje d.o.o.
143	Crushed stone - dolomite	Zg. Gabernik	PREVOZNE STORITVE, ZEMELJSKA DELA, PRIDOBIVANJE KAMNA ANDREJ JAGODIČ S.P.	178		Pleterje PPK 2	
144	Crushed stone - dolomite	Žamerk	KRAJEVNA SKUPNOST LOKA PRI ŽUSMU	179	Gravel and sand	Prepolje	BETON - BETONSKI IZDELKI DUŠAN KUHAH S.P.
145	Crushed stone - dolomite	Žusem 2	KRAJEVNA SKUPNOST LOKA PRI ŽUSMU	180	Gravel and sand	Rače 2	GOKOP gradbeno, gostinsko in trgovsko podjetje d.o.o.
146	Crushed stone – metamorphic and magmatic rocks	Kamna Gorica	GORENJSKA GRADBENA DRUŽBA, projektiranje, inženiring, gradnja in vzdrževanje objektov visoke in nizke gradnje d.d.	181	Gravel and sand	Selnica ob Dravi	PANEL avtoprevoznitvo, storitve z gradbeno mehanizacijo, trgovina, gradbeništvo in svetovanje d.o.o.
147	Crushed stone – metamorphic and magmatic rocks	Lenart pri Gornjem Gradu 2	"TUFKA" PESKOKOP TUFA KANOLŠČICA PETER BEZOVŠEK S.P.	182	Gravel and sand	Selnica ob Dravi	MAGDA GODEC družba za proizvodnjo, trgovino in storitve d.o.o.
148	Crushed stone – metamorphic and magmatic rocks	Sotina 3	POMGRAD - CESTNO PODJETJE, družba za vzdrževanje in gradnjo cest d.d.	183	Gravel and sand	Stari Grad 3b	Kostak, komunalno in gradbeno podjetje, d.d.
149	Crushed stone – metamorphic and magmatic rocks	Zagaj	GIC KAMNOLOMI, pridobivanje kamna, d.o.o.	184	Gravel and sand	Stari Grad 4	Kostak, komunalno in gradbeno podjetje, d.d.
150	Crushed stone – metamorphic and magmatic rocks	Zagaj	POSREDNIŠTVO IVAN MIJOŠEK S.P.	185	Gravel and sand	Šentvid pri Vuzenici - širitev	GRADBENIŠTVO KUSTER, nizke in visoke gradnje, d.o.o.
				186	Gravel and sand	Trbonje 2	JAVNO KOMUNALNO PODJETJE DRAVOGRAD d.o.o.
				187	Sea salt	Lera in Fontanigge	SOLINE Pridelava soli, d.o.o.
				188	Sea salt	Strunjan	SOLINE Pridelava soli, d.o.o.

NUMBER OF EXPLOITATION SITES (NON-ENERGETIC) IN SLOVENIA

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bentonite	1	1	1	1	1	1	1	1	1	1	1	1
Calcite	1	1	1	2	1	1	1	1	1	1	1	1
Chalk	1	1	1	1	1	1	1	1	1	1	0	0
Quartz sand	7	7	7	7	7	7	7	7	7	7	6	6
Tuff	1	1	1	1	1	1	1	1	1	1	1	1
Industrial dolomite	2	2	1	1	1	1	1	1	1	1	1	1
Chert	1	1	1	1	1	1	1	1	1	1	1	1
Ceramic clay	4	4	5	4	5	5	5	3	3	3	3	3
Industrial minerals and rocks	18	18	18	18	18	18	18	16	16	16	14	14
Brick clay	7	5	6	5	6	5	5	5	6	7	7	6
Natural stone												
limestone	12	11	13	14	15	14	14	13	13	14	14	14
tonalite/granodiorite	3	3	3	3	2	1	1	1	2	3	2	2
other	14	13	13	13	12	10	10	9	8	8	5	6
Natural stone	29	27	29	30	29	25	25	23	23	25	21	22
Raw materials for lime	6	6	6	5	5	5	5	5	5	5	5	5
Raw materials for cement	6	5	5	5	4	4	4	4	5	5	2	2
Materials for construction industry	48	43	46	45	44	39	39	37	39	42	35	35
Crushed stone												
limestone	26	27	29	36	33	32	32	30	30	31	24	25
dolomite	94	95	94	84	86	85	84	80	79	78	70	68
other	4	4	6	6	5	5	5	5	6	6	5	5
Crushed stone	124	126	129	126	124	122	121	115	115	115	99	98
Gravel and sand	41	47	44	38	34	31	32	31	36	39	36	36
Construction materials/aggregates	165	173	173	164	158	153	153	146	151	154	135	134
TOTAL	231	234	237	227	220	210	210	199	206	212	184	183

PRODUCTION OF MINERAL COMMODITIES IN SLOVENIA (in metric tons)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bentonite	160	104	135	168	98	143	199	232	182	147	113	99	77	75	68	86
Calcite	348.152	405.467	459.926	458.800	474.152	555.663	646.542	268.677	255.709	220.771	204.914	221.767	229.111	249.264	253.835	259.546
Kaolin																
Chalk																
Quartz sand	289.529	215.065	253.866	230.908	219.481	224.387	207.381	343.455	338.080	359.476	343.683	311.954	325.318	371.143	362.884	377.284
Tuff	109.949	58.062	39.401	24.639	23.732	19.171	8.872	9.116	8.840	9.144	8.633	9.133	8.257	8.873	8.691	8.743
Industrial dolomite	177.715	146.214	156.179	154.721	119.317	136.516	177.338	172.697	150.545	172.656	129.821	102.619	88.275	82.893	66.420	70.434
Chert	21.648	16.695	16.114	18.907	9.960	11.530	15.340	21.041	20.272	15.525	20.436	20.773	21.485	18.372	7.238	6.153
Ceramic clay	32.200	9.478	12.279	10.103	5.295	3.479	7.461	7.574		5.478	42.052	6.412	5.354	6.070	300	
Industrial minerals and rocks	979.353	851.085	937.900	898.246	852.035	950.889	1.063.133	822.792	773.628	783.197	749.652	672.757	677.877	736.690	699.436	722.246
Brick clay	420.360	235.348	296.118	374.020	159.746	180.748	154.944	194.852	202.540	167.898	159.615	180.088	273.771	392.826	422.161	342.228
Natural stone	71.260	73.156	55.045	25.109	21.006	21.158	79.005	99.541	101.991	107.630	91.231	69.155	58.109	43.394	62.247	53.956
limestone																
tonalite/granodiorite	67.400	39.787	36.855	45.930	23.374	41.016	23.749	26.995	26.746	28.544	41.793	25.078	17.839	27.041	80.606	67.730
other	21.959	21.573	19.724	11.896	11.526	8.332	9.917	7.990	7.690	6.151	3.615	2.660	16.370	24.675	34.772	73.389
Natural stone	160.619	134.516	111.624	82.935	55.906	70.506	112.671	136.326	136.427	142.325	136.639	96.893	92.318	95.110	177.625	195.075
Raw materials for lime	1.631.391	1.221.197	1.260.446	1.103.163	896.241	860.890	919.528	1.103.283	1.046.293	1.174.038	1.212.883	1.186.037	1.025.514	1.118.370	953.432	814.798
Raw materials for cement	1.684.258	1.188.493	982.653	883.573	952.758	1.138.560	1.325.907	1.190.807	1.149.065	1.318.832	1.405.518	1.551.728	1.532.796	1.474.361	1.525.508	1.420.006
Materials for construction industry	3.896.628	2.779.554	2.650.841	2.443.691	2.064.651	2.250.704	2.513.050	2.625.268	2.534.325	2.803.093	2.914.655	3.014.746	2.924.399	3.080.667	3.078.726	2.772.107
Crushed stone	7.541.043	6.284.804	5.773.480	4.034.597	3.264.404	2.813.266	3.060.104	3.486.409	3.164.109	3.824.938	4.757.905	4.557.967	4.447.674	5.441.039	5.600.430	6.459.030
limestone																
dolomite	7.291.259	7.175.362	6.143.336	5.440.918	4.223.692	4.127.357	4.901.721	4.427.094	4.280.306	4.808.753	5.516.316	4.984.010	4.484.334	5.766.679	5.761.219	5.347.526
other	150.258	149.562	155.716	151.276	69.335	127.272	161.762	194.610	26.018	9.190	7.781	8.662	51.910	143.478	152.473	71.352
Crushed stone	14.982.560	13.609.728	12.072.532	9.626.791	7.557.431	7.067.895	8.123.587	8.108.113	7.470.433	8.642.881	10.282.002	9.550.639	8.983.918	11.351.196	11.514.122	11.877.908
Gravel and sand	4.506.076	3.001.291	2.422.771	1.899.770	1.707.455	2.143.013	2.799.006	2.943.870	1.833.732	2.047.403	1.810.666	1.437.101	1.869.851	2.225.198	2.577.923	1.804.643
Construction materials/aggregates	19.488.636	16.611.019	14.495.303	11.526.561	9.264.886	9.210.908	10.922.593	11.051.983	9.304.165	10.690.284	12.092.668	10.987.740	10.853.769	13.576.394	14.092.045	13.682.551
TOTAL	24.364.617	20.241.658	18.084.044	14.868.498	12.181.572	12.412.501	14.498.776	14.500.043	12.612.118	14.276.574	15.756.975	14.675.243	14.456.045	17.393.751	17.870.207	17.176.904
brown coal	488.828	510.769	419.466	435.800	314.262											
lignite	4.008.442	3.921.746	4.010.930	4.066.278	3.967.064	3.721.188	3.108.203	3.168.001	3.348.889	3.355.664	3.216.735	3.218.696	3.259.309	2.807.476	2.745.022	3.030.494
coal	4.497.270	4.432.515	4.430.396	4.502.078	4.281.326	3.721.188	3.108.203	3.168.001	3.348.889	3.355.664	3.216.735	3.218.696	3.259.309	2.807.476	2.745.022	3.030.494
oil	174	138	233	263	279	298	366	261	229	241	270	267	247	142		
gas condensate	104	105	207	131	60	114	95	98	150	240	499	223	138	154	127	147
gas	2.348	2.317	6.006	2.095	1.454	2.698	2.463	3.109	4.331	7.554	14.423	6.225	4.815	4.575	3.882	4.019
oil and gas	2.626	2.560	6.446	2.489	1.793	3.110	2.924	3.468	4.710	8.035	15.192	6.715	5.200	4.871	4.009	4.166
sea salt	535	2.924	59	4.291	5.684	3.360	0	2.191	2.417	2.335	2.018	1.437	806	1.671	2.342	738



PARTIAL LIST OF SOME EU-FUNDED MINERAL RESOURCES PROJECTS (on-going)

Programme	Project acronym	Project title	Start	End	Duration (months)	Lead partner	Project summary
Horizon Europe	GSEU	Geological Service for Europe	Sep '22	Aug '27	60		The Geological Service for Europe (GSEU) is a Horizon Europe, CSA project designed to establish permanent cooperation between European geological survey organisations, with the aim of providing European institutions, national decision-makers, industry, the professional public, and citizens with high-quality geological data on the European subsurface. The general goal of the project is to develop and enable access to pan-European coordinated data and information services on primary and secondary sources of critical mineral raw materials, geothermal resources, underground water, etc. GeoZS is one of the most active project partners. GeoZS's most important tasks include assuming a leading role in the establishment of the European Centre of Excellence for Sustainable Resource Management, the establishment of the information and technological framework of the future European service (EGDI – European Geological Data Infrastructure) and the implementation of communication and dissemination activities related to the project.
Horizon Europe	FUTURAM	Future Availability of Secondary Raw Materials	Jun '22	May '26	48	WEEE FORUM, Belgium	The FutuRaM project works to improve knowledge on the availability and recoverability of secondary raw materials (SRMs) within the European Union (EU), with a special focus on critical raw materials (CRMs), to enable fact-based decision making for their exploitation in the EU and third countries, and to disseminate this information via a systematic and transparent Secondary Raw Materials Knowledge Base (SRM-KB). The FutuRaM project will establish a methodology, reporting structure, and guidance to improve the raw materials knowledge base up to 2050 and facilitate the exploitation of SRMs. The project will integrate SRM and CRM data to model their current stocks and flows, and consider economic, technological, geopolitical, regulatory, social, and environmental factors to further develop, demonstrate, and align SRM recovery projects with the United Nations Framework Classification for Resources (UNFC). The project will address the following waste streams: Batteries; Waste Electrical and Electronic Equipment; End-of-Life Vehicles; Mining Waste; Slags and Ashes; and Construction and Demolition Waste.
Horizon 2020	SCRREEN3	Solutions for CRITICAL Raw materials – a European Expert Network 3	Jan '24	Dec '26	36	BRGM – The French Geological Survey	The aim of the SCRREEN3 project is to provide comprehensive information about sustainable access to primary and secondary raw materials, and in particular Critical Raw Materials (CRMs) in the EU. By providing expert advice from extensive expert network to better understand the value chains of the raw materials studied and screened in the CRMs assessment. SCRREEN3 will further develop and strengthen the expert network already established in the SCRREEN and SCRREEN2 project. Based on the expertise of the expert network, a CRM factsheet will be verified and improved to provide up-to-date information on CRMs available in primary and secondary resources as well and their material flow.
KIC EIT RawMaterials	RIS hub ADRIA	EIT RawMaterials RIS hub Adria	Mar '23	Dec '25	34	Geological Survey of Slovenia Slovenian National Building and Civil Engineering Institute, University of Zagreb, Croatia, Ljubljana University Incubator	The basic objective of the EIT RawMaterials RIS hub Adria is to increase innovation performance in the ADRIA region, primarily covering Croatia and Slovenia extending to the Southeast European countries (Albania, Bosnia and Herzegovina, Montenegro, and North Macedonia). The RIS hub Adria, founded in spring 2018, is already a well-established "one-stop shop" for information. It will continue its efforts and aims to attract potential new partners and facilitate their integration as well as support capacity building, business creation, research, and innovation in the Adria region by establishing and implementing support programmes from early stage idea development to applying for KAVA/ESIF or other regional/national funding mechanisms, assisting potential idea holders and start-ups in the application process, fostering strategic partnerships in KTI, and facilitating the creation of businesses along the RM value chain.
KIC EIT RawMaterials	GEORIS	Innovative technologies for waste processing in ESEE region	Sep '22	Dec '24	24	ENALOS R&D, Greece	Extractive, raw materials processing and metallurgical industrial activities in the EU generates a large volume of environmentally hazardous waste. The situation in East and Southeast Europe is exacerbated by improper waste management, as a significant percentage of industrial waste ends up in landfills. GEORIS will transfer to the RIS area an innovative geopolymerization technology that utilizes industrial waste to produce materials for the construction industry (pavement blocks & fire-resistant tiles/panels) and the catalytic converter market (a powder replacing PGMs), with lower production costs and superior technical specifications and environmental performance than existing solutions. Project partners will transfer the geopolymerization technology to RIS countries and showcase its competitive advantages in applications on urban infrastructure (GR) and buildings (SI, RS), improve waste management and limit landfilling, and accelerate commercialisation of the technology.
KIC EIT RawMaterials	HEI4S3-RM	Building Ecosystem Integration Labs at HEI to foster Smart Specialization and Innovation on Sustainable Raw Materials	Jul '22	Jun '24	24	University of Oviedo, Spain	HEI4S3- RM is part of the EIT HE initiative and connects six higher education institutions and three non-academic partners. The project aims to strengthen partnerships between universities, companies, and research organisations by developing an innovative pathway for entrepreneurial universities. The new operational framework will be implemented through Ecosystem Integration Labs (EILs), which is being developed by each participating university, respectively.
KIC EIT RawMaterials	TIMREX	T-Shaped Master Programme for Innovative Mineral Resource Exploration	Jan '22	Dec '24	36	University of Zagreb – Faculty of Mining, Geology and Petroleum Engineering, Croatia	The TIMREX EIT-labelled MSc programme aims to train earth science specialists to meet the needs of mineral exploration in the EU. The geographical location of the four partner universities helps to improve the supply of workforce for mineral exploration in the EU, including two geographically important EU hubs for mining and exploration – Scandinavia and the ESEE region. The TIMREX programme will train T-shaped geoscience professionals with a solid background in the classical disciplines of geology and geophysics, complemented by modern 3D modelling, data processing, and interpretation skills. These multidisciplinary competences also include skills in innovative mineral exploration techniques and technologies used in the field, in laboratories, and in underground and underwater environments. Students are also trained in sustainability, social responsibility, and social licence to operate.
KIC EIT RawMaterials	PhD BalticTeach.	PhD Schools on Sustainable Materials for RIS region	Jan '23	Jun '25	30	Riga Technical University, Latvia	The main objective of the project is to train future industry talents by organising three PhD schools offering 6 ECTS credits per educational event. The project will identify PhD students in the Baltic States and the RIS regions of Italy, Slovenia, and Slovakia and help them in the upscaling and commercialisation of PhD student research into viable business ideas in the field of sustainable materials.
	PanAfGeo-2	Pan-African Support to the EuroGeoSurveys-Organisation of African Geological Surveys (EGS-OAGS) Partnership	May '21	Oct '24	36	BRGM – The French Geological Survey	PanAfGeo (Pan-African Support to the EuroGeoSurveys - Organisation of African Geological Surveys / EGS-OAGS partnership) is a project that supports the training of geoscientific staff from African Geological Surveys through the development of an innovative training programme. The project includes a variety of geological topics, from mineral resources to geohazards. In terms of mineral resources, it aims to increase geological knowledge and skills across Africa required for sustainable mineral exploration, exploitation, and related infrastructures. PanAfGeo-2 has contributed to a more sustainable management of natural resources in tackling climate change based on science and technology. GeoZS intends to strengthen its current role in the cooperation between EGS and OAGS in the upcoming 4-year program called PanAfGeo+ (in preparation). The overall objective is to contribute to the sustainable management of geological resources in Africa and to promote the EU-Africa partnership in the geosciences and in particular in the raw materials sector.
LIFE	LIFE IP RESTART	Boosting waste recycling into valuable products by setting the environment for a circular economy in Slovenia	Jan '22	Dec '30	108	Ministry of the Environment, Climate and Energy, Slovenia	LIFE IP RESTART will focus on overcoming obstacles to achieving EU recycling targets, and on achieving full implementation of the National Waste Management Programme and Waste Prevention Programme (WMPP) in Slovenia. The project's main objective is to deploy a holistic set of complementary technical, digital, environmental, social, and circular solutions to unlock all the potentials of the WMPP in order to achieve maximum material self-sufficiency and increased circular yield in the waste-to-resource sector.

CRITICAL RAW MATERIAL OCCURRENCES AND POTENTIAL IN SLOVENIA

Slovenia has a long tradition of mineral exploitation. The country's territory has hosted a number of historical metal mines, the most important among them were Idrija (Hg), Mežica (Pb-Zn), Litija (Pb, Zn, Ag, Hg), Žirovski vrh (uranium) and Savske jame (Fe) mines. There are 215 known occurrences of metal mineralisation (Figure 1):

- aluminium ores in the form of bauxite,
- arsenic ores containing realgar,
- alluvial gold deposits,
- copper ores containing chalcopyrite, bornite, chalcocite, malachite, cuprite and native Cu,
- iron ores containing siderite, hematite, magnetite, limonite,
- mercury ores containing cinnabar and native mercury,
- manganese ores containing psilomelane and pyrolusite,
- lead and zinc ores containing galena and sphalerite,
- antimony ores containing antimonite and antimony-rich clays,
- uranium and thorium ores as uraninite and coffinite,
- complex polymetallic ores containing sulphides of lead, zinc, galena, silver, baryte, cinnabar, pyrite etc.

Considering today's knowledge of CRMs there are known deposits of antimony and bauxite which might be found in economically important quantities. Gallium and germanium were detected as impurities in some of the Slovenian ores, while baryte is a known accessory mineral in many deposits. Slovenia

is also rich in dolomite, which can be used as a raw material for magnesium production. However, research of metal ores in Slovenia ceased in the 1990's, and most research in the past was focused on the base metals. What was regarded as an unimportant impurity in the past is a critical raw material today. There is a serious lack of knowledge about the trace element compositions of Slovenian metallic ores. Moreover, certain minerals that are considered critical today (i.e. REEs, Li etc.) were even not studied at all, despite suitable geological potential. Comprehensive assessment of Slovenian ore deposits and mineral potentials that were not addressed in the past need to be re-examined using modern geophysical methods, modern analytical techniques, and backed up by the latest advancements in ore genesis models and new approaches to ore exploration. As a result, the possibility of finding new ore bodies, including those containing critical raw materials buried under complex systems of nappes, is significant.

Along with metal ores, there is also potential to extract some of non-metal critical raw materials, such as choking coal and graphite. Potential occurrences of other critical minerals, such as beryllium, bismuth, cobalt, gallium, hafnium, lithium, silicon metal, and vanadium exist on the territory of Slovenia due to favourable geological conditions. However, the probability of finding economically important deposits of such elements is low.

We hope that the newly adopted Critical Raw Materials Act will provide the necessary push in new investments required to assess domestic raw materials potential.

Gorazd Žibret (GeoZS)

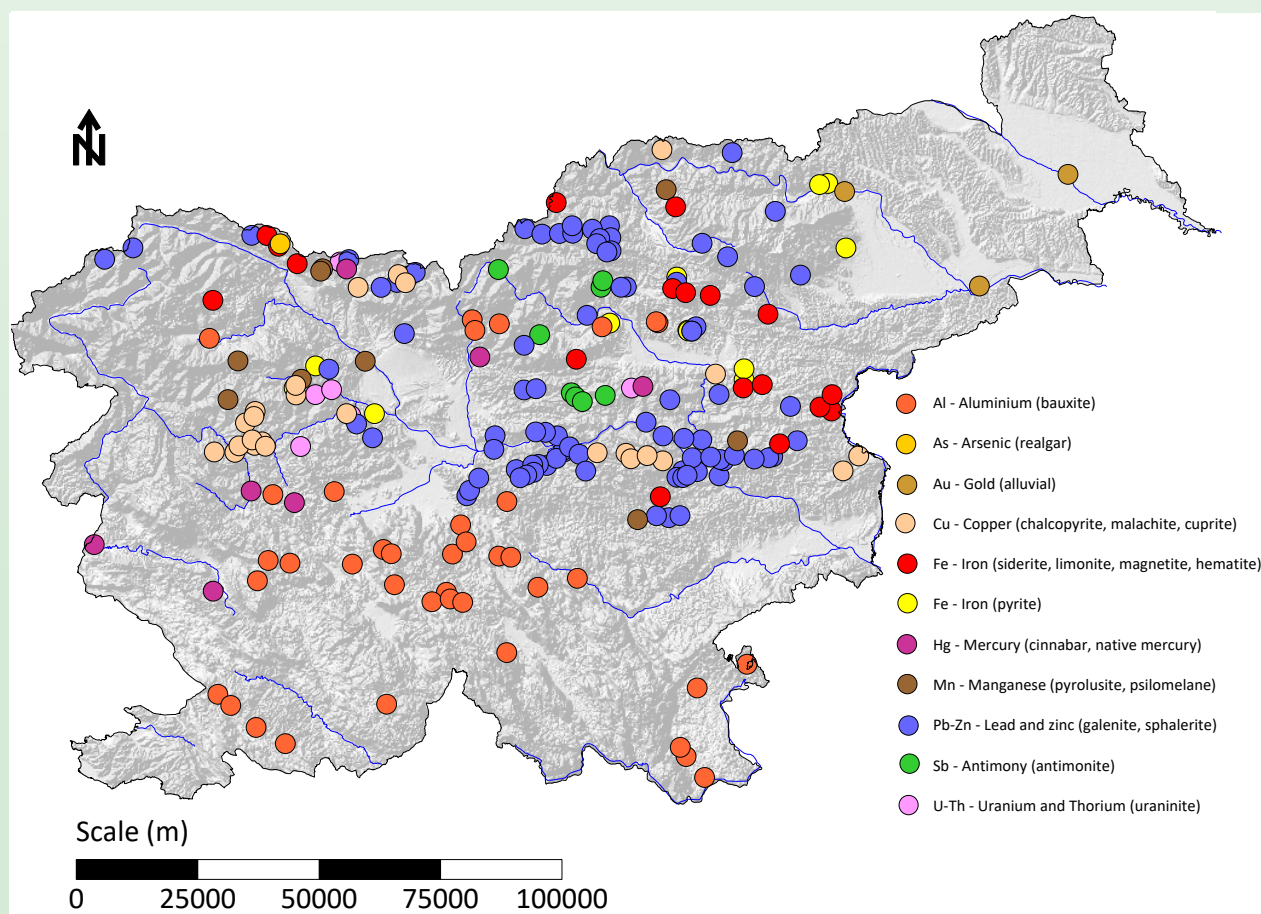


Figure 1: Spatial distribution of metallic mineral occurrences and ores in Slovenia.



PanAfGeo

GEOZS AS PARTNER IN PANAFGEO-2

PanAfGeo-2 (Pan-African Support to Geological Sciences and Technology Africa-EU Partnership) is a continuation of the PanAfGeo project, an initiative aimed at enhancing geological knowledge and mineral resources management across the African continent. The project represents a partnership between the European Geological Surveys (EGS) and the Organisation of African Geological Surveys (OAGS), with support from the European Union. The overall objective of the project is to contribute to a more sustainable management of natural resources and to address climate change based on science and technology. The main target groups are The African Geological Surveys (AGS) and the OAGS, organizations that provide key, unbiased and sound scientific research, geological data, and maps, and report information to the public, industry, universities, and government agencies as well as local legislators and regulators.

In 2024, GeoZS participated as a technical partner in two training sessions for work packages WP-B (Mineral Resources Assessment) and WP-D (New Frontiers in Geosciences). Also, GeoZS participated at the PanAfGeo-2 Mid-Term Meetings: Unveiling African Geological Surveys' Collaborative Progress and Future Prospects.

The training for WP-B, which was co-organised by the Geological Survey of Zambia, the Geological Survey of Portugal (LNEG), the Geological Survey of Poland (PGI-NRI), and the Geological Survey of Slovenia (GeoZS), took place in Kitwe, Zambia. Kitwe is located in one of the world's richest mineral provinces, the Copperbelt in Central Africa. During the training, participants from African Geological Surveys had the opportunity to deepen their knowledge and share their experiences of various techniques used today in mineral exploration and exploitation. Experts from the GeoZS presented the following topics to the trainees: (i) Circular economy-sustainability in mining, (ii) UNFC and AMREC classification (iii) Development of autonomous equipment for underground mining, and (iv) Application of Geophysical methods in Mineral Exploration. Participants and trainers also had the privilege of visiting some operational copper-cobalt underground and emerald open pit mines in the area. At the conclusion of the



A site visit to the Mupani underground mine.

training, each trainee had to present an individual project for a prospecting campaign targeting metallic or non-metallic ores.

As part of WP-D, The Polish Geological Institute, the Ministry of Energy and Mineral Development of Uganda, and the Geological Survey of Slovenia co-organised the first geothermal training within the PanAfGeo-2 project. Trainers from the GeoZS helped to train participants on geothermal exploration methods. The training was organised in June in Hoima, close to Lake Albert in Uganda, which is situated within the East African Rift Valley. Over the course of the training, the participants expanded their knowledge of shallow and deep geothermal energy and were encouraged to locate reservoirs for geothermal electricity production. The trainers presented the characteristics of thermal waters and deep geothermal resources, groundwater geochemistry, environmental hazards, geothermal project development, concepts of shallow geothermal systems, and hydrogeological methods for open-loop geothermal systems design. The three-day hands-on fieldwork involved measuring the geothermal properties of rocks, logging temperatures in boreholes, and the hydrogeological mapping of thermal springs in the village of Kibiro. Each field group prepared a joint interpretation of field observations at the end of the training.

The PanAfGeo-2 mid-term meeting, held in Congo Brazzaville over May 15 and 16, 2023, garnered substantial media coverage, drawing attention to its pivotal role in advancing Africa's geological surveys and fostering meaningful collaborations. With a primary focus on reviewing the progress of the PanAfGeo-2 project, the meeting provided an invaluable platform for sharing insights, exchanging ideas, and engaging in fruitful discussions.

**Emil Pučko, Špela Kumelj, Duška Rokavec,
Nina Rman and Mitja Janža (GeoZS)**



Water sampling.

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Društvo tehničnih vodij
površinsko odkopavanje

SURFACE MINING ASSOCIATION (“DTV PO”)

The Surface Mining Association has been operating continuously for 28 years. It brings together more than 90% of all Slovenian mining companies – holders of mining rights, experts from public institutions responsible for mineral resource management and planning, researchers, and the private sector.

The Association organizes professional training courses and capacity building of expertise in the fields of geology, mining, environmental protection, sustainable exploitation of natural resources, safety practices, and other solutions. It also actively participates as a stakeholder in the implementation of national mining legislation.

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SLOVENIAN MINING ASSOCIATION OF ENGINEERS AND TECHNICIANS (“SRDIT”)

The Slovenian Mining Society of Engineers and Technicians (SRDIT) is a non-governmental non-profit organization of miners and geotechnologists. The SRDIT's mission is to facilitate the mining and geotechnical profession in Slovenia and beyond. SRDIT assumes the role of arbitrator in assessing the professionalism of its membership, organizes international networking, works to improve the level of expert knowledge of its membership, and organizes social events. At the time of its founding in 1991, the Slovenian Mining Association of Engineers and Technicians counted 53 members; at end 2023 it had 171 members. The SRDIT is an organizer and co-organizer of educational seminars, expert meetings, and consultations (the traditional “Jump over the leather skin” meeting and the “St. Barbara” meeting), technical meetings, workshops for miners and expert international consultants, and conferences (Waste Management - GzO and Urban Mining). In 2023, members of SRDIT were also active in various working groups organized within the framework of the Slovenian Chamber of Engineers (IZS), the Slovenian Engineering Association (SIZ) and international organizations such as the European Federation of National Engineering Associations (FEANI), the World Mining Congress (IOC-WMC), the Society of Mining Professors (SOMP) and others.

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