Mineral raw materials : primary mineral raw materials potential of Croatia : [poster]

Mileusnić, Marta; Dedić, Željko; Maričić, Ana

Other document types / Ostale vrste dokumenata

Publication year / Godina izdavanja: **2019**

Permanent link / Trajna poveznica: https://urn.nsk.hr/urn:nbn:hr:169:789875

Rights / Prava: In copyright / Zaštićeno autorskim pravom.

Download date / Datum preuzimanja: **2024-03-29**



Repository / Repozitorij:

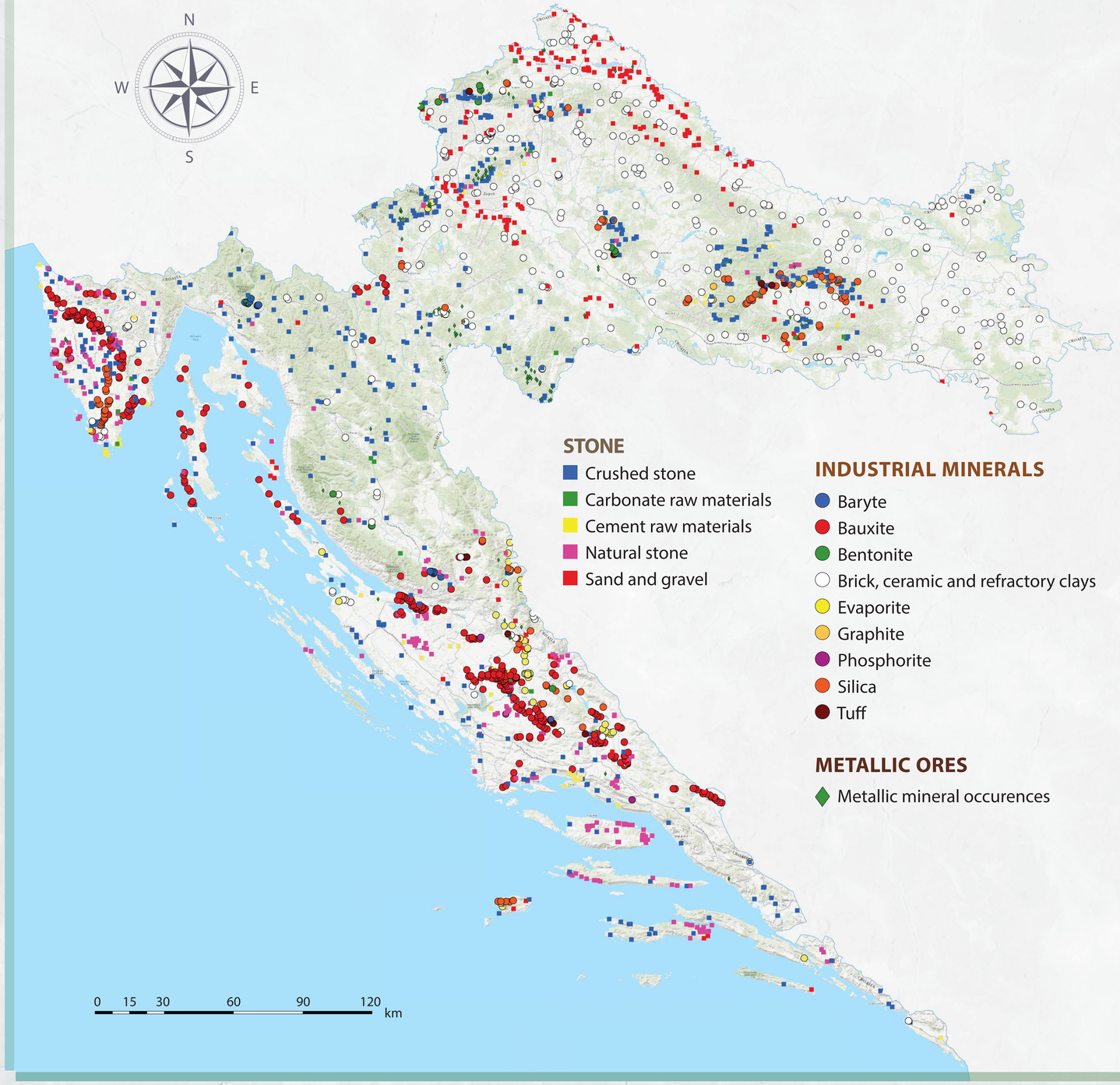
Faculty of Mining, Geology and Petroleum Engineering Repository, University of Zagreb





MINERAL RAW MATERIALS

Primary mineral raw materials potential of Croatia



STONE
- Crushed stone
- Carbonate raw materials
- Cement raw materials
- Natural stone
- Sand and gravel

INDUSTRIAL MINERALS
- Baryte
- Bauxite
- Bentonite
- Brick, ceramic and refractory clays
- Evaporite
- Graphite
- Phosphorite
- Silica
- Tuff

METALLIC ORES
- Metallic mineral occurences

Mineral Raw Materials, non-renewable natural resources, are aggregates of minerals used for various economic purposes. Possibilities and limitations related to utilization of mineral raw material depend on various factors including: geological, genetic, technical, exploitation, regional, market, social and economic factors.

Any kind of rock agglomeration is considered as a finding site of mineral raw material after establishing site condition and availability of technology that would enable extraction of useful substance in sufficient quantities for economic exploitation.
Mineral resources of Croatia enable exploitation and processing of mineral raw materials required in oil, chemical, glass, ceramic, fireproof glass and brick industry, as well as in the civil engineering. There are approx. 400 exploitation sites of non-energy solid mineral resources. Most of them are stone quarries (cca. 87%, thereof 20% is natural stone and 67% are aggregates) and the rest (cca. 13%) are open pits of industrial minerals.

This activity has received funding from the European Institute of Innovation and Technology (EIT), a body of the European Union, under the Horizon 2020, the EU Framework Programme for Research and Innovation

STONE

Stone is the most important mineral raw material in Croatia. Stone varieties commonly exploited are sedimentary rocks (limestones, dolomites, conglomerates and breccias). Deposits of magmatic and metamorphic rock varieties (granite, andesite, basalt, diabase, amphibolite) are less abundant. Stone varieties are classified according to its application as NATURAL STONE or AGGREGATE.

NATURAL STONE (building stone, dimension stone) is applied where decorative and protective demands must be satisfied. Additionally, it is used in fine arts for sculpting and masonry. Natural stone varieties, labelled as "marbles" on the market, are exploited on 91 active fields. They are exploited in the shape of stone blocks or monoliths, but also thin slabs are obtained from 22 exploitation fields.

AGGREGATE as the most mined material in the world includes crushed stone along with sand and gravel for civil engineering purposes. Aggregates are mined and separated according to particle size, whiteness and other properties. In addition, it comprises cement raw materials and carbonate raw materials. They are processed to produce construction materials (cement, plaster, concrete, asphalt etc.). There are 147 active crushed stone excavation fields and 54 where sand and gravel are exploited. Magmatic and metamorphic rock varieties are exploited only as aggregate.

NATURAL STONE


Limestone quarry "Punta Barbakan" (variety Veselje) at Island of Brač


Underground quarrying of limestone (variety Istrian yellow) in Kanfanar


Platy limestone quarry near Benkovac

AGGREGATE


Quartz sand open-pit Vranić


Gravel open-pit "Novo Čiće"


Crushed stone (dolomite) quarry "Očura"

INDUSTRIAL MINERALS

Industrial minerals (a commonly used synonym is nonmetallics) are geological materials (minerals and rocks) mined and processed (either from natural sources or synthetically processed) for the value of their non-metallurgical properties, which provides for their use in a wide range of industrial and domestic applications based on their physical and/or chemical properties. Several industrial minerals have a dual or multiple use (e.g., bauxite is an ore of "aluminium" metal and is also an industrial mineral when used as an additive for cement industry). Main industrial minerals in Croatia are: baryte; bauxite; bentonite; clays for bricks, ceramics and refractories; evaporites (gypsum, anhydrite and table salt from saltworks), graphite, phosphorite, silica and tuff.


Brick clay open-pit Rečica


Gypsum open-pit "Veliki Kukor"


Bauxite open-pit "Rovinj 1"

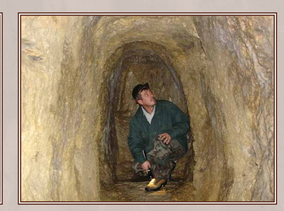
METALLIC ORES

Metallic ore is naturally occurring polymineral aggregate containing metallic-bearing minerals in sufficient amounts for economical exploitation. General subdivision incudes (i) iron and ferro-alloy metals (Fe, Cr, Mn, Mo, Ni…); (ii) non-ferrous metals (Al, Pb, Zn, Cu, Sn, Rare Earth Elements…) and (iii) precious metals (Au, Ag, Platinum Group Metalls).

Most metallic ores are polymetallic. Different metals are separated and enriched using metallurgical processes. Metals are essential for construction industry, electronics, medicine, machinery, energy transport etc. Nowadays, there is no exploitation of metallic ore in Croatia, but in the past silver, lead, zinc, copper, iron and aluminium were mined.


Historical Copper mine "Sveta Barbara" in Rude


Bauxite open-pit "Stari Gaj" near Obrovac


Historical underground Zinc mine "Kraševi Zviri"

Design by ANIRAM