



## Abstract

This chapter presents the diversity of mineral resources in Georgia. The mineral resource fund of the country comprises 950 mines and revelations of semi-precious and manufactural stones. Fuel resources in Georgia are represented by oil, natural gas, coal and peat mines. The most important of the ferrous metals is the world-famous Chiatura high-quality **Manganese** mine. From rare metals, the small mines of molybdenum, tungsten, mercury and stibium are represented. From non-metallic minerals in Georgia, there are important areas of barite, chalcedony, diatomite, bentonite clays, agate, zeolite and fireproof clay mines. **Construction and Facing Materials** are found in abundance in Georgia associated both with sediment and magmatic rocks.

Georgia is distinguished by its diversity of natural resources and is rich both in mineral and non-metallic resources, fuel resources, construction materials and facing stones as well as mineral and thermal waters. Distribution and capacity of the current mineral resources in the

bosom of the land of Georgia is subordinated to geological (tectonical) regularities (Tvalchrelidze and Kvirikadze 1981).

According to A. Tvalchrelidze's survey, the mineral resource fund of the country comprises 950 mines and revelations of semi-precious and manufactural stones. Among them 62.8% of the resource fund are large (national and international) mines, 30.9%—local mines and 6.3%—revelations. The fund is divided according to Georgian regions as follows: Imereti—20.7%, Kvemo Kartli—12.5%, Apkhazeti—11.6%, Shida Kartli—9.3%, Samegrelo and Zemo Svaneti—8%, Kakheti—8.1%, Mtskheta-Mtianeti—6.0%, Guria—3.4%, Achara—2.3% and Tbilisi—0.6% (Tvalchrelidze et al. 2011).

Fuel resources in Georgia are represented by oil, natural gas, coal and peat mines. Among the oil ores, most of which are located in Kakheti, worth mentioning are the ores of Mirzaani, Taribani, Shiraki, Samgori-Patardzeuli, Norio-Martkopi, Satskhenisi, Teleti, Ninotsminda (Sagarejo municipality), Rustavi, Supsa and the Black Sea shelf, which belongs to the prospective regions of **Oil** and **Natural Gas** detection (Tevzadze 1998). The oil reserve amounts to 169.7 million tonnes; it contains less sulfur and is of high quality. The country's only natural gas field is located in the surrounding of the town Rustavi, with a reserve of 5.2 billion m<sup>3</sup>.

Among coal mines, the black coal mines in Tkibuli-Shaori and Tkvarcheli and the brown coal mines in Akhaltsikhe are important. Among

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them, 402 million tonnes of black coal and 82 tonnes of brown coal are on the state balance.

**Peat** mines are located on the Black Sea coastline (in the surroundings of Poti, Kulevi, Pichori, Imnati, Ochamchire, etc.). The peat is used in the production of fertilizers.

The most important of the ferrous metals is the world-famous Chiatara high-quality **Manganese** mine (its exploitation started in 1879). It is also worth noting the Chkhari-Ajameti ore line, the manganese areas of Kvirila depression, Cholaburi, Rodinauli, Rikoti, Shkmeri and, etc. **Iron** mines and revelations in Georgia are known from ancient times. It is worth mentioning the so-called Poladauri Group (Bolnisi Municipality) of hematite ore mines, hematite-magnetite ores of Dzama (Kareli Municipality) and **Magnetite Sands** nests of Supsa-Natanebi.

Among non-ferrous metals, the **Copper** mines are associated with volcanogenic rocks. It is worth mentioning the ore mine in Bolnisi municipality and other ore revelations in Tamarisi, Kvemo Bolnisi, Davit Gareji, Merisi, Chkhornali (Keda municipality), Adenge, Gentsvishi (Aphkazeti), Zhabeshi, Guli, Zeskho (Svaneti), Zopkhito, Chveshura (Racha), Devdoraki (Khevi), Saketseti (Khevsureti) and others.

Among the **Lead-Zinc** ores, the lodestones of porphyritic suite (Kvaisa, Dambluti and Rtskhmelauri), as well as the revelations of stratified ore bodies—Brdzishkha and Akugra (Aphkazeti), associated with the reef structures of Upper Jurassic age. **Lead and Zinc** often play a satellite role in various types of ore systems; in this respect, it is worth mentioning the mines of Amtkeli (Aphkazeti), Dambluti (Loki massif) and Merisi (Achara).

The **Arsenic** is also being extracted, the mines of which are associated with Neogene magmatic processes; among them, the following are notable: Tsana (Kvemo Svaneti), Uravi (Zemo Racha and Lukhunistkali gorge), as well as the arsenic revelations in Sakaura and Kodidziri. Surmi mines are known in Zemo Racha, Svaneti and surroundings of Kazbegi.

Strong (100 m) deposit of **Limestones with Analcime** containing aluminium is presented in the area of Gelati (Khazaradze et al. 2000).

From rare metals the small mines of molybdenum, tungsten, mercury and stibium are represented. The molybdenum mines are known in Karobi (Zemo Racha) and Gharta (Khashuri municipality), the tungsten mines—in the Ghebi village, the ore valley—in Zopkhito and the ore revelations—in Notsari, Motsantsari and Mamiisoni (Zemo Racha). **Mercury** mines are associated with the Lower and Middle Jurassic clay slates, more rarely—with a narrow strip of carbonate sediments. The mercury ore layer spreads across the southern slope of the Caucasus in Aphkazeti (Akhei and Avadhara), Svaneti, Racha, Shida Kartli, etc.

Noble metals have a limited distribution, namely, **Gold** is found as companion components in copper and other ores of metallic mines. It is worth mentioning the Madneuli polymetallic deposition in Bolnisi, Khrami massif, Adigeni and Gharta ore centres; the golden sandy accumulations in the Enguri and Ktsia River basins are notable. **Mercury** is mostly found in sulfide mines—Madneuli (Bolnisi municipality), Kvaisa lead-zinc mine, David Gareja, Merisi (Achara), etc.

From non-metallic minerals in Georgia, there are important areas of barite, chalcedony, diatomite, bentonite clays, agate, zeolite and fireproof clay mines.

The **Barite** is represented mainly in the Bajocian volcanogenic rocks of Kudaro and Kvaisa (Shida Kartli), Patsikhvara (Aphkazeti), Khaishi (Mestia Municipality), Chordi (Oni Municipality), Kutaisi vicinities (Ghvedi, Khvamli-Mekveni, Tsiplnariskhevi, etc.) and Madneuli (Bolnisi Municipality) deposits. The barite is also found in the Upper Jurassic carbonate rocks in the Apshri mine (Aphkazeti). Total reserve of 33 barite mines exceeds 8 million tonnes.

Among the **Acidproof Andesite** mines, the Bakuriani and Kazbegi mines are (total reserve of 22.1 million tonnes) are notable.

The **Bentonite Clays** are located in the sediments of the Upper Cretaceous and Middle Eocene ages. Important deposits are in Gumbi (Tskaltubo municipality) and Askana (Ozurgeti municipality).

The **Chalcedony** is widespread in Terjola municipality.

The only deposit of **Diatomite** is found in Kساتibi (Akhaltsikhe municipality), which is located in the volcanogenic, so-called Goderdzi-Kساتibi suite of the Upper Neogene age.

The **Talc and Serpentine** are presented in the eastern part of Dzirula crystalline massif and in the crystalline rocks of the Paleozoic age of Shida Kartli; a group of Chorchana mines is also well known (Kvashava, Cheshuri, Tetri Mindori, Utslevi, Tselisi and other mines).

The **Dolomite** is being extracted in the Abano deposit (Kareli municipality), which is represented in the form of layered deposits and is associated with the Cretaceous deposits.

**Zeolites** are associated with the Jurassic, Cretaceous and Paleogenic volcanic suits. They are widespread in Dzegvi (Mtskheta municipality) and Tedzami River gorge, in the Zemo Khandaki village (Kaspi Municipality), as well as in Akhaltsikhe municipality. Zeolites' supply

of Georgia (22 million tonnes) is of world importance.

**Fireproof Clays** are found in Shrosha (Zestaponi municipality), Makvaneti (Ozurgeti municipality) and Tsetskhlauri (Kobuleti municipality).

**Kaolin Clays** are revealed in many locations; among them the Jvarisa (Tkibuli municipality) mine is important.

The **Agate** is found in the volcanogenic rocks of the Eocene age. There are many agate deposits in Akhaltsikhe municipality (Shurdo, Pamaj-Ziareti deposits).

**Native Sulfur** deposit is in the Abano mine, located in the Tergi River gorge (Kazbegi municipality).

Deposits of phosphorites, apatites, asbestos, jet, graphite, pegmatites, etc. are of relatively limited distribution (Fig. 4.1).

**Construction and Facing Materials** are found in abundance in Georgia associated both with sediment and magmatic rocks. Their

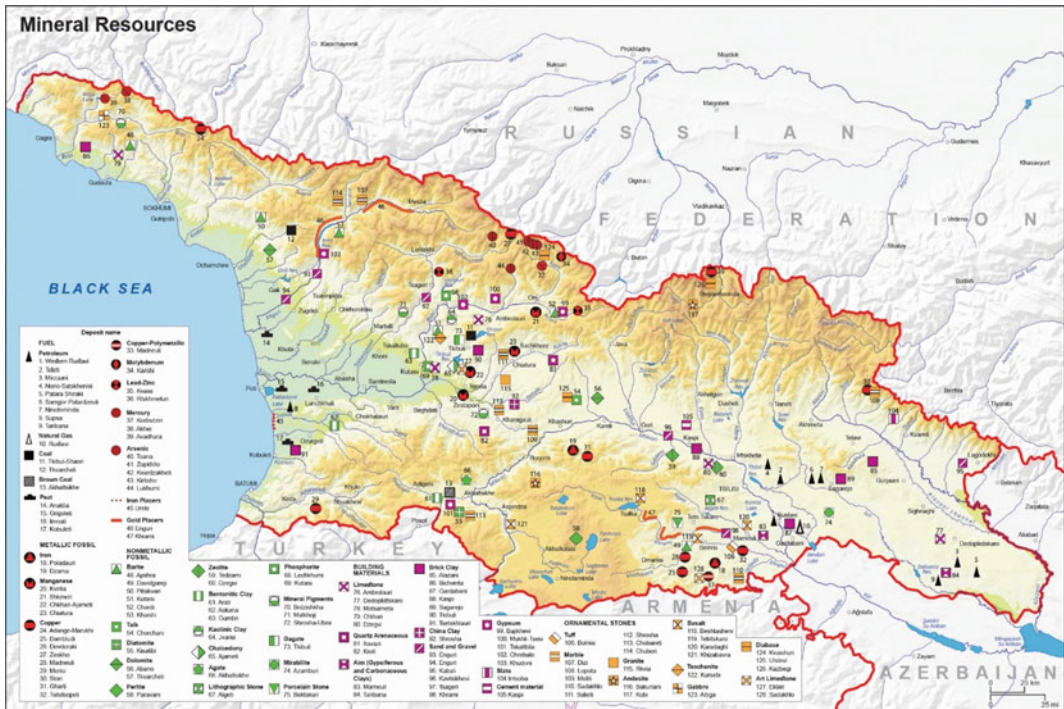


Fig. 4.1 Mineral Resources (National Atlas of Georgia, Steiner-Verlag, 2018)

exploitation has been in process for a long time. The raw materials (marls, clays and limestone) suitable for cement are found in the area of Kaspi and Bzipi. Quartz sands, which are used in construction and glass production, is spread in Sachkhere and Khashuri municipalities.

The **Sheetrock** deposits are abundant in the surroundings of Tbilisi. **Jypsum** deposits are found in western Georgia. The wall stones are obtained by the processing of limestones, sandstones and volcanic rocks. **Limestones** are widely spread. The deposits Dedoplistskaro, Senaki, Motsameta, Gantiadi and Surami are well known.

Among the facing stones the **Marble**, pattern **Tuff**, **Teschenite** and **Basalt** are known. Marble in Georgia is a high quality and is very popular. The deposits of Lopota (Kakheti), Shrosha (Dzurula River gorge), Salieta (Chiatura municipality), Dizi-Chuberi (Svaneti), Sadakhlo (Marneuli municipality) and Chobareti (Aspindza municipality) are well known. **Marbled Limestone** deposits are found in Ilto (Telavi municipality), Gumista (Abkhazia) and Moliti (Imereti).

The deposits of Kursebi (Tkibuli municipality) and Eklari limestone deposits are known at Kutaisi. Basalt is used to produce stone castings, which is being extracted in Sataplia (near Kutaisi). The tuff deposit in Bolnisi is well known. In Tbilisi, there are a lot of remarkable buildings furnished using the tuff. Deposits of brick-roofing tile clays and silicate brick bases are also important.

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