



Coal Mining Industry in Albania

**AGJENCIA KOMBETARE
E BURIMEVE NATYRORE**

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- Energjitë e rinovueshme
- Hidrokarburet
- Minierat
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Historical data of mining industry in Albania

Albania is considered a country rich in minerals and as a result:

Research, discovery, exploitation and processing of various minerals has represented and represents an important economic activity for the country.

The development of mining activity in Albania can be divided into three main stages:

THE FIRST STAGE, before 1944 :

- The drafting, in 1922, of the geological map of Albania, which was the first of its kind in the Balkans
- The drafting and approval, in 1929, of the mining law of the Kingdom of Albania, which paved the way for the beginning of the process of research, discovery and exploitation of minerals The presence in Albania of foreign companies, mainly Italian and Austrian

THE SECOND STAGE, 1944 - 1994:

- The mining industry was completely state property organized on the basis of regional enterprises, mining sectors. The products were mainly intended for the domestic market and the needs of the domestic economy (the exception is chrome ore which was sent for export).
- Coal production was intended for heating, energy and metallurgy.
- The geological report on the detailed research-discovery of the Valiasi coal deposit was prepared by a group of authors of the Tirana geological enterprise 1969. During the year 1970, based on the geological report, by the Chinese specialists, the project for the opening and exploitation of the Valias mine was drawn up.
- The works for marking the industrial square of the mine began in September 1971, while the preparatory works for the deepening of the vertical wells began in 1972. The first level in the first south-west panel of this site was cut with horizontal works in the absolute quota. te-113.00 or at a depth of 157.6m from the surface of the earth. The opening of the horizontal works started in May 1974 from the ventilation well, while from the main well it started in August 1974. Coal production started on 25.07.1978 and continued until 31.10.1994. **3515178** ton are produced in Valiasi Mine.
- All coal production (approximately 25 mln tons) was produced in Albania for around 25 years

COAL GEOLOGICAL RESERVES IN CLOSED MINES IN ALBANIA

nr	Name of Deposit	Start exploitation	Government Order for closing coal mines	No. of project (AKBN technical archive)	Production (Ton)	Geological reserves remained (Ton)
1	Valias	1978	Nr.139 dt.20.03.1995	Nr.2978 / 2001	3515178	49186000
2	Mëzez	1968	Nr.824 dt.04.12.1996	Nr.2978 / 2001	1435320	1426000
3	Mushqeta	1968	Nr.550 dt.26.08.1996	Nr.2978 / 2001	2300000	5365000
4	Kërrabë	1938	Nr.101 dt.02.03.2001	Nr.2748 / 2000	1658270	8100000
5	Priska 2	1980	Nr.550 dt.26.08.1996	Nr.2978 / 2001	374057	2682000
6	Priskë	1980	Nr.101 dt.02.03.2001	Nr.2978 / 2001		2460000
7	Gërdec	1978	Nr.550 dt.26.08.1996	Nr.2978 / 2001	293200	297000
8	Manëz	1967	Nr.232 dt.15.05.1995	Nr.2978 / 2001	1317000	1281000
9	Mborje-Drenovë	1930	Nr.349 dt.07.07.2000	Nr.2978 / 2001	1100000	3698000
0	Selcë	1984	Nr.233 dt.15.05.1995	Nr.2978 / 2001	253563	125000
1	Babjen	1984	Nr.233 dt.15.05.1995	Nr.2871 / 2003	75236	478562
2	Krosnisht	1978	Nr.500 dt.13.08.1998	Nr.2682 / 1999	1342174	496000
3	Qenckë	1978	Nr.349 dt.07.07.2000	Nr.2682 / 1999	23000	69750
4	Bezhan	1972	Nr.233 dt.15.05.1995	Nr.2978 / 2001	1068519	7714000
5	Alarup	1959	Nr.500 dt.13.08.1998	Nr.2978 / 2001		1600000
6	Pretushë	1968	Nr.233 dt.15.05.1995	Nr.2809 / 2002	909300	2885500
7	Dardhas	1972	Nr.349 dt.07.07.2000	Nr.2978 / 2001	1076100	6087000
8	Vërdovë	1978	Nr.349 dt.07.07.2000	Nr.2978 / 2001	900000	2300000
9	Potgozhan	1985	Nr.233 dt.15.05.1995	Nr.2978 / 2001	105000	10869700
0	Homezh	1986	Nr.233 dt.15.05.1995	Nr.2978 / 2001	1377951	8174500
1	Memaliaj 1 dhe 2	1916	Nr.268 dt.08.06.1999	Nr.2978 / 2001	10126170	8200000
2	Memaliaj 3	1980	Nr.29 dt.15.01.1996	Nr.2978 / 2001		6500000
Shuma					29,250,038	129,995,012

THIRD STAGE, YEAR 1994 - TODAY

- Realization of privatization process (1994-vazhdim);
- New legal and administrative base based on free market rules (Albanian Mine Law 1994)
- Liberalization of exploitation licenses;
- Evaluation of all mines assets;
- Closure of non effective mines and monitoring them.

RE-OPENING MINES, OLDER MINES AND REHABILITATION

- The mining industry after the 90's of the last century was hit hard by the rapid political-social and socio-economic transformations, it suffered a drastic decrease in the volume of production, investments and income. Immediately there were significant shortages in manpower, investments, funds, means of circulation, means of transport, etc., which led this economy to complete collapse. Entire sectors and mines began to close one after another, causing a chain reaction in the entire economy based on the principle "with its own forces". The number of former closed or abandoned state mines is being significantly increased by another category of mines which, pursuant to Article 47 (Permit revocation) and other by-laws, have been revoked by order of the MIE.
- Mining entities whose mining permit has been revoked pursuant to articles 48 (Permit revocation procedure) and 49 (Obligations of the owner after permit revocation) or have declared the closure of mining activity in accordance with points 2, 3 and 4 of the article 53 (Procedure of closing the mining facility) and point 2 of article 54 (Procedure of post-mining monitoring of a mining facility), of Law 10304, dt. 15.07.2010, "On the Mining Sector in the Republic of Albania", as amended, must design, approve and implement the rehabilitation, closure and waste treatment plan.
- The problem remains the rehabilitation plan of these former mines and quarries and its implementation in fact, the way of implementation of this plan for the rehabilitation of the surfaces damaged by the mining activity, their final rehabilitation.

The challenges facing today's world, such as that of energy and that of the coal industry in particular, are becoming more and more complex, the interest and reactivation of former coal-stone mines....

- What are the coal reserves in the Republic of Albania?
- What role does coal play in energy needs?
- What are the perspectives of using coal in our country?

COAL DEPOSITS IN ALBANIA



The history of coal production in Albania includes mines and beneficiation plants. This industry is mainly located in the central, southeastern and southern part of Albania.

In our country, the coal reserves according to the closure projects are about 130 million tons of usable reserves and they are located in the following 3 main sources:

About 86% of the reserves are located in the Tirana area.

About 10% of the reserves are located in the Korça-Pogradeci area.

About 4.4% of the reserves are located in the area of Memaliaj.

Our coals are generally of the lignite type with an analytical calorific value of 2000–5400 kcal/kg (average 3200–3300). Some of the coal can be enriched after mining, producing concentrates with a calorific value up to 4500–5500 kcal/kg.

PEATS:

Peats are another source of energy and are located in the Maliqi reservoir, about 156 million m³, with 2200 kcal/kg. The characteristics of the peats of this place are:

- Calorific value: 2960 kcal/kg
- Humidity: 11%
- Volatile matter: 39%
- Sulfur presence: 1.1%

Bitumen and other bituminous substances

- In Albania, there are numerous occurrences of natural bitumen, related to the natural transformations of oil
- There is natural bitumen (sera) of very high quality in the source of Selenica, in the district of Vlora. The amount of geological reserves for this place is estimated at 520,000 tons.
- Bituminous coal is found together with natural bitumen at the source of Selenica. Reserves are around 3-4 million tons.
- Bituminous sands have been discovered in: Patos, Treblovë-Selenica, Selishtë, Kuçovo, Murriz, Kreshpan, Belishovë, Greshicë, Makaresht, Thumanë-Milot, etc. Estimated reserves are around 246 million tons.



POSSIBILITIES OF COAL INDUSTRY DEVELOPMENT

- To meet the energy needs of industrialized countries, world demand for coal has increased and is expected to increase.
- Historically, the increase in demand for coal has been linked to the increase in demand for electricity, which is the "engine" for GDP growth.
- Seeing the difficult energy situation of the country, the difficulties created by supplying consumers with only one source of energy, the need for coal mineral will be increasing starting from the fact that coal deposits in Albania are in suitable positions will compete with coal imports.
- We also emphasize that the reactivation of these mines mitigates to a considerable extent the social problems, which are acute in those areas where there are coal deposits.

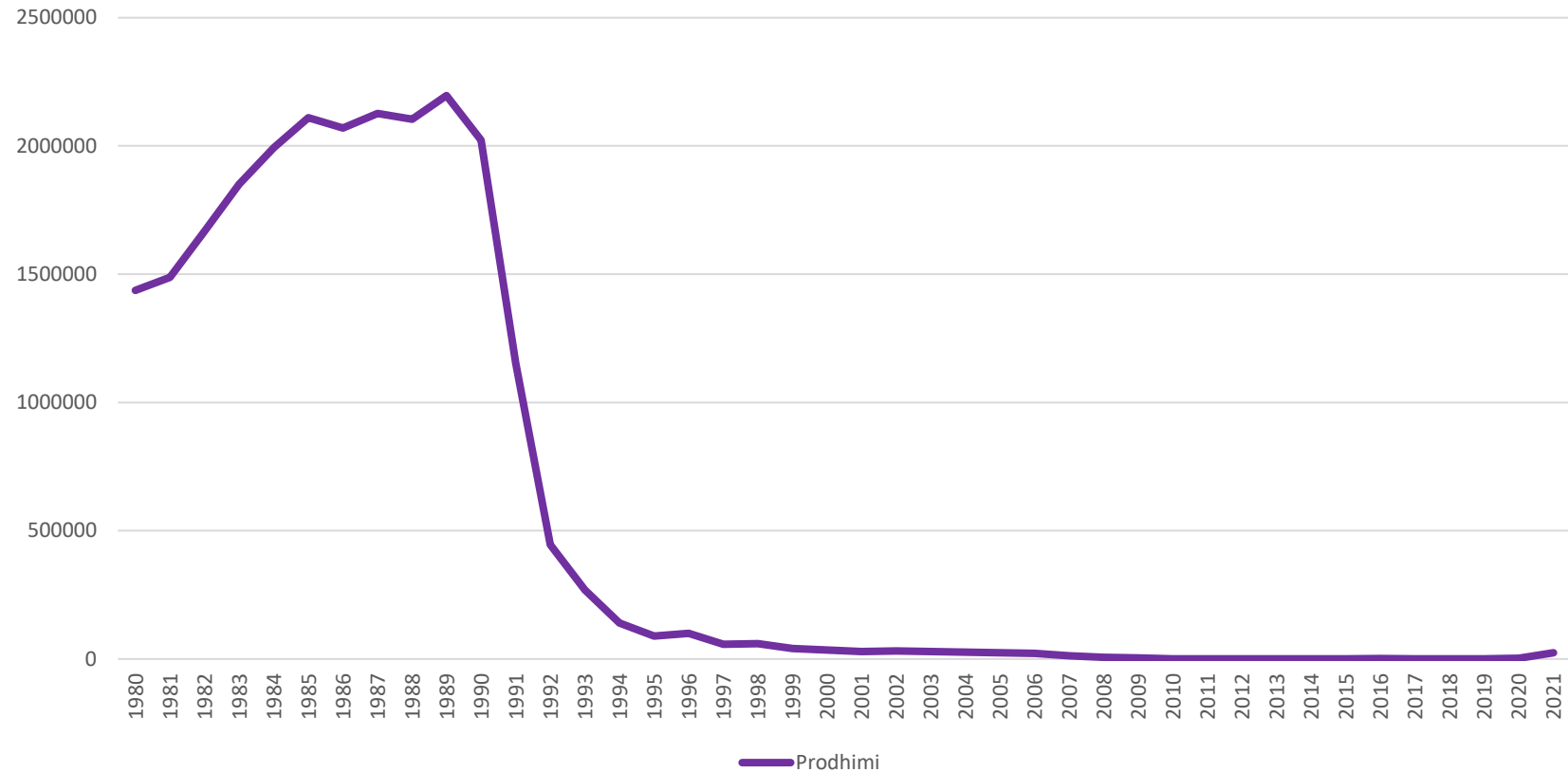
IMPORTANCE OF THE COAL INDUSTRY

Based on the existing state of mining and the economy as a whole, we think that the reactivation and realization of coal ore production is necessary today:

- ✓ Some branches of industry are expected to develop and use coal as a fuel, as a competitive material compared to other materials.
- ✓ Since the mines are in suitable positions, they will compete with coal imports .
- ✓ The improvement of mining and beneficiation technology will enable the production of coal with better quality and lower cost.

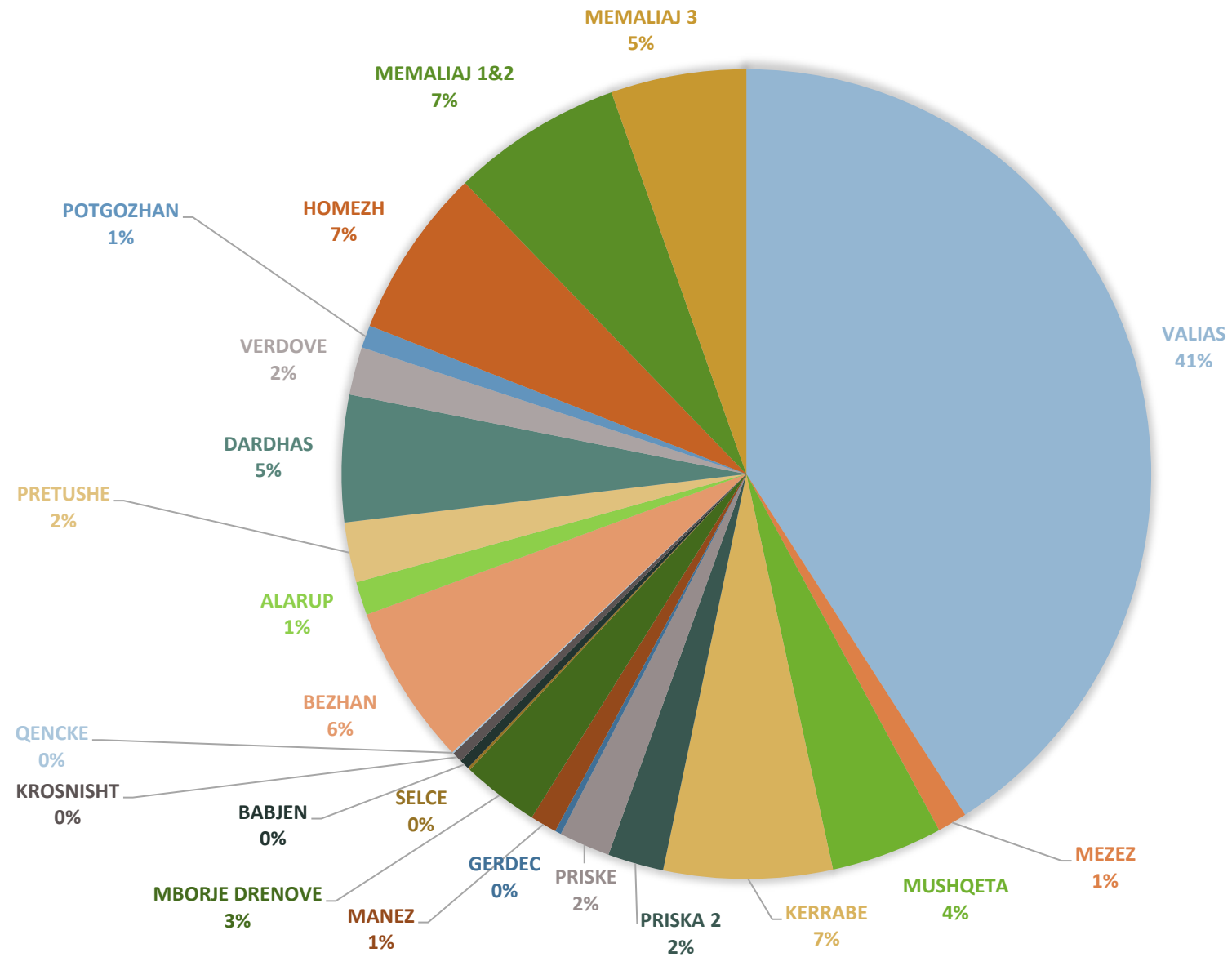
PRODUCTION OF COAL MINERAL

Production in years



AS IT HAS BEEN NOTED, WE HAVE A REVIVAL IN COAL MINING, INTEREST IS GROWING, ESPECIALLY AFTER THE ENERGY CRISIS THESE DAYS

USABLE RESERVES ACCORDING TO LOCATIONS



Valiasi Coal Mine open & Close process (1)

- The general surface of the mining field is 14 km², while the surface on which the mine has developed its activity until the moment of closure is 4.2 km² or 420 ha. The village of Valias is located above the source of Valias. The region is described by a dense network of regional and national highways.
- The opening of the Valias coal mine was carried out through vertical mining works (wells), specifically:
 - Main well
 - Auxiliary Well No.1
 - Auxiliary well No. 2
 - Airwell A1
 - Airwell A2 (First North Panel).
 - Air well A3 (Laknas-Panel i ii juga)

Valiasi Coal Mine open & Close process (2)

- From 1973 to June 1978 by N.N. Miniera. A total of 10,582 ml of works were opened, of which: 6924 ml of horizontal works, 1873 ml of inclined works, 1785 ml of vertical works.
- After the deepening of the wells up to the first level -113.00, in 1974 the opening of horizontal works began.
- Coal production began in 1978 and continued until 1994, 3,642,178 tons were produced with a quality of 2,190 kcal/kg and a 47% impoverishment coefficient.
- The Council of Ministers by decision No. 139, dated 20.03.1995, decided the liquidation (closure) of this mine and tasked the former ITNPM (Institute of Mineral Extraction and Processing Technology) to draw up the Technical Project for the Closure of the Valias Mine for the implementation of this the decision.
- The study envisages: Drowning of horizontal and steep works with water and filling of all columns of vertical wells with material (fractionated limestone gravel), building (or not) ambushes at their bottoms. This study was not implemented.

Valiasi Coal Mine open & Close process (3)

- The closing of the Valias mine was done according to project No. 2916 drawn up by the former ITNPM in 2004, with a budget of about 10,000,000 leke. (around 84000 USD)
- The variant of closing the mine was applied by plugging the mouths of the wells on the surface with metal pipes and concrete and surrounding them in the perimeter calculated according to the technical requirements with walls and metal profiles were placed on them at a certain distance, connected with wire networks. . The second closure of Valias with preventive project No. 2916 was carried out in 2004 and had a value of about 10,000,000 leke. (around 84000 USD)

Area under construction.....



COAL MINE – MEMALIAJ, TEPELENE (South Albania) (1)

The source of Memaliaj coal, Tepelene district, has been known since 1914, even in 1916, 8,000 tons of coal were produced. It was also produced during World War II. The first researches were done in the years 1950-1951 and continued until the years 1974 and 1987, where the geological reports of the place and the prospect of coal retention in the Syncline of Memaliaj are given.

The Memaliaj Coal Extraction Mining Enterprise was established in 1949, and from year to year the production increased. In 1972, near Well No. 1, due to technological continuity, the Coal Enrichment Factory was put into operation, in which the production of other sectors was also processed. The coal of this mine, in comparison to the coal fields of the Balkans, has a relatively high calorific value, but with a sulfur content above international standards, about 3% from less than 1% allowed.

Coal is sold to various consumers, such as: industrial consumers, for the production of building materials, municipal, etc. The main consumers have been the TECs and the Elbasan Metallurgical Plant. When the demands of these consumers have been increasing, the Memaliaj Mine has reached the maximum production of 540 thousand tons of coal per year, a figure that represented (25-30)% of the national production of coal.

COAL MINE – MEMALIAJ, TEPELENE (South Albania) (2)

Technical-mining conditions and quality of coal according to layers

Of the 12 layers found in the I, II, and III fields, the 5th, 6th, 7th, 2nd, 4th, and 4th layers are considered industrial.

Layer 5: The thickness ranges from 0.48-0.87m, with a strength of up to 2. The ceiling consists of organic breccia with a strength of 3-4, not very compact with average cementation. Therefore, the stability of the ceiling with plastic properties is not great and the bending is done 3-4 ml from the front of the lava. The thickness of the breccias is very small, up to 10 cm, which is lost in places and the coal layer comes into direct contact with massive clays with a gradual transition to siltstone. The floor consists of compact clay and siltstone in places

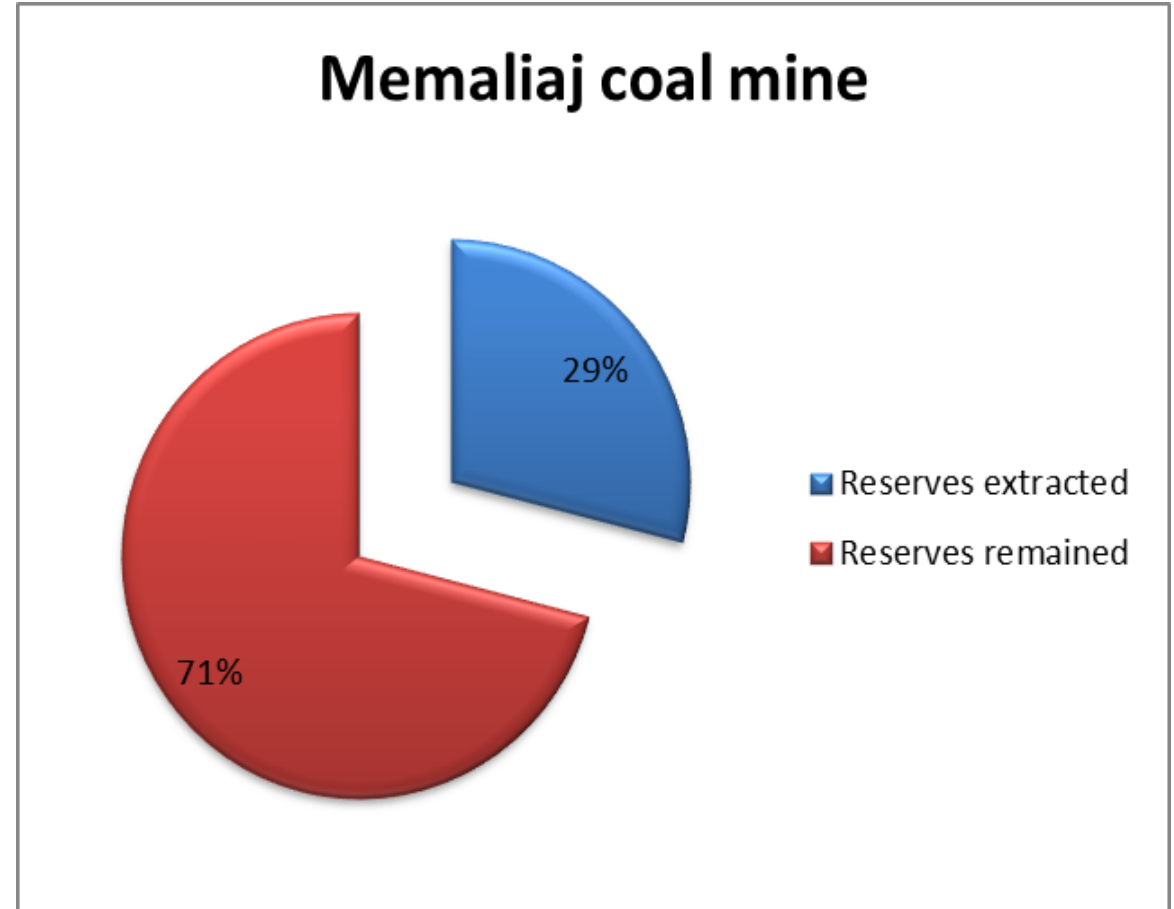
- Layer 6: The thickness of the layer varies from 0.61-.081 m with strength up to 3.m. It consists of one or two inserts from 0.10-0.27 cm. The ceiling has no plastic properties, it is made of siltstone, clay in places and false ceiling 0.10-0.20 m. It first weighs down and then breaks into blocks at a distance of 2-4 ml from the front of the lava. The floor is made of soft clays that swell and reduce the work space.

COAL MINE – MEMALIAJ, TEPELENE (South Albania) (3)

- Layer 7: The thickness of the layer ranges from 0.58-0.76 m with one or two 0.10-0.27 m intercalations, with a strength of 3-4. The ceiling consists mainly of clay with a false ceiling of 0.15-0.20 m. The floor appears strong and flat.
- The amount of geological reserves of layers V, VI and VII was 8,773,870 Tons.
- Layer 4: It has an unstable ceiling and breaks easily into irregular blocks, while the floor is somewhat stable. Regarding other technical properties, they are similar to layer 5. 6.
- Layer 4a: It has an unstable ceiling, its bending occurs 5m before the lava, while the collapse reaches 7-8 times the thickness of the coal layer.

Total production of coal in Memaliaj Mine

Year	Production (ton)	Quality k.kal/kg	Viti	Production (ton)	Quality k.kal/kg
1946	174	5530	1974	275425	4500
1947	90	5530	1975	324201	4150
1948	1059	3000	1976	324201	4050
1949	3389	5000	1977	382050	3950
1950	12023	5000	1978	409404	3800
1951	14050	5000	1979	434832	3900
1952	17358	4800	1980	464409	3500
1953	33156	4800	1981	456002	3400
1954	47613	4700	1982	453354	3500
1955	66519	4700	1983	460065	3500
1956	75917	4700	1984	475131	3500
1957	85888	4700	1985	483100	3500
1958	98537	4700	1986	471000	3500
1959	103006	4700	1987	481000	3500
1960	91450	4500	1988	510000	3500
1961	85961	4500	1989	521000	3500
1962	90135	4600	1990	511500	3500
1963	77661	4600	1991	219800	3500
1964	92021	4700	1992	102100	3500
1965	116284	4700	1993	60000	3500
1966	156216	4700	1994	5000	3500
1967	173772	4700	1995	3050	3500
1968	192400	4800	1996	25000	3500
1969	209205	4800	1997	6500	3500
1970	212254	4800	1998	9100	3500
1971	230534	4700	1999		
1972	242324	4700	2000		
1973	261504	4700	Totali	10,657,724	3918



COAL MINE – MEMALIAJ, TEPELENE (South Albania) (4)

Investments made for closing

- Pursuant to the order of the Ministry of Public Economy and Privatization No. 215 dated 09.06.1999, the project was drawn up for the closure of mining works in Mines No. 1 and No. 2 of the Memaliaj Coal Company - Tepelene.
- Depending on their characteristics, for each work, the most suitable method of closure has been designed, accompanied by the corresponding estimate.
- The vertical wells (eight in total) are temporarily closed, through a plug with a metal construction in their mouth and surrounding their area. The closing estimate for mine No. 1 and No. 2 is calculated at 12.68 million lek and for mine No. 3, 8.0 million lek, in total Memaliaj mine 20.68 million lek (around 175000 usd), which includes expenses for underground and surface disassembly, ventilation, transport, power work etc.
- Based on the closure project, the surface facilities are planned to be rented, partially demolished and sold.
- Within the contoured area of the influence of surface use, it was recommended not to carry out constructions of any category and the existing ones are subject to monitoring.





Closed and Rehabilitated mines



Rehabilitated Quarry



Closed and Rehabilitated well

Thank's for your attention