Business Development of the Goleshi Mine

Scoping Study Report

Implemented by

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

In cooperation with

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Abbreviations

%	Percent
°C	Degrees Centigrade
CP	Competent Person according to JORC 2012
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
E	East
EBS	Environmental Baseline Study
ECT	ECTerra
EIA	Environmental Impact Assessment
FN	FERRONIKELI
FS	Feasibility Study
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ha	hectares
ICMM	Independent Commission for Mines and Minerals
IL	Inros Lackner
IRR	Internal Rate of Return
JORC	Australasian Joint Ore Reserves Committee
km	kilometre
LOI	Loss of Ignition
LoM	Life of Mine
m	metre
MgO	Magnesium-Oxide
MgO3	Magnesite
mm	millimetre
N	North
NPV	Net Present Value
PAK	Privatization Agency of Kosovo
PBP	Payback Period
PEA	Preliminary Economic Assessment
PFS	Prefeasibility Study
PSD	Particle Size Distribution
QA/QC	Quality Assurance/Quality Control
ROM	Run of Mine
S	South
t/h	tons per hour
Mt	Million tons
tpa	tons per annum
UTM	Universal Transverse Mercator
VDR	Virtual Data Room
W	West
WGS	World Geodetic System
XRF	X-ray fluorescence spectroscopy

Cautionary Statement

The Scoping Study referred to in this report is based on low-level technical and economic assessments and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.

The Scoping Study is the first economic evaluation of the Goleshi project after the shutdown of the mine in early 2002 and is based on a combination of directly gathered project data together with assumptions borrowed from similar deposits or operations to the case envisaged.

The Scoping Study referred to in this announcement has been undertaken by Inros Lackner. It is a preliminary technical and economic study of the potential viability of the Goleshi magnesite mine. Further exploration and evaluation work and appropriate studies are required before the current owner or any new investor will be in a position to estimate and update any ore reserves or to provide any assurance of an economic development case.

The Scoping Study is based on the material assumptions outlined below. These include assumptions about the availability of funding. While Inros Lackner (IL) considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Scoping Study will be achieved.

The current owner or any new investor is strictly advised to carry out additional in-depth studies such as a detailed feasibility study establishing mineral resources and reserves as well accurate financial models based on the new findings, tests and data, before committing to any further investment.

The Goleshi mine has been previously operated to extract magnesite ore and has existing underground development and some infrastructure in place. The current owner or any new investor are advised to conduct further drilling to upgrade the exploration target tonnage and grade incorporated in the scoping study to measured & indicated mineral resources as appropriate, as well as test for strike and depth extensions. The results of the drilling will be used to progress further studies such as a feasibility study enabling financing of the full project.

The exploration target tonnage, grade and forward-looking statements referred to are based on information available to the company at the time of release and should not be solely relied upon by investors when making investment decisions. Confidence in the estimate of Exploration Target Tonnage is not sufficient to allow the results of the application of technical and economic parameters to be used for detailed planning in pre-feasibility or feasibility studies. For this reason, there is no direct link from an Exploration Target Tonnage to any category of Ore Reserves. To achieve the range of outcomes indicated in the Scoping Study and its financial model, funding in the order of 3.3 million € for further studies will likely be required.

IL cautions that mining and exploration are high risk, and subject to change based on new information or interpretation, commodity prices or foreign exchange rates. Actual results may differ materially from the results or production targets contained in this release. Further evaluation and appropriate studies relating to geology, mining and economics are required to increase the level of confidence prior to a decision to conduct mining being made.

The Company has concluded it has a reasonable basis for providing the forward-looking statements included in this announcement and believes that it has a reasonable basis to expect that the government or a new investor will be able to fund the development of the Project.

1 Executive Summary

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH commissioned consultancy services for "Development of a technical feasibility study and a business plan for the Goleshi mine as well as a concept to attract foreign investors" (the Project).

Based upon the available project information, resource reserve data and client requirements the study represents a Scoping Study (PEA) undertaken in accordance with requirements of the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' and "Joint Ore Reserve Committee code 2012" ("JORC 2012", "JORC Code 2012").

In terms of compliance with JORC 2012, the Goleshi project represents an early stage exploration project, with existing mine and process infrastructure, prospective for primary magnesite mineralisation.

The Scoping Study was based on the assessment of historic resources and immediate exploration potential considered as an Exploration Target in accordance with JORC (2012). There is a low level of geological confidence associated with an Exploration Target and there is no certainty that further exploration work will result in determination of Inferred, Indicated or Measured Mineral Resources or that the conceptual Production Target itself will be realised.

A Scoping Study is defined in Clause 38 of the JORC code 2012 as:

> "...an order of magnitude technical and economic study of the potential viability of Mineral Resources. It includes appropriate assessments of realistically assumed Modifying Factors together with any other relevant operational factors that are necessary to demonstrate at the time of reporting that progress to a Pre-Feasibility Study can be reasonably justified."

The location and an aerial view of the Goleshi mine is shown in Figure 1-1 a) and b).

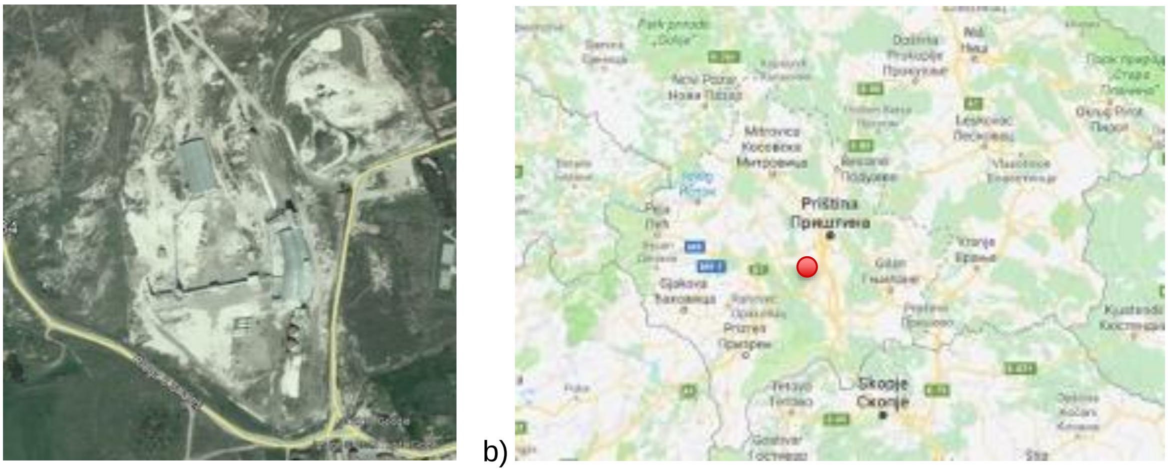
a)  b)

Figure 1-1 a) Aerial view of Goleshi mine b) Location (red dot) of Goleshi mine

Within the territory of Kosovo, there are considerable natural resources comprising of metal and non-metal deposits. The exploitation of these deposits plays a significant role for the country's economy. But due to lack of investments since the end of the war, the mining industry has declined substantially. Potential for exploitable mineral exists for lignite, lead, zinc, silver, chrome, magnesite and industrial minerals.

1.1 Location

The Goleshi mine is located in the vicinity of the village Magura (Municipality of Lipjan/Lipljan) at the Goleshi mountain (1,019 m) approximately 3 km to the west of Pristina Airport. The Magnesite ($MgCO_3$) mine at Goleshi was originally an open pit but moved to underground operations prior to its closure in 2002.

To establish the potential feasibility of rehabilitating the mine and to further assess its capacity, the GIZ has initiated the project with the overall objective to analyse the production capacity and the development of a business plan with the aim to attract foreign investors for the Goleshi mine and to re-start the operation, which is currently on a low level care and maintenance program.

1.2 Licence

The Goleshi magnesite mining licence is currently expired. The Board of the Independent Commission for Mines and Minerals (ICMM) approved the last effective 3 year extension of the Goleshi magnesite Research License (Figure 2-4 and Figure 2-5) on 28.10.2013 pursuant to Articles 30, 31, 32, 33, 35 and 36 of law no. 03 / L-163 for Mines and Minerals, as previously announced on 27 August 2010. The term of the last license was valid until 30.07.2016.

According to statements by the Privatisation Agency of Kosovo (PAK) and ICMM the renewal of the expired mining licence with ICMM will not cause any obstacles. An extension of a mining licence will be granted by ICMM on the documents that will be prepared by the management of the Goleshi Mine when required i.e. during feasibility phase of when a new investor is available. For the renewal a bank guarantee of € 110,000 will be required by the new licensee.

Additional information on the mining law of Kosovo can be found on the ICMM webpage: https://kosovo-mining.org/publications/legislation/?lang=en

The Independent Commission for Mines and Minerals is an independent agency determined by the Constitution of the Republic of Kosovo.

The ICMM acts in the public interest and independently exercises the competencies and functions granted under the law on mines and minerals. The ICMM shall regulate mining activities in Kosovo in accordance with the law No. 03/L-163 on Mines and Minerals, the law No. 04/L-158 on Amending and Supplementing the law 03/l-163 on Mines and Minerals, sub normative acts issued pursuant to the law on Mines and Minerals, and the Mining Strategy.

The Privatization Agency of Kosovo (PAK) is established as an independent public body, which shall carry out its functions and responsibilities with full autonomy, pursuant to the Assembly of Kosovo law No.05/L-080 on amending and supplementing the law No. 04/L-034 as amended and supplemented with the law No.04/L-115 on the ending of international supervision of independence of Kosovo.

In summary, PAK is a Kosovo agency tasked with vending off historic government assets, including mining and mineral titles. The authors understand from communication with PAK and GIZ that the mining licence of Goleshi will be renewed and activated during the next months.

1.3 History

The first data on the magnesite veins on the ultramafic massif at Goleshi were encountered as early as 1923 and is estimated to be the first discovery of magnesite in Kosovo.

Just before the Second World War started, an underground exploitation program began. During the war, the mine was taken by the Italians, and then the Germans. After the liberation, the mine was restored and put into operation in 1945.

From operational records and discussions with site personnel it is understood mining and main production ceased in 1997, with the mine being put on care and maintenance in 2002. However, the mine still produced some crushed rock of dunite using the crushing and screening facilities.

The first data on the geological structure of the Goleshi massif was provided by G. Hissleitnel (1951), S. Karamata and V. Knežević (1956), B. Milovanović and S. Karamata (1957), while the most complete data on geological structure of the Goleshi massif was delivered by the team from the Institute for Geological and Geophysical Exploration in Belgrade, under the direction of V. Terzin.

Exploration is reported to have continued on from 1985 to 1990 in the form of underground drive sampling and mapping, surface and underground drilling and inter-level raise development sampling and mapping. Mining continued between 1985 and 1997 on the 4 main levels and developed sub-levels.

1.4 Regional and Deposit Geology

The regional geology consists of various varieties of peridotite and residues of the weathering crust on peridotites, which have relatively little distribution. South of the deposit, peridotites are in contact with a diabase-chert formation and in the eastern parts of the terrain, isolated tertiary formations are observed.

The oldest rocks in this terrain belong to a diabase-chert formation, in which the Middle and Upper Jurassic is the most distinguished. The Diabase-Chert Formation is mostly built of phyllite and sericite schists and quartz metaconglomerates and metasandstones have considerably less distribution. The peridotite lies across the diabase-chert formation and the peridotite is of Upper Jurassic age. The peridotite forms Goleshi massif and from a metallogeny point of view, they represent the most interesting rocks in the winder area.

Mineralogical tests, performed on several specimens, have shown that these rocks are made of olivine, enstatite and small amount of monoclinic pyroxene and accessory chromite. Grains are different in size, and among them the largest is enstatite, and sometimes olivine. Olivine is the predominant mineral, accounting for up to 90% when the rock becomes enstatite-dunite. In fresh rock, it is light green in colour and there is very little presence of monoclinic pyroxene. It usually makes about 1% of the rock, very rarely 3%. Chromite is present in negligible quantities, usually less than 1%.

Due to the special significance of the weathering crust at the magnesite deposit, more detail is provided on the products of peridotite in surface conditions, namely of the peridotite weathering crust, which is preserved in certain parts of the Goleshi massif. The most complete profile of the weathering crust was preserved at Glavica where the upper horizons of the weathering crust had been partially observed which have eroded in other places.

In the profile of the weathering crust, looking top to bottom, the following is found at the locality Glavica:

a)	Ochers	>10m
b)	Ochers pervaded with opal (birbirite)	5-10m
c)	Nontronite	5-10m
d)	Leaching and cerolite serpentinite with mesh magnesite	35-50m
e)	Fresh dunite	
	Overall thickness of weathering crust	60-80m

Vein magnesite and other linear forms of the weathering crust can go to much greater depths, in excess of 300 m.

East and south-east rims of the Goleshi massif were built of Pliocene sediments that overlay older rocks. These sediments are deposited in the Kosovo basin and are mostly represented by: sand-clay, clay, sand and terrace gravels.

To this date, no occurrences of sediment magnesite have been found in these sediments, but considering the geological conditions near Kosovo's lakes, as well as observations of a peridotite weathering crust, all conditions for sediment magnesite genesis exist and should represent an exploration target.

The Goleshi magnesite deposit is in the Goleshi ultramafic massif, covers an area of about 15 km². Magnesite mineralisation within the ultramafic massif forms a few separate concentration centres as: Magura (the most important), Medvedce, Mirena, Stankovci and Ariljacha (Figure 5-3). These concentration centres altogether form the Goleshi magnesite deposit. Magnesite mineralization forms the following structural-morphological types: simple veins, complex veins (with apophyses), irregular lenticular bodies, and stockwork (Figure 5-4).

Magnesite veins (simple and complex) have regular, tectonically predetermined orientation because they were formed by filling of open fractures (faults and cracks) in the Goleshi ultramafic massif. They form two perpendicular systems: the main one of approximate N-E strike and 50-70 dip towards E, and the second of approximate W-E strike and a dip of 40-50 towards N (Figure 5-3).

The greatest part of magnesite veins that have been mined or investigated have a thickness of 0.5-3 m while its maximal value is about 20 m (Magura 1). Vein length mostly ranges between 100 m and 500 m, while its maximum is about 1,200 m (Magura 1). Veins spread into depth ranges between few tenths to a couple hundred meters, while the maximum depth spread is above 300 m (Magura 21), see Figure 5-5.

The most significant magnesite concentration appears in the shape of lodes and are genetically bound to the dominant system of stress. Most of the magnesite veins have a general strike of north-south, and dip towards the east at an angle of 50-600. A smaller number of magnesite veins belong to the second system, which have strike of east-west with a dip towards the north, at about 400.

Most of the magnesite veins, which are under exploration, have an average thickness of 0.5-3m, with a maximum thickness of 18m. The length of the magnesite veins also varies and is mostly about 100-500m. The longest known magnesite vein, Magura no. 1 is around 1200m and the down dip extent has been explored up to 300m but may extend much further. Boundaries of magnesite veins towards the surrounding peridotite are very clear, except the serpentinization is more pronounced in the parts of massif that are not mineralized. Inclusions of serpentinite in magnesite veins are very frequent, and their size starts from several centimetres up to larger lenses of several meters, but always encased with magnesite.

Bifurcation of magnesite veins is very frequent, both in strike and in dip. The underlying bed of magnesite veins in the Goleshi deposit usually consists of harzburgite that are mostly fresh or partially altered by serpentinization, while the overlaying cover is mostly represented by a brown serpentinite.

The most common structural form of magnesite veins in Goleshi deposit are veins with apophysis and irregular with lenticular shapes. Detailed exploration determined that in the Goleshi deposit, there are four main texture types of magnesite veins: clean, monolithic veins, strip magnesite veins, breccia magnesite veins and serpentinized breccia cemented with magnesite.

Magnesite veins in Goleshi contain magnesite that is very firm, sturdy but brittle, white in colour, rarely yellowish and the fractures are irregular. Microscopically, it looks amorphous, and under the microscope shades of interferent colours were observed and based on that it was concluded that it is cryptocrystalline magnesite. A kidney-shaped form of magnesite was also observed, which indicates that this mineral was originally leached in form of a gel, and later on it received the cryptocrystalline structure.

The magnesite from the Goleshi deposit is dense, cryptocrystalline to microcrystalline. It is snow white when is clean but could be yellowish or reddish owing to limonite staining. The main impurities in magnesite are silica, lime and sesquioxides (R2O3) in case of increased contents. Mineralogical examinations of the past showed that carriers of these impurities are the following minerals: silica - opal, calcedony, quartz, sepiolite and serpentine; lime and dolomite; iron - magnetite and limonite.

Silica (opal, chalcedony and quartz) occurs in form of crack and cavity fillings in magnesite. In uppermost parts of some veins, silica could prevail and form a "hat" above magnesite. These "silica hats" often make pronounced reefs on the surface.

Dolomite appears in the way similar to silica but is less abundant. Sepiolite also appears in the form of crack and cavity fillings in magnesite but in some places in form of thicker veins.

Chemical examination of great number (few hundreds) of magnesite samples from the Goleshi deposit, showed that contents of the main components are within following limits:

- MgO 44.00-47.50%
- CaO 0.20-1.50%
- SiO2 0.20-5.00%
- R2O3 0.20-1.80% R2O3 = Al2O3 + Fe2O3 + FeO

Loss-on-Ignition (LOI) statistics

Of a few hundred chemical analysis of Loss of Ignition (LOI) had been determined as follows:

- LOI 48.00-51.50%

1.5 Historical Resources and Reserves

Historic resource and reserve estimates for the project have been taken from the report entitled "*Complex organization of associated labour magnohrom – refractory materials – Kraljevo Work Organization Magnesite Mine and Industry, Goleshi – Magura, May 1985*" and the 2008 research report titled "*Istrazivanje, otkopavanje, Prerada Rude Magnezita I Dunita, Mart, 2008, Magur*a" completed by two experts from Magnohrom Kralevo, and an expert of MIM GOLESHI", report prepared in Serbian language and summarised in 2018 report in English language "*Current Geological Reserves Of Raw Magnesite Ore in MIM GOLESHI - I with short explanation*".

The 2008 study is understood to represent the most recent review and evaluation of remaining resources for the project.

It is important to note that these are historical estimates and are not reported in accordance or compliance with JORC code 2012 or similar CRIRSCO aligned international reporting codes for mineral projects, and do not provide evidence of their existence on the project.

Historic resources and reserves for the project are understood to have been estimated in 1968, 1971, 1976 and 1979.

These reserves were verified by the Committee for Verification of Mineral Resources Reserves of the Secretariat of Economy and Executive Council of the FR Serbia and later Kosovo. Below tables show the development of historic reserves from 1968 to 1979.

Table 1-1 1968 Reserves and Categories

Reserves and categories				
A	B	A+B	C-1	A+B+C-1
653,150	1,468,763	2,121,903	439,950	2,561,863

Table 1-2 1971 Reserves and Categories

Reserves and categories				
A	B	A+B	C-1	A+B+C-1
1,040,163	1,159,781	2,199,944	464,697	2,664,641

Table 1-3 1976 Reserves and Categories

Reserves and categories				
A	B	A+B	C-1	A+B+C-1
868,496	1,098,737	1,967,233	481,942	2,449,175

Table 1-4 1979 Reserves and Categories

Reserves and categories				
A	B	A+B	C-1	A+B+C-1
656,536	764,807	1,421,343	880,628	2,301,971

According to the reports, sampling and estimation of the deposit was done in accordance with applicable regulations.

The author interprets the regulations for exploration, estimation and reporting of mineral resources and reserves as similar to the Russian GKZ.

1.6 1984 Historical Resources and Reserves Estimates

This section has been modified from the report entitled *“Complex organization of associated labour magnohrom – refractory materials – Kraljevo Work Organization Magnesite Mine and Industry Goleshi – Magura, May 1985”*, and provides the most detailed explanation of the Goleshi deposit modelling and estimation inputs and methodologies.

It is important to note that these are historical estimates and are not reported in accordance or compliance with JORC code 2012 or similar CRIRSCO aligned international reporting codes for mineral projects, and do not provide evidence of their existence within the project.

The estimation of ‘ore reserves’ was done using the method of geological blocks or a polygonal block model. Deemed as the most suitable for this type of narrow vein deposit.

Polygonal blocks outlined in long section for each vein were filled with the average grade from sampling for that area based on channel and drilling data and then the block volumes and tonnes were added up to give a total grade-tonnage report, as shown in Table 1-5 Magnesite Reserves at Goleshi as of 31/12/1984 below.

According to the regulation on classification and categorization of reserves of solid mineral raw material and recordkeeping – “Official Gazette SFRY”, no. 53, dated 19/10/1979 the Goleshi deposit falls into the II group of first sub-group of magnesite deposits.

The categorization of magnesite ore reserves was done based on the above regulation. As most of the exploration works was done before enacting the newest regulations, the timeframe between certain programmes will not fully satisfy applicable regulations. However, the Goleshi mine was producing magnesite for more than 50 years and some estimation procedures have been observed.

The resource categories were determined based on data from exploration works (drill holes, galleries and raises), as required by the regulations.

The author interprets the regulations for exploration, estimation and reporting of mineral resources and reserves as similar to the Russian GKZ system.

Table 1-5 Magnesite Reserves at Goleshi as of 31/12/1984

Vein	A	B	A+B	C1	A+B+C1
Magura no. 1 with branches	211.434	114.937	326.371	126.751	753.122
Magura no. 20	93.831	167.722	261.553	154.583	416.136
Magura no. 14	55.645	43.899	99.544	67.748	167.292
Magura no. 15	47.626	150.433	198.059	420.516	618.575
Magura no. 30	-	33.505	33.505	78.292	111.797
Magura no. 29	-	18.453	18.453	21.878	40.331
Magura no. 22 – underlying, overlying and south branch	62.915	86.338	149.253	126.434	275.687
Magura no. 21 and 21a	30.596	-	30.596	40.021	70.617
Magura no. 28	9.227	9.396	18.623	3.107	21.730
Magura no. 26	5.278	7.349	12.627	7.349	19.976
Magura no. 27	5.957	5.464	11.421	3.642	15.063
Mirena no. 2	16.652	1.827	18.479	913	19.392
Mirena no. 3	-	16.146	16.147	870	17.017
Mirena no. 4	-	38.287	38.287	3.977	42.264
T o t a l :	539.161	693.757	1,232.918	1,056.081	2,288.999

1.7 Reserves in Pillars and Panels

The report entitled *"Complex organization of associated labour magnohrom – refractory materials – Kraljevo Work Organization Magnesite Mine and Industry Goleshi – Magura, May 1985"* suggests that there is potential ROM supply contained within the pillars at the mine, which are not accessible until the end of the mine and final retreat.

These reserves are shown in Table 1-6 Reserves contained with pillars at Goleshi and are also included in the final total of reserves but should be considered "off-balance" as they are not accessible until the mine closes.

Table 1-6 Reserves contained with pillars at Goleshi

Vein	Level	Block	Category of reserve in tons		
			A	B	A+B
1	2	3	4	5	6
Magura no. 1	IV to surface	1,2,3,	15,536	-	15,536
	X – IV	4-13	22,592	-	22,592
	XIV – X	14-18	26,172	-	26,172
	XX – XIV	21-26	40,875	-	40,875
TOTAL	"	"	105,185	-	105,185
Magura no. 20	VI to surface	2	4,698	-	4,698
	XIV – 545	14,38	6,344	-	6,344
TOTAL	"	"	11,042	-	11,042

Magura no. 14	III to surface 526 – III 480 – 526	5,6 14,15 17	7,685 6,585 3,300	- - -	7,685 6,585 3,300
TOTAL	“	“	17,570	-	17,570
Magura no. 15	III to surface	17	5,655	-	5,655
TOTAL	“	“	5,655	-	5,655
Magura no. 21	XIV – 545 XX – XIV	3 6	16,321 10,278	- -	16,321 10,278
TOTAL	“	“	26,599	-	26,599
Magura no. 21a	XIV – 545	2,3	3,997	-	3,997
TOTAL	“	“	3,997	-	3,997
Mirena no. 2	690 to surface 690 below	1 2	16,652 -	 1,827	16,652 1,827
TOTAL	“	“	16,652	1,827	18.479
Mirena no. 3	720 – 690	1,2,3,4	-	16,147	16,147
TOTAL	“	“	-	16,147	16,147
Mirena no. 4	730 to surface 730 below	1 2	- -	31,398 2,750	31,398 2,750
TOTAL	“	“	-	34,148	34,148

1.8 2008 Historical Resources and Reserves

This section has been modified from the 2008 research report titled *“Istrazivanje, otkopavanje, Prerada Rude Magnezita I Dunita, Mart, 2008, Magura completed by two experts from Magnohrom Kralevo, and an expert of MIM GOLESHI”*, report prepared in Serbian language and summarised in 2018 report in English language “*Current Geological Reserves Of Raw Magnesite Ore in MIM GOLESHI - I with short explanation*”.

The 2008 study is understood to represent the most recent review and evaluation of remaining resources for the project.

It is important to note that these are historical estimates and are not reported in accordance or compliance with JORC code 2012 or similar CRIRSCO aligned international reporting codes for mineral projects, and do not provide evidence of their existence on the project.

The report presents total pre-mining geological reserves of Magnesite (MgCO3), according the exploration work from year 1964 – 1990 of approximately 4.25 million tonnes in A, B and C1 categories as per Table 1-7. The average grades for the resource/reserve tonnages are not presented.

Table 1-7 Historic geological reserves pre-mining

Category	Quantity (t)
A	950,000
B	1,300,00
A + B	2,250,00
C_1	2,000,000
A + B + C1	**4,250,000**

The 2008 study considers depletion through mining operations up to 1997, and presents current historical resources and reserves by horizon, and as total remaining, as presented in Table 1-8 to Table 1-13 below.

2008 historic magnesite reserves, above horizon XX, P = 438 m, are given in Table 1-8.

Table 1-8 Historic magnesite reserves above horizon XX, P = 438 m

Category	Quantity (t)
A	426,833
B	459,387
C_1	615,460
A + B + C1	**1,501,680**

2008 historic magnesite reserves under horizon XX, P = 438m (reserves of horizon XXI), are given in Table 1-9.

Table 1-9 Historic magnesite reserves under horizon XX, P = 438m

Category	Quantity (t)
A	91,850
B	201,976
C_1	474,776
A + B + C1	**768,602**

2008 historic magnesite reserves (above horizon XX and below horizon XX), are given in Table 1-10.

Table 1-10 Historic magnesite reserves

(Above Horizon XX and Below Horizon XX)

Category	Quantity (t)
A	518,683
B	661,363
C_1	1,090,236
A + B + C_1	**2,270,282**

2008 historic magnesite reserves in open pit “SHPATI” are given in Table 1-11.

Table 1-11 Historic magnesite reserves in open pit “SHPATI”

Category	Quantity (t)
A	25,599
B	35,507
C_1	68,390
A + B + C1	**129,496**

2008 total historical magnesite reserves above horizon XX, below horizon XX and open pit "SHPATI" are given in Table 1-12.

Table 1-12 Historical magnesite reserves

(Above Horizon XX, Below Horizon XX and Open Pit "SHPATI")

Category	Quantity (t)
A	544,282
B	696,870
C_1	1,158,626
A + B + C1	**2,399,778**

In the 2008 report, the total remaining historic resources and reserves are also presented with mechanical losses included. The 2008 total geological magnesite reserves (above horizon XX, below Horizon XX and open pit "SHPATI", after reducing quantity by 1.72 % (mechanical losses) are given in in Table 1-13.

Table 1-13 Geological magnesite reserves

(Above Horizon XX, Below Horizon XX and Open Pit "SHPATI", After Reducing Quantity by 1.72 %)

Category	Quantity (t)
A	534,927
B	684,892
C_1	1,138,712
A + B + C1	**2,358,533**

Estimated resources and reserves are presented below along with grade information. Tonnages incorporate -1.72% mechanical losses.

1.9 Exploration

This section has been compiled from the review of limited available historic scanned hardcopy plans, sections and program reports, and summary reports entitled *"complex organization of associated labour magnohrom – refractory materials – Kraljevo Work Organization Magnesite Mine and Industry Goleshi – Magura, May 1985"*, and March 2008 research study report *"Istrazivanje, otkopavanje, Prerada Rude Magnezita I Dunita, Mart, 2008, Magura, made by two experts from Magnohrom Kralevo, and an expert of MIM GOLESHI"*, document is written in Serbian language.

Documentation suggests that there are at least 19 drill holes for around 5,800m in the project area. However, little information on these holes has been found to date and cannot be verified.

There is no precise data regarding the volume and type of the exploration works performed at Goleshi before 1964, and no comment can be made. Exploration data from 1964 is discussed below.

In Table 1-14 below, the exploration works completed between 1964 and 1968 are presented. Exploration works are presented in Table 1-14 Exploration works from 1964 to 1968.

Table 1-14 Exploration works from 1964 to 1968

	Type of work	

Year	Drives	Raise	Drill Hole	Chem. analysis	Value of work
1964	1,000m	-	-	-	350,000
1965	1,050m	-	-	-	520,533
1966	875m	120m	-	-	912,276
1967	416m	1,195m	-	171 pcs	1,115,534
1968	996m	106m	391m	56 pcs	837,630
TOTAL:	4,337m	1,421m	391m	227 pcs	3,735,973 Din

Exploration of magnesite veins at Goleshi continued from 1968 to 1971, with the exploration works completed and amount of investment are presented in Table 1-15 Exploration works from 1969 to 1971 below.

Table 1-15 Exploration works from 1969 to 1971

	Type of work				
Year	Drives	Raise	Drill Hole	Chem. analysis	Value of work
1969	996m	142m	1,827.00m	85 pcs	1,025,020
1970	979m	382m	164.50m	50 pcs	1,025,050
1971	463m	472m	593.50m	20 pcs	943,065
TOTAL:	2,438m	996m	2,585.00m	155 pcs	2,993,135 Din

Exploration works continued from 1972 to1975, albeit at a somewhat lower intensity. The works carried out are shown in **Fehler! Verweisquelle konnte nicht gefunden werden.**.

Table 1-16 Exploration works from 1972 to 1975

	Type of work				
Year	Drives	Raise	Drill Hole	Chem. analysis	Value of work
1972	633,5m	285.3m	605.50m	40 pcs	1,069,250
1973	396,5m	113.8m	236.80m	30 pcs	1,667,250
1974	459,9m	184.5m	766.00m	40 pcs	2,455,933
1975	710,5m	321.5m	313.10m	15 pcs	3,100,370
TOTAL:	2,200.4m	905.1m	1,921.40m	125 pcs	8,292,803 Din

In the period from 1975 to 1979, the intensity of the exploration works in the Goleshi Mine significantly increased, and this period saw more exploration activity than any other period previously. The volume and value of the exploration work is presented in Table 1-17 below.

Table 1-17 Exploration works from 1976 to 1979

	Type of work		
Year	Drives	Raise	Value of work
1976	1,153.20m	327.70m	8,930,000
1977	1,823.00m	726.60m	13,817,000
1978	1,545.10m	560.80m	13,852,000
1979	867.50m	270.20m	6,361,000

TOTAL:	5,388.80m	1,885.30m	42,961,000 Din

There was limited exploration completed in 1980. However, between 1981 and 1984, the aggressive exploration works continued and the work accomplished is shown in Table 1-18.

Table 1-18 Exploration works from 1980 to 1984

	Type of work		
Year	Drives	Raise	Value of work
1980/81	538m	408m	10,400,000
1982	1,233m	28m	23,000,000
1983	1,660m	317m	40,000,000
1984	1,400m	500m	45,000,000
TOTAL:	4,831m	1,502m	118,400,000 Din

Sampling from the development drives was done using the method of “coarse furrow” or channel sampling with an approximate width of 10 cm. The channel was done over the entire thickness of the vein, where possible and perpendicular to the mineralisation. However, the channel sampling was done selectively, i.e. only in magnesite, while the larger barren inclusions of serpentinite were omitted.

A summary of exploration work metrics taken from the March 2008 research study report is provided below in Table 1-19.

Table 1-19 Exploration work in Year 1964 – 1990

Year	Corridors (m)	Raises (m)	Holes (m)	Chemical analyses (pieces)	Value of jobs (USA $)
1964 - 1970	6,312	1,945	2,382	362	2,830,650
1970 - 1980	8,051	3,262	2,514	330	3,824,900
1980 - 1990	9,000	2,200	1,000	750	3,697,000
1964- 1990	23,363	7,407	5,896	1,442	10,352,550

1.10 Underground Exploration Drives and Raises

Review of available scaled hardcopy level plans and sections provide a reasonable insight into historic underground drive and raise exploration data collected, location points and interpretation for use as input to subsequent mineral resource and reserve estimation and mine planning.

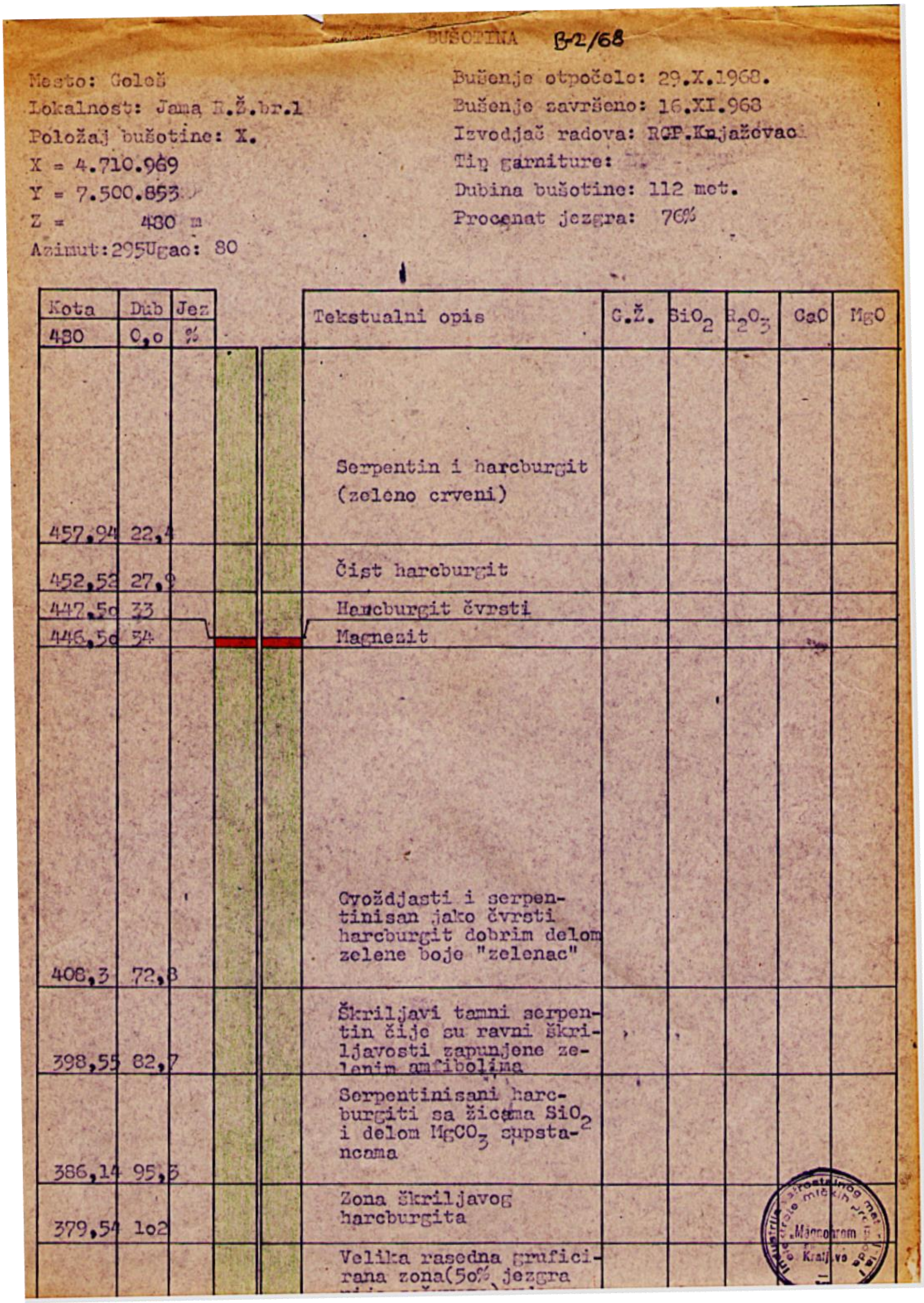
Historic level plans and sections for drive and raise sampling record the ID and location of regular sample points (assumed to be channel samples across the vein), the vein thickness and the associated chemical analysis as a table.

Hardcopy plans also show interpreted magnesite vein, serpentinite host unit, channel/probe sample location and vein thickness. Location of exploration raise between level XXI 408m and the level above also shown.

It is the authors opinion that the historical exploration and interpretation work, although at present unverified in terms of accuracy of location control, thickness measurements and analytical results appear to be of a very good standard.

1.11 Drilling

Reports suggest that there are at least 19 drill holes for over 5,800m at the project area. Hole numbering observed on hardcopy plans, sections and logs suggest a greater number than 19 holes.


BUŠOTINA B-2/68

Mesto: Goleš
Lokalnost: Jama R.Ž.br.1
Položaj bušotine: X.
X = 4.710.969
Y = 7.500.853
Z = 480 m
Azimut: 295 Ugao: 80

Bušenje otpočelo: 29.X.1968.
Bušenje završeno: 16.XI.968
Izvodjač radova: RGP.Knjažčvac
Tip garniture:
Dubina bušotine: 112 met.
Procenat jezgra: 76%

Kota	Dub	Jez %	Tekstualni opis	G.Ž.	SiO_2	R_2O_3	CaO	MgO
480	0,0							
457,94	22,4		Serpentin i harcburgit (zeleno crveni)					
452,53	27,9		Čist harcburgit					
447,50	33		Harcburgit čvrsti					
446,50	34		Magnezit					
408,3	72,8		Gvoždjasti i serpentinisan jako čvrsti harcburgit dobrim delom zelene boje "zelenac"					
398,55	82,7		Škriljavi tamni serpentin čije su ravni škriljavosti zapunjene zelenim amfibolima					
386,14	95,3		Serpentinisani harcburgiti sa žicama SiO_2 i delom $MgCO_3$ supstancama					
379,54	102		Zona škriljavog harcburgita					
			Velika rasedna grufici-rana zona(50% jezgra					

Figure 1-2 An example plan and drill hole log

At present, only five drill logs and several plans have been located within the historic data, see Figure 1-2 above.

There is no geotechnical data associated with the drill logs and no accompanying procedures or other documentation.
A review of available hardcopy plans and sections reveal a number do show drill hole collar, trace and interpreted contact information.

With such limited data, it is impossible for the Competent Person (CP) to comment on the accuracy and reliability of drilling procedures and results. However, the author has no reason to disbelieve the recorded drill data and interpretations provided and reviewed, however at the current time uncertainty exists as to exact location and trace of historical drilling, and associated geotechnical, geological and analytical data.

1.12 Sample Preparation, Analyses, and Security

There are currently no sample preparation procedural descriptions, associated data or independent analysis data to verify the raw and combined calculated mean analytical values for the deposit. It is impossible for the Competent Person to comment on the sample preparation, analyses, and security of data.

1.13 Mineral Resource Estimates

There are currently no resources defined in accordance with JORC 2012 for the project.

1.14 Mineral Reserve Estimates

There are currently no reserves defined in accordance with JORC 2012 for the project.

1.15 Geology, Resources and Historic Mining Interpretations and Conclusions

The concession, which incorporates the Goleshi deposit represents a structurally controlled hypogene epi/mesothermal magnesite deposit.

Magnesite mineralisation within the ultramafic massif forms a few separate concentration centres as: Magura (the most important), Medvedce, Mirena, Stankovci and Ariljacha. These concentration centres altogether form the Goleshi magnesite deposit. Magnesite mineralization forms the following structural-morphological types: simple veins, complex veins (with apophyses), irregular lenticular bodies, and stockwork. Within structural-morphological types, the following textural types of magnesite mineralization occur: massive, banded, and brecciated.

Magnesite veins (simple and complex) have regular, tectonically predetermined orientation because they were formed by filling of open fractures (faults and cracks) in the Golesh ultramafic massif. They form two perpendicular systems: the main one of approximate N-E strike and 50-70 dip towards E, and the second of approximate W-E strike and a dip of 40-50 towards N.

The greatest part of magnesite veins that have been mined or investigated have a thickness of 0.5-3 m while its maximal value is about 20 m (Magura 1). Vein length mostly ranges between 100 m and 500 m, while its maximum is about 1,200 m (Magura 1). Veins spread into depth ranges between few tenths to a couple hundred meters, while the maximum depth spread is above 300 m (Magura 21).

The focus of the assessment rests upon the Magura deposit for which historic hardcopy data, and historic production records have been made available.

Previous soviet-style exploration, although limited appears reasonable, systematic and based on a solid understanding of the geology. This, along with a long history of production has enabled the interpretation of reasonable ‘hard-copy’ model of mineralisation within deposit area with the result that the structural control on mineralisation has become apparent.

At this moment the quality of the sampling programs remains unclear due to missing sampling protocols and description of sampling procedures. Although it was selective, there are no QC sample or duplicate results for comparison and assessment. Sample lengths are unknown and how this relates to the omission of the waste.

In terms of resources and reserves, at present no resources or reserves are currently defined in accordance with JORC code 2012 for the Goleshi project.

The authors interpret historic resources and reserves to have been estimated, optimised and classified in a similar way to the Russian GKZ system. Figure 1-3 shows the conversion of the GKZ system to international reporting systems.

A broad equivalence between the Russian GKZ and International classifications may be presented as follows.

Russian	International reporting code, JORC etc
A, B	Proved reserve/measured resource
C1	Proved or probable reserve/indicated resource
C2	Probable reserve/indicated resource/inferred resource
P1	Inferred resource
P2	Reconnaissance mineral resource (as found under UN Framework Classification for Reserves/Resources, code 334)
P3	No equivalent

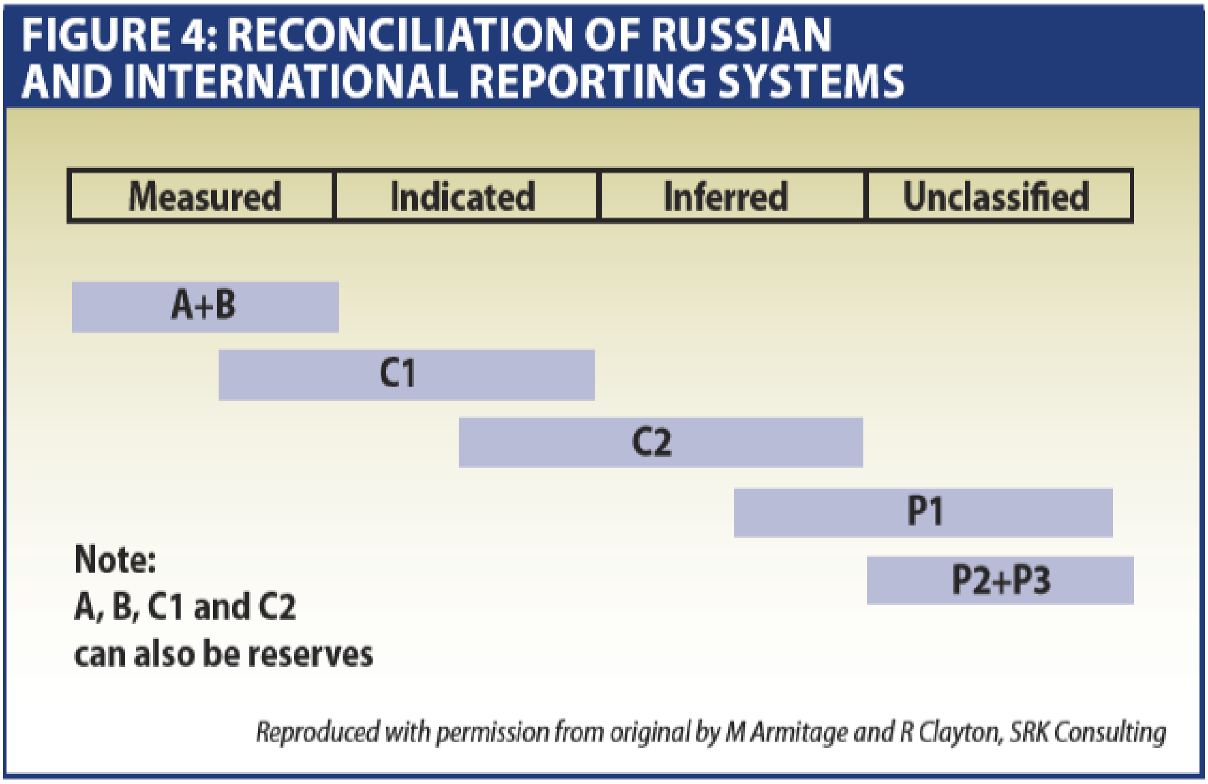


Figure 1-3 Reconciliation of Russian and international reporting systems

A discussion of significant risks and uncertainties that could reasonably be expected to affect the reliability and confidence in the exploration information, historic models and grade tonnage estimations are summarised below.

Due to the essential recommended further exploration and verification work to be undertaken by the issuer using JORC 2012 guidelines and industry accepted best practice methodologies, the author does not foresee any significant impact of the current geological risks and uncertainties of the exploration data on the projects potential economic viability or continued viability.

All of the assessment and targeting is based on the review of hard copy capture of comprehensive historic exploration and production records and although the quality of the work done is reasonable, errors are expected to be introduced during the transfer, referencing and drafting of paper copy results. Only very limited field studies and ground truthing of the different generations / eras of exploration has been undertaken at this time. Analytical results are non-verifiable and as such, used to only indicate the presence of mineralisation of potentially significant grades and target identification for further testing.

The author considers the quantity and quality of geological and exploration data insufficient to report resources or reserves in accordance with JORC 2012, however considers geological and exploration data satisfactory for the purpose of exploration target zone development and conceptual scoping study level assessment.

Further work to improve survey control on historical data, digitally capture historic hardcopy data generate geological models and mine workings depletion models are recommended going forward, along with essential additional new data collection programs to improve the quantity and quality of input data to reliable model generation and mine planning.

Based on review and consideration of the deposit type, currently available data, historic resources, level plans and sections, geological interpretations, production records and discussions with site personnel, an immediate Exploration Target is presented in Table 1-20 in accordance with JORC 2012 for the Magura zone.

Table 1-20 Exploration target tonnage in accordance with JORC 2012

Scenario **	Volume (m^3)	SG	Tonnes	MgCO3 %
Conservative August 2019 Exploration Target	700,000	2.9	2,000,000	42-46
Pragmatic August 2019 Exploration Target	850,000	2.9	2,500,000	42-46

** 0% cut-off

The deposit remains open along strike and at depth below the XX 438 level, and poorly tested between the major vein structures outside the extents of the mining developments.

The historical reports provide no sample evidence for this additional volume but refers to the unexplored strike and down dip extensions of the known vein network. However, it is a reasonable assumption as there are significant areas which do not appear to be within the historic resource area as shown in Table 1-20, as well as the aforementioned strike and dip extensions.

Down-dip potential of the eastern vein cluster around Magura 1 appears constrained by the moderate west-dipping basement contact as shown in the schematic below and evidenced in recorded drill interpretations.

Also, in the eighties, exploration of the mesh / stockwork magnesite started at Laletić, with anecdotal reports suggesting that there are potential for approximately 500,000 tonnes of mineralised material for further development. Little is known of the extent and geometry, and grades, and currently this remains an early exploration prospect, along with Medvedce, Mirena, Stankovci and Ariljacha.

The Goleshi deposit is the largest deposit of vein and probably mesh / stockwork type magnesite in the area, which in the past has provided considerable amount of ore to the processing capacities. The author considers potential exists for new exploration to increase the resources of magnesite for input to optimisation and potential conversion for economic exploitation purposes.

1.16 Geology and Resources Recommendations

1.16.1 Geology and Resources

There is a large quantity of valuable hardcopy information and interpretations which require capture in the first instance.

On the basis of this technical report and in consideration of recommended development strategy, the authors make the following exploration and model development recommendations.

- Georeference all hardcopy plans, cross sections and long sections;
- Digital capture all hardcopy data and convert into usable data for import into 3D software;

- Locate all drill hole and assay data and import into a 3D geological and mining software such as MicroMine;
- Create a 3D model of the mine;
- Input of mine plans with sample data into MicroMine, as shown in Figure 1-4;
- 3D laser scan surveys for accurate workings and stope model development for planning, depletion and reconciliation purposes;
- Systematic and controlled underground sampling upon the position of untested mineralisation;
- Underground mapping utilising level plans and sections;
- Twin drilling for verification purposes;
- Bulk density measurement data collection;
- For future sampling programmes, a routine QA/QC program using independent standards and independent umpire laboratory analysis of mineralised drill intercepts is to be implemented as a routine check on the precision of the primary laboratory;
- Re-sampling of historic channel sampling locations where available for verification and input to estimation;
- Set up well documented project specific Standard Operating Procedures to ensure compliance with industry and international best practice, maximise information captured and value from exploration works;
- Develop in-house ‘live’ working geological and deposit models for internal assessment and exploration program planning;
- Development of reliable and classified resource models for inclusion in PFS and FS studies.

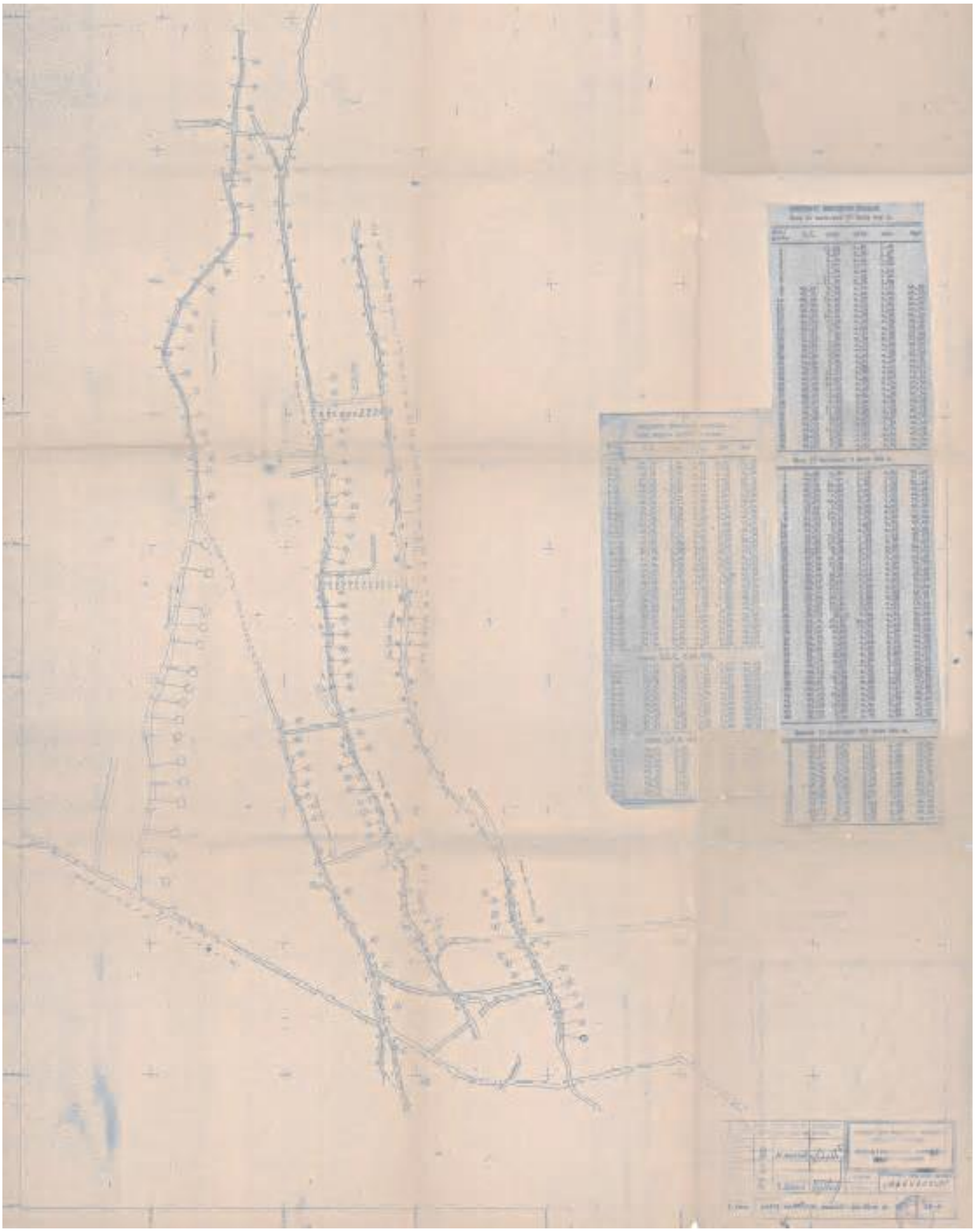


Figure 1-4 Input of mine plans with sample data into MicroMine

1.16.2 Mining

For the purpose of this study, the conceptual extraction method of the Goleshi mineralisation is proposed to be by underground mining methods.

The mine is currently in an unworkable condition. This is due mainly to the following reasons: (a) the mine is flooded to around 17 m below the surface and (b) the mine hoisting gear in the single vertical shaft is not operable and the condition of the shaft itself and the shaft fittings is probably unsafe.

Therefore, before opening up the mine, a programme of rehabilitation works will be necessary, including the following:

- The current shaft hoisting arrangements appear to be mostly unusable. The rope drums may be able to be refurbished but would need stripping down and inspecting. The electric motor is beyond repair and a new installation would be necessary;
- An updated ventilation system will need to be designed and installed. A new ventilation shaft will be built and equipped with an electric force fan. The ventilation circuit will be designed to take fresh air in via the ventilation shaft and the air will be exhausted through the main hoisting shaft;
- Once the mine has been dewatered and the shaft and mine access rehabilitated, the operation of the mine can go ahead.

The proposed mining method for the purposes of this report is cut and fill stopping. Without detailed knowledge of the geology and shape of the mineralised zones, this is seen as a flexible and easily adapted mining method.

Besides the capital cost of refurbishing the mine, new equipment for ongoing underground mining will be purchased.

The present surface buildings are a generally poor shape. They require significant rebuilding and rehabilitation. Workshops need re-equipping with tools and equipment. The work is described and costed in section 2 – Mine rehabilitation para xx and mine equipment capital costs above.

The site roads are generally in fair condition and would need regrading and repairs to the drainage, and the electrical reticulation around the site will need checking and upgrading. The detail follows:

An all-in operating cost (excluding personnel) of around €50/t for a mine of this size, using a semi-mechanised cut and fill method, is based on information from the InfoMine handbook. This is based on typical global operations, and includes equipment operation, supplies and administration. Operating personnel are listed separately, since costs vary significantly from country to country. The operating cost covers mine production, access development, ventilation, mine services, maintenance and backfill. The methodology employed in the financial model differs slightly, but this cost serves as a guide.

But it is concluded that:

- There is sufficient resource and sufficient basic, although derelict, infrastructure to make the further mining of the Goleshi deposit technically feasible;
- A considerable amount of rehabilitation work will need to be done, plus the acquisition of new or good second-hand equipment before mining is able to re-start;
- New or good second-hand electrical equipment will be needed to provide safe electrical power to the site;
- Most buildings will need to be rebuilt although the refurbishment of some of the structures may be feasible depending on structural examination;

A full feasibility study (FS) to bankable standards will be necessary before any final investment decision can be made.

1.16.3 Conceptual Mineral Processing

Existing mineral processing plants are not ready for production of quality magnesite concentrates.

There are 2 mechanical processing plants for magnesite and dunite near the mining area installed. Only a limited part of the mineral processing plant for magnesite can be used in new plant after equipment audit (e.g. crushers, magnetic separators). All other equipment is scrap. Mineral processing for magnesite was carried out mainly by hand picking (directly in open pit mine and selective underground mining) and by crushing, screening and magnetic separation.

Wet and dry mineral processing plant produced following concentrate fractions:

> 20 mm, 20 – 15 mm, 15 – 2 mm, < 2 mm.

There are 3 different kilns in the plant. Rotary kiln with feed capacity 15.6 t/h to produce 6.25 t/h MgO with a grade of 92 - 96 %. Vertical kiln with a feed capacity of 12.5 t/h to Produce 5 t/h MgO with a grade of 80 - 85%. Electrical kiln with a feed of 0.69 t/h to produce 0.65 t/h MgO with a grade of 99%.

The rotary kiln was already in operation until 2000 and the staff has experience with this type of equipment. Vertical and electrical kilns are not fully erected and therefore not ready for operation.

This report suggests installing a 100 t/h 3 sections plant as per Figure 1-5 below for dry and wet mechanical mineral processing:

- 1st section – Mine site section (crushing, dry screening at 50 mm, hand picking);
- 2nd section – Plant site section (dry and wet screening, desliming, optical and magnetic sorting, drying);
- 3rd section – Dry crushing and screening section (jaw crushing, dry screening).

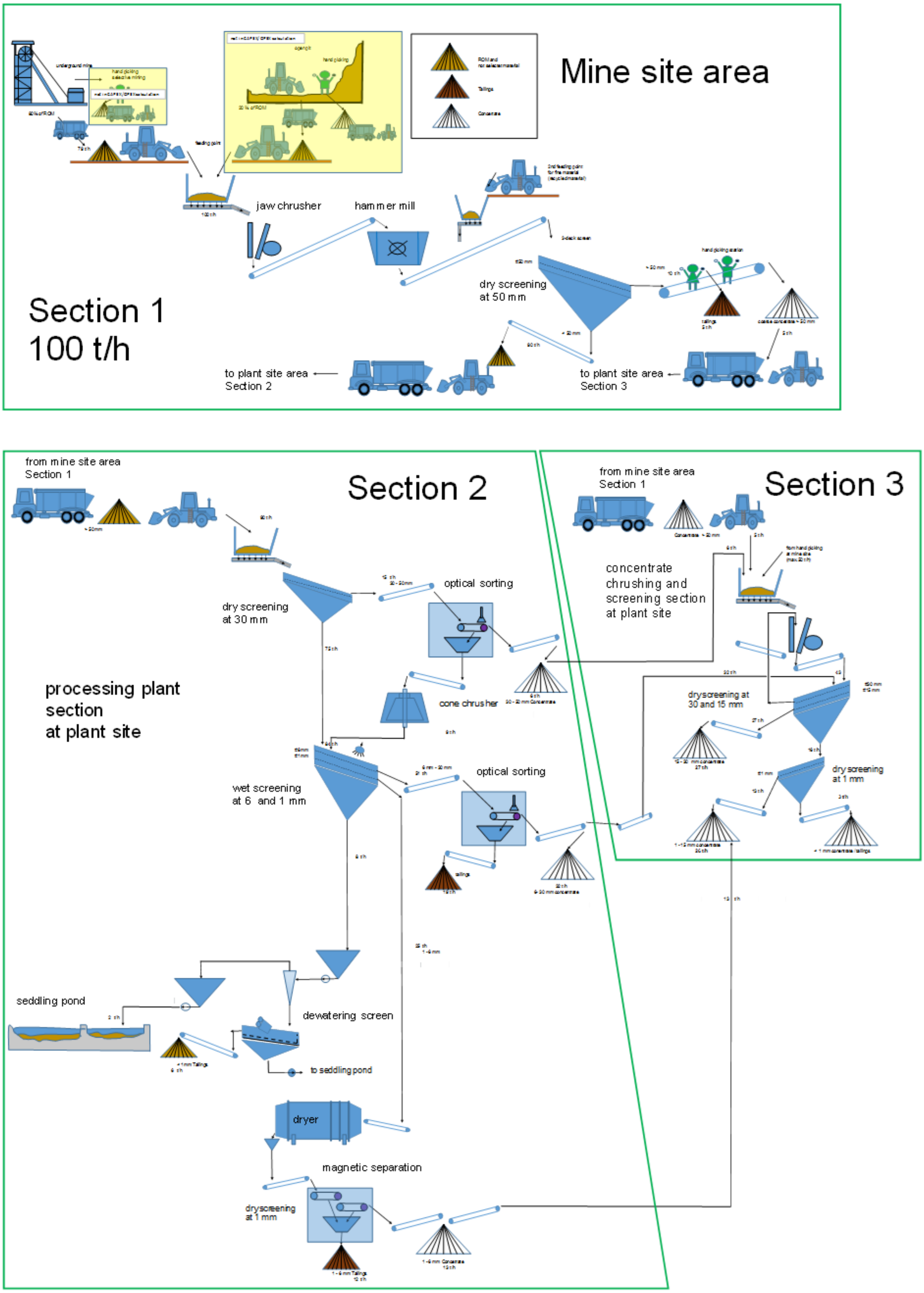


Figure 1-5 Three section plant

Background to suggest 3 sections is to be able to start processing step by step to save Capex cost at the beginning of mine start up.

Risks:

- The main risk is the vertical kiln. There is no documentation of the equipment and the current staff does not have experience in operating the kiln. The kiln was used in another place before. The supplier of the kiln is unknown. The assembling of it is not completed;
- The rotary kiln has been used with heavy fuel oil in the past. It is foreseen to use a mixture of propane and butane in the future. Gas tanks have already been installed; however, the final gas installation has not been completed yet. There is no experience by using gas in the kiln. This risk is on a low level, however an audit by the manufacturer with regards to the usage of gas is required;
- There is no risk to use optical and magnetic separation for the kind of material. However intensive test work is recommended;
- There is a risk that it is not possible to use waste heat for drying of fine material before magnetic separation;
- Power supply needs an audit to secure enough electrical power for new processing plant;
- Infrastructure risk is low.

1.17 Preliminary Finance Model

1.17.1 CAPEX

The Capex for re-activating Goleshi, takes into account that the mine has remained in a state of minimal care and maintenance for a period of 20 years. The underground mine shafts are flooded and most of the mine equipment need to be replaced or upgraded where possible.

All costs, OPEX and CAPEX, have been conceptual/assumed to an accuracy level of +/-30% as suggest for the level of Scoping Study.

1.17.2 Conceptual CAPEX – Observations

- Total Capex cost includes a contingency provision of 10%;
- Capex includes a full feasibility study to be carried out in Y-1 and rehabilitation in Y6;
- All other capital expenditure occurs in Y0;
- Due to the short life of mine, all capex has been depreciated within 5 years;
- Drying and screening Capex includes €2.5M for the vertical kiln and €0.8M for the electrical kiln;

1.17.3 ROM, Production and Reserves

Total ROM per annum is 499,200 tons and results in a LoM of approximately 5 years on the reserves of 2,358,585 tons. Table 1-21 shows the type of product expected from the processing plants, as well as production per annum and current average price (€). Royalties for Kosovo are also stated per annum.

Table 1-21 Type of product expected from the processing plants

Product	Tons/Annum	Price/Ton	Total Sales	Royalty
Sintered 92 - 96% MgO	49,437	1,170	57,841,000	2,314,000
Caustic 80 - 85% MgO	49,437	300	14,831,000	593,000
99% MgO	5,204	1,944	10,116,000	405,000
Total Volume	**104,077**	**795**	**82,788,000**	**3,312,000**

OPERATING COSTS

SUMMARY - GOLESHI ANNUAL PROFIT AND LOSS	Total €	Total €	Avg Per Ton €	Avg Per Ton €	
SALES REVENUE		€ 82,788,000		€ 795.45	
ROYALTY @ 4%	€ 3,312,000		€ 31.82		7.1%
DIRECT COST OF PRODUCTION	€ 16,723,000		€ 160.68		35.6%
ELECTRICITY COST	€ 1,533,000		€ 14.73		3.3%
FUEL COST	€ 13,154,000		€ 126.39		28.0%
MAINTAINANCE COST	€ 620,000		€ 5.96		1.3%
LABOUR COST	€ 3,020,000		€ 29.02		6.4%
INSURANCE	€ 542,000		€ 5.21		1.2%
CSR COST	€ 120,000		€ 1.15		0.3%
OTHER OPR COSTS	€ 570,000		€ 5.48		1.2%
DEPRECIATION	€ 7,334,000		€ 70.47		15.6%
TOTAL COST		€ 46,928,000		€ 450.90	100.0%
NET PROFIT BEFORE TAX		€ 35,860,000		€ 344.55	
LESS: CORP TAX @ 15%		€ 5,379,000		€ 51.68	
PROFIT AFTER TAX		€ 30,481,000		€ 292.87	

lists the conceptual operating costs of each section of the Goleshi operation.

Table 1-22 Conceptual operating costs

SUMMARY - GOLESHI ANNUAL PROFIT AND LOSS	Total €	Total €	Avg Per Ton €	Avg Per Ton €	
SALES REVENUE		€ 82,788,000		€ 795.45	
ROYALTY @ 4%	€ 3,312,000		€ 31.82		7.1%
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LESS: CORP TAX @ 15%		€ 5,379,000		€ 51.68	
PROFIT AFTER TAX		€ 30,481,000		€ 292.87	

The key cost drivers making up 79.3% of the total production cost are:

- 35.6% - Direct cost of production which is the cost of underground mining;
- 28.0% - Fuel cost 97% of which is made up of gas for the rotary and vertical kiln;
- 15.6% - Depreciation, which is accelerated to 5 years based on the short LoM.

1.17.4 Preliminary Economic Analysis

We prepared an economic cash flow and financial analysis model based on inputs from mining and processing schedules as well as capital and operating cost estimates including royalties for the Base Case at a price of €795/t of Magnesite (MgO) of all 3 products combined as weighted average price. The model was prepared from information based on a site visit and by mining and processing experts who pieced together already available historical data with revisions based on their recommended operation model. Data particularly on the Kilns and their fuel consumption needs further analysis due to the specialised nature of these kilns as well as the fact only the Rotary Kiln has been in active production. Underground shafts were flooded and prevented physical visits. All inputs are consolidated annually in this report.

The resulting cashflow indicates a very healthy return of 94% on IRR with a payback of less than 1 year. The NPV is at Euro 110,100,000 at the perceived cost of capital of 7% as per Table 1-23.

Table 1-23 Results of the finance model and cashflow

IRR	94%				
NPV	110,100,000	@	7.00%	Percieved Cost of Capital	
PAYBACK PERIOD	0.9	YEARS			
INVESTMENT	35,500,000				
LIFE OF MINE	4.72	YEARS			

A full feasibility study (FS) to bankable standards will be necessary before any final investment decision can be made.

1.18 Marketing

Magnesium, a key industrial metal, that can be recovered from a range of different host materials, with magnesite being just one key source of magnesium compounds.

Typical use of Magnesium is:

- Automobile Industry;
- Communication Technology;
- Construction;
- Aeronautics and Space Industry;
- Steel Industry;
- Paint;
- Fertilizer;
- And additive for major part of chemical industry.

Magnesium is considered to be a critical raw material (CRM). CRMs are elements and raw materials which are economically and strategically important for the European economy but have a high-risk associated with their supply. Used in environmental technologies, consumer electronics, health, steel-making, defence, space exploration, and aviation, these materials are not only ‘critical’ for key industry sectors and future applications, but also for the sustainable functioning of the European economy.

The top 10 countries for MgO Mining are (2017):

China

China’s production is accounting for approximately 80 % of the global output (source 2019 DERA). The country’s production decreased slightly in 2017 compared to the production of 18.6 Mt in 2016.

Turkey

Turkey produced 2.7 Mt in 2017.

Russia

In 2017 Russia’s output stayed at 1.3 Mt.

Brazil

Mine production: 1.2 Mt in 2017.

Austria

Austria saw a slight increase in magnesite mining in 2017, putting out 730,000 Mt.

Slovakia

Slovakia produced 570,000 Mt of magnesite in 2017.

Australia

Australia recorded a slight increase in magnesite-mining output in 2017.

Greece

Greece produced 400,000 Mt of magnesite in 2017.

Spain

Spain’s magnesite output decreased in 2017.

North Korea

Mine production: 300,000 Mt.

With an anticipated production of 105,000 t MgO products, Kosovo becomes an important producer in the *DACH* Region (Germany, Austria, Switzerland) and can be compared to the current producers in Austria (see Table 16-1).

With further known resources at the Strezovc-Dardane Project at Kamenica the Goleshi mine could become a centre of MgO production with the potential to increase the capacities of the existing facilities.

The strength of Magnesite is that Magnesium is a key industrial metal, that can be recovered from a range of different host materials, with magnesite being just one key source of magnesium compounds. Magnesium is used in a wide range of industries such as light construction, in food and agricultural industry, as well in fire and heat resistant brick industry.

New opportunities will raise from changes in the energy sector, moving towards renewable energy such as wind energy which requires light but durable materials. Also, the change in the automobile industry to more electrical vehicles demands magnesium as a component for steel/aluminium alloys.

However, with China’s production accounting for approximately 80 % of the global output there is strong competition in the world market and a significant risk with regards to price volatility. Additionally, there remain concerns of the CO2 footprint of MgO production which requires vast amount of energy, which is in the case of Kosovo generated from lignite sources and/or gas.

Goleshi, particularly with its short life of mine (LoM) would need to identify customers / end users in Europe to remain competitive with other players worldwide. Showcasing the products at mining exhibitions and events will provide the opportunity to take itself closer to potential customers as well as investors. A short list of some of these mining exhibitions are listed below.

- Mines and Money, London 25th -27th November 2019;
- PDAC Toronto 2020;
- Meggener Rohstofftage (Raw Material Conference) Sep 2020 Germany;
- International Conference on Mining, Material, and Metallurgical Engineering (MMME’20), August 2020 Prague, Czech Republic;
- EuroMine Expo 2020 June Sweden;
- 6th International Symposium on Sustainable Minerals 2020 June UK.

The Government of Kosovo through ICMM and PAK could also decide to promote the project in a public tender and invite interested investors to the bidding process. The tender process provides a very transparent and efficient way of choosing the right mining expert group investing in the project and pushing it to success. Attracting international bidders can increase competition and ensure that the most competent, relevant contractors are in the race for every project. To overcome the complexity of a tender process, the government could provide a central resource that includes regulatory guides and lists of the documentation required to build in their country. National agencies responsible for tendering could also offer additional information as well as encourage sharing of best practices among local and decentralized procurement agencies.

One aspect that must be mentioned with regards to a public tender. The Government of Kosovo will have to provide a professional data room in which all relevant data relating to the project are archived and easily accessible for any bidder. It might even require digitalizing all or the most relevant parts of the project to provide better view and structure. In case of Goleshi this could take months to establish the data room due to the fact that most reports and data are in Albanian and/or Serbian language which requires a lengthy process of translation and resources.

Additionally, a public tender process is a very bureaucratic process and can take long times before results of the tender are published and a winner is declared.

Additional potential of the Goleshi Project

- Increase throughput of kilns by installing newer/latest technology;
- Purchase raw materials from other Mg projects in Kosovo and therefore increase production;
- Add production of crushed rock from dunite through an open pit mining operation; sell crushed rock for construction industry;
- Selective mining of magnesite veins at surface during dunite-crushed rock operation;
- Upgrade products by adding further value adding facilities;

2 Introduction

2.1 Overview

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH commissioned consultancy services for “Development of a technical feasibility study and a business plan for the Goleshi mine as well as a concept to attract foreign investors” (the project).

Based upon the available project information, resource reserve data and client requirements the study represents a Scoping Study (PEA) undertaken in accordance with requirements of the ‘Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’ and ‘Joint Ore Reserve Committee code 2012’ (“JORC2012” “JORC Code 2012”).

In terms of compliance with JORC2012, the Goleshi project represents an early stage exploration project, with existing mine and process infrastructure, prospective for primary magnesite mineralisation.

The Scoping Study was based on the assessment of historic resources and immediate exploration potential considered as an Exploration Target in accordance with JORC (2012). There is a low level of geological confidence associated with an Exploration Target and there is no certainty that further exploration work will result in determination of Inferred, Indicated or Measured Mineral Resources or that the conceptual Production Target itself will be realised.

A Scoping Study is defined in Clause 38 of the JORC code 2012 as:

> “...an order of magnitude technical and economic study of the potential viability of Mineral Resources. It includes appropriate assessments of realistically assumed Modifying Factors together with any other relevant operational factors that are necessary to demonstrate at the time of reporting that progress to a Pre-Feasibility Study can be reasonably justified.”

INROS LACKNER SE (IL) in association with ECTerra (together “the consultant”) has already worked for GIZ on other consultancy assignments in the past and has local experience, especially with the Goleshi mine and its associated mineralization such as a fossil nickel laterite and on similar mining projects in Kosovo, Albania and worldwide.

In case of award of the assignment, the consultant will report to the GIZ Headquarters and will coordinate activities with the GIZ team in Kosovo accordingly.

The location and an aerial view of the Goleshi Mine is shown in Figure 2-1

a) 

b) 

Figure 2-1 a) Aerial view of Goleshi mine b) Location (red dot) of Goleshi mine

Within the territory of Kosovo, there are considerable natural resources comprising of metal and non-metal deposits. The exploitation of these deposits plays a significant role for the country's economy. But due to lack of investments since the end of the war, the mining industry has declined substantially. Potential for exploitable mineral exists for lignite, lead, zinc, silver, chrome, magnesite and industrial minerals.

The Goleshi mine is located in the vicinity of the village Magura (Municipality of Lipjan) at the Goleshi mountain (1,019 m) approximately 3 km to the west of Pristina Airport. The magnesite ($MgCO_3$) mine at Goleshi was originally an open pit but moved to underground operations prior to its closure in 1999. Before 1990, the Goleshi mine produced 110,000 t of magnesite, 22,000 t of sintered magnesia and 10,000 t of caustic calcined magnesia per annum.

A pre-feasibility study for the Goleshi mine from 2016 not completed in accordance with JORC 2012 or similar CRIRSCO aligned reporting codes has revealed the potential as a mineral processing plant for the above-mentioned minerals but due to inadequate and outdated equipment the mine is currently operating far behind its potential capacity.

To establish the potential feasibility of rehabilitating the mine and to further assess its capacity, the GIZ has initiated the Project with the overall objective to analyse the production capacity and the development of a business plan with the aim to attract foreign investors for the Goleshi mine.

2.2 Sources of Information

This technical report is based on findings of the site visit, desk study data review, data validation and verification where practical and possible.

The authors received the full co-operation and assistance from the company's personnel during the site visit and in the preparation of this report.

The author has reviewed information relating to the project, including relevant published and unpublished third-party information, and public domain data, a list of which is provided in the "References" sections of this report.

2.3 Reliance on Other Experts

The authors have not independently verified title to the company's assets, nor have they verified the status of legal agreements with local landowners and relevant parties but have relied on information supplied by the company in this regard. The author is relying on public documents and information provided by the company for the descriptions of title and status of the property agreements.

The authors have no reason to doubt that the title situation is other than that which was reported to it by the company.

The Competent Persons take responsibility for the content of this technical report and believes it to be accurate and complete in all material aspects. However, the author is not responsible for nor has undertaken any due diligence regarding non-geological technical aspects relating to legal, financial, corporate agreements and environmental due diligence. In this regard, the author has relied upon the company in good faith to provide any information considered relevant and material to the content of this technical report.

The Competent Persons have no reason to doubt that the company has not been forthcoming with all such relevant information.

A list of references used in this study is provided in section "List of References" as part of this report.

2.4 Property Description and Location

The Goleshi mine is located close to the village Magura approximately 4 km away from the international airport of Pristina and 9km away from the village of Lipjan. The highest mountain in the Goleshi massif is the Goleshi mountain (1,019 m).

Approximately 1800 inhabitants live in Magura and the village hosts a small police station and a health care centre (Rruga e Shalës / Shala – Lipjan) und R 120 (Magura – Sllatina e Madhe).

Figure 2-2 and Figure 2-3 show a historic aerial image of the Goleshi mine with production facilities, as well as a current SAT image taken from Google Earth.

Figure 2-2 Photo of the Goleshi mine area

(Source: Wikipedia)

Figure 2-3 SAT image of Magura village and Goleshi mine

(Source: Google Earth)

2.5 Licences and Tenure

2.5.1 Licencing Details

The Goleshi magnesite mining licence is currently expired. The Independent Commission for Mines and Minerals (ICMM) Board approved the last effective 3 year extension of the Goleshi magnesite Research License (Figure 2-4) on 28.10.2013 pursuant to Articles 30, 31, 32, 33, 35 and 36 of law no. 03 / L-163 for mines and minerals, as previously announced on 27 August 2010.

2.5.2 Licensee

Business Name: The Goleshi Sh.pk Mining and Industry Magnesium.

Represented by: Hysni Zogaj.

Address: Lipjan.

Cadastral Zone - Municipality: Magura - Lipjan Business Registration Number: 70350236.

Licensed Minerals for Research: Magnesite.

The licensed person is authorized to carry out mining on magnesium license field: The license field covers an area of 115,689.08 m2 according to the mining licence certificate (Figure 2-4 and Figure 2-5). The surface is a polygon, defined by the coordinates in the attached table (Appendix).

2.5.3 Duration

The term of the last license was valid until 30.07.2016.

The Independent Commission for Mines and Minerals (ICMM) in accordance with article 6, 31, 33, 59 and 62 of the law on mines and minerals no. 03/L-163 and the law no. 04/L-158 on amending and supplementing the law no. 03/L-163on mines and minerals, issues the licence SHFRYTËMZIMI mining licence number 1314/KPMM/2013 which is valid until the 30th of July 2016. A copy of the licence certificate is shown in Figure 2-4.

Prior to the licence 1314/KPMM/2013 the Goleshi Sh.pk Mining and Industry Magnesium held a mining licence with the number 1015/KPMM/2011 which had a validity from 30th May 2012 until 9th May 2013. This licence covered a surface area of 69,927.20 m2. The renewed licence, valid until 2016, shows an extended area of 115,689,08 m2.

Note from the author, the coordinates given to the author by the Goleshi management do not match the plot of the polygon on the given map. A reason for that could be an incorrect geodetic system or typing errors when stating the coordinates. When extending the licence those coordinates will have to be confirmed including a statement on the geodetic system they are based on.

2.5.4 Re-establishing the Goleshi Mining licence

According statements by the Privatisation Agency of Kosovo PAK and ICMM the renewal of the expired mining licence with ICMM will not cause any obstacles. An extension of a mining licence will be granted by ICMM on the documents that will be prepared by the management of the Goleshi Mine when required i.e. during feasibility phase of when a new investor is available. For the renewal a bank guarantee of € 110,000 will be required by the new licensee.

Additional information on the mining law of Kosovo can be found on the ICMM webpage:

https://kosovo-mining.org/publications/legislation/?lang=en

Part V Articles 30 – 36 of the mining law (see link above) describes in detail the procedure of application for a mining licence. Article 36 refers to the extension of a mining licence which applies to the Goleshi mine.

As per mining law, for the extension of the mining licence Goleshi will have to present following documents in their application of extension to ICMM:

a copy of the Mining License to be extended and any related Permit to conduct Special Operations;

an updated Mining Program;

updated versions of the documents required by, sub-paragraphs 1.8, 1.9, 1.10 and 1.11 of paragraph 1 of Article 31 of the mining law;

an updated Resource Estimate of the Mineral Resources to which the License is to relate and an estimate of expected mine life, based on the results of the Exploration Operations carried out under the Exploration License and such other data and reports as may be required by the ICMM;

a description of the mine and of the planned activities for its development: all other planned development activities if such exist;

a description of the proposed location, extent and duration of Mining Operations following the commissioning of the mine and related developments, including the methods, techniques and equipment to be employed, the proposed locations of Mining Operations, an assessment of the expected annual production over the term of the License, and all marketing and agency arrangements, if any; and a discounted cash flow estimate over the term of the License of projected capital and operating costs and revenues that establishes the financial and economic viability of the Mining Program;

a mine closure plan and a rehabilitation program prepared in each case by suitably qualified and experienced experts, including the cost estimate for the implementation of such plan;

if required by the Mining Strategy of Kosovo and in the light of the size and value of the Mineral Resources, a study of the social implications of the proposed Mining Program prepared by suitably qualified and experienced experts;

a performance bond in the format prescribed by the ICMM guaranteeing the availability of sufficient funds to carry out, when and as needed, the mine closure plan and rehabilitation program, such bond to be in an amount equal to or greater than the estimated cost of such plan and program, including contingencies;

such other documentation or information as the ICMM may reasonably require.

According to communication with PAK and ICMM the licensee will have to place a bank guarantee of approximately € 110,000 for extending the mining license for Magnesite.

Below is an extract of the mining law Kosovo ICMM of Article 36 only:

Article 36 Extension of a Mining License

1. The holder of a Mining License that wishes to extend such License shall submit to the ICMM a complete application for such extension in the prescribed format together with the prescribed fee, and shall attach thereto the following:
   1.1. a copy of the Mining License to be extended and any related Permit to conduct Special Operations;
   1.2. an updated Mining Program;
   1.3. updated versions of the documents required by, sub-paragraphs 1.8, 1.9, 1.10 and 1.11 of paragraph 1 of Article 31 of this law; and
   1.4. such other documentation or information as the ICMM may reasonably require.
2. The ICMM shall extend the License if the concerned Licensee has submitted the application, fee and documents required by paragraph 1 of this article, and, as of the date of such application:
   2.1. the requirements of Article 33 of this law, as applicable to the updated Mining Program, have been fulfilled;
   2.2. the applicant is eligible under Article 6 of this law;
   2.3. the applicant is in compliance with the License, the Present Law and any Surface Rights Agreement or surface rights assigned or granted to the Licensee by a Public Authority; and
   2.4. the extension is not prohibited by paragraph 9 of Article 18 of this law.
3. Within three (3) months after receiving a complete extension application from an eligible applicant, the ICMM shall either issue the concerned extension or provide the applicant with
   3.1. decision of the ICMM not to issue the concerned extension; 3.2. a written explanation of the ICMM's reasons for such decision; and
   3.2. written information regarding the Licensee's legal rights of appeal and judicial review with respect to such decision.
4. At any time prior to the expiry of such three (3) month period referred to paragraph 3 of this Article, the ICMM may - in exceptional circumstances and in the exercise of his reasonable discretion - extend such period for an additional three (3) months. In such event, the ICMM shall immediately notify the applicant in writing of such extension and of the reasons therefor.

2.5.5 Independent Commission for Mines and Minerals (ICMM) – Functions

The Independent Commission for Mines and Minerals – ICMM is an independent agency determined by the Constitution of the Republic of Kosovo. The ICMM acts in the public interest and independently exercises the competencies and functions granted under the law on mines and minerals.

Besides others (see https://kosovo-mining.org/icmm/function/?lang=en) the ICMM shall have responsibility to perform the following functions in accordance with the law on mines and minerals:

The issuance, transfer, extension, suspension and revocation of licenses and permits;

The establishment and maintenance of a mining cadastre and a GIS database containing geographical data, geological data, other relevant economic data and all existing minerals titles and mining rights; and the issuance of rules on the internal organization and operation of the ICMM.

The ICMM shall regulate mining activities in Kosovo in accordance with the law No. 03/L-163 on mines and minerals, the law No. 04/L-158 on amending and supplementing the law 03/l-163 on mines and minerals, sub normative acts issued pursuant to the law on mines and minerals, and the mining strategy.

2.5.6 Privatization Agency of Kosovo (PAK)

“Privatization Agency of Kosovo (PAK) is established as an independent public body, which shall carry out its functions and responsibilities with full autonomy, pursuant to the Assembly of Kosovo law No.05/L-080 on amending and supplementing the law No. 04/L-034 as amended and supplemented with the law No.04/L-115 on the ending of international supervision of independence of Kosovo.

PAK shall possess full juridical capacity and in particular the capacity to enter into contracts, acquire, hold and dispose of property and have all implied powers to discharge fully the tasks and powers conferred upon it by the present law; and to sue and be sued in its own name.

PAK is established as the successor of the Kosovo Trust Agency regulated by UNMIK Regulation 2002/12 “on establishment of the Kosovo Trust Agency”, as amended, and all assets and liabilities of the latter shall be assets and liabilities of the PAK.” (**source PAK Webpage Kosovo 2019**)

In summary, PAK is a Kosovo agency tasked with vending off historic government assets, including mining and mineral titles. The authors understand from communication with PAK and GIZ that the mining licence of Goleshi will be renewed and activated during the next months.

Republika e Kosovës - Republika Kosova - Republic of Kosova
Komisioni i Pavarur për Miniera dhe Minerale
Nezavisna Komisija za Rudnike i Minerale
Independent Commission for Mines and Minerals

Prishtinë, 20.09.2013

LICENCË PËR SHFRYTËZIM Nr. 1314/KPMM/2013

Për Magnezit

AUTORITETI

Bordi i Komisionit të Pavarur për Miniera dhe Minerale (KPMM) ka aprovuar këtë Licencë për Shfrytëzim më datën 28.06.2013 në bazë të Nenit 30, 31, 32, 33, 34, 35 dhe 36 të Ligjit Nr. 03/L-163 për Minierat dhe Mineralet të shpallur me 27 Gusht 2010.

PERSONI I PAJISUR ME LICENCË:

Emri i biznesit : Miniera dhe Industria e Magnezitit "Golesh" Sh.p.k
Përfaqësuar nga : Hysni Zogaj
Adresa : Lipjan
Zona Kadastrale – Komuna : Magure - Lipjan
Nr i Regjistrimit të Biznesit : 70350236

MINERALET E LICENSUARA PËR SHFRYTËZIM: Magnezit

Personi i pajisur me Licencë me këtë rast është i autorizuar që të shfrytëzoj Magnezit brenda Zonës së Licencës.

ZONA E LICENCËS:

Zona e Licencës përfshin një sipërfaqe prej 115689.08 m². Sipërfaqja është një poligon, e përkufizuar me koordinatat në tabelën e bashkëngjitur (Shtojca I), dhe përfshin ngastrat kadastrale të renditura në tabelën e bashkëngjitur (Shtojca L).

KOHËZGJATJA:

Kohëzgjatja e kësaj Licence është deri më 30.07.2016.

KUSHTET:

Kjo Licencë lëshohet duke iu nënshtruar kushteve standarde të parashtruara siç janë në Ligjin Nr. 03/L-163, Neni 33 dhe të gjitha kushteve të tjera të cilat janë përcaktuar më poshtë.

Tel: +381 (38) 240 252
Fax: +381 (38) 245 844

Figure 2-4 Mining Licence Certificate Goleshi mine

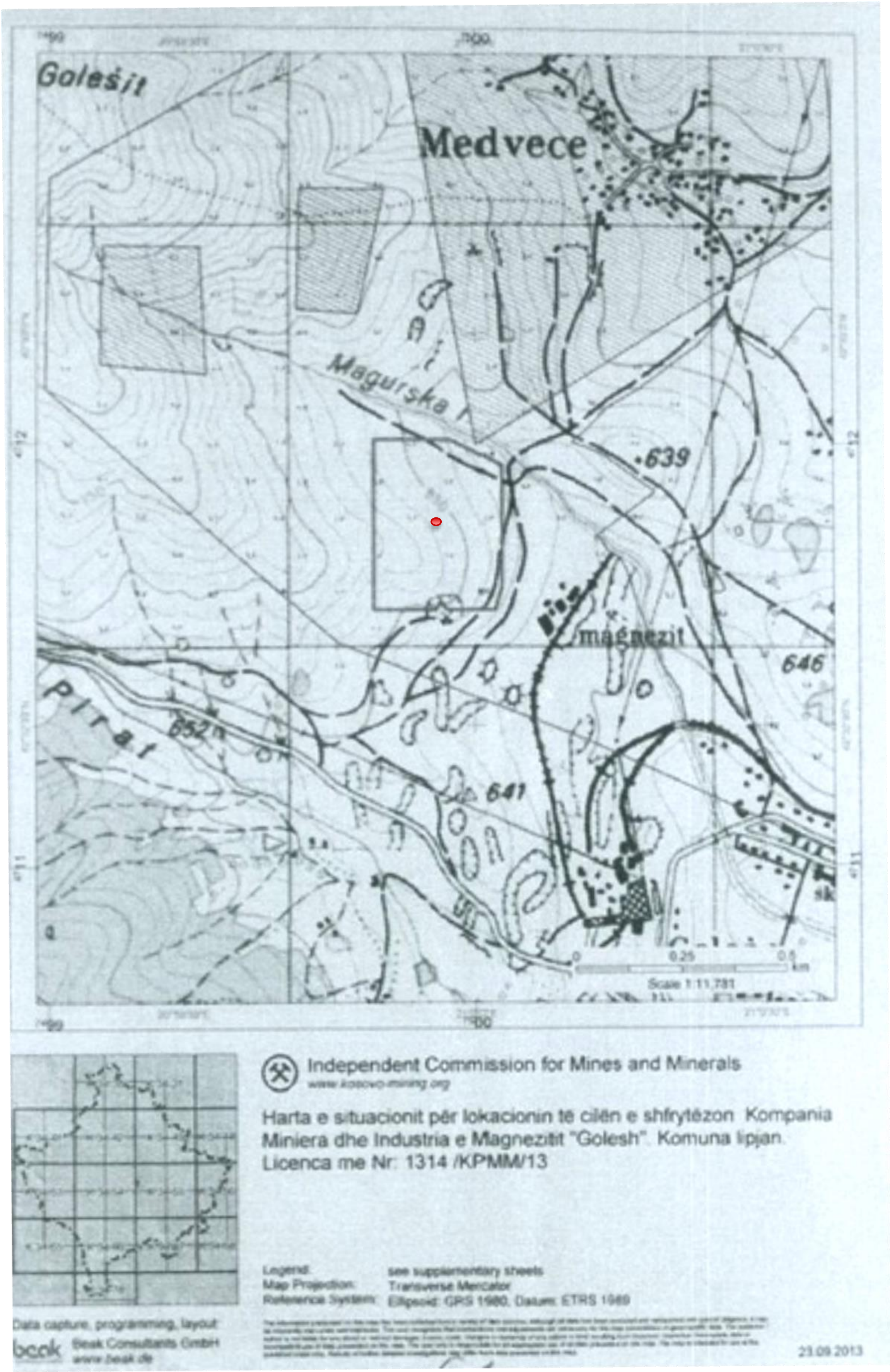


Figure 2-5 Licence polygon (red dot) of the Goleshi area

3 Accessibility, Climate, Local Resources, Infrastructure and Physiography

At the Magura village the regional roads R208 (Rruga e Shalës / Shala – Lipjan) und R 120 (Magura – Sllatina e Madhe) connect as seen in Figure 3-1.

Figure 3-1 Image with railway link and road R208 and R 120

(Source: Google Earth)

3.1 Rail

The Goleshi mine and the village Magura are the ending points of the railway line Pristina which passes the airport of Pristina.

The railway line is currently not in operation. The line is interrupted by the active Ni Laterite surface mine FERRONIKELI (FN) in close vicinity to the Goleshi mine. The Privatisation Agency of Kosovo (PAK) has signed an agreement with FN in which FN is obliged to re-install the missing railway part within their operation.

Should the full railway line be reactivated by the Government of Kosovo, this could be a significant advantage for transporting MgO products to customers in Europe rather than using container cargo on the road.

At the current stage a rehabilitation of the railway line by Goleshi has not been considered due to the expected high CAPEX for renewing a railway line and unknown stage of the railway.

3.2 Ports

Not applicable in this study. All products will be transported by means of road truck or rail.

4 History

This section has been modified from the report titled *“Complex organization of associated labour magnohrom – refractory materials – Kraljevo Work Organization Magnesite Mine and Industry Goleshi – Magura, May 1985”*, and 2008 research summary report titled *“Istrazivanje, otkopavanje, Prerada Rude Magnezita I Dunita, Mart, 2008, Magure completed by two experts from Magnohrom Kralevo, and an expert of MIM GOLESHI”.*

The first data on the magnesite veins on the ultramafic massif at Goleshi were encountered as early as 1923 and is estimated to be the first discovery of magnesite in Kosovo.

Exploration works and partial surface mining were started by the owners of concession V by Žegarac and later by the Italian, Salvaro, on a magnesite vein that is now called Magura no. 1. In 1927, the new mine owner, Rajko Bakić from Ferizaj / Uroševac started constructing a shaft on vein number 1 that was opened by undercut mining. The mine started ore processing on the 12th of June 1928, when the first shaft furnace for caustification of magnesite was lit. The mining works continued until 1934. Up until 1941, a total of 7 of such furnaces were built in Goleshi.

Just before the second world war started, an underground exploitation programme began. During the war, the mine was taken by the Italians, and then the Germans. After the liberation, the mine was restored and put into operation in 1945. In the period 1946-1947, a rotary kiln was built for the production of caustic baked magnesite, while the number of shaft furnaces increased from 7 to 13.

On the 9th of May 1965, a new phase in the development of mine began with a new mining shaft put into operation, which increased production and profitability of the mine. On the same day, construction began for modern separation and cleaning of magnesite ore, according to the license of a French firm “Venot-Pic”. Construction of separation took almost two years and a reconstruction of the pit was also completed in that period, where the entire transport was tailored towards the mining shaft. The following was also completed: ore bars, loading site, drives were widened and set to locomotive hauling and a series of other minor works. Surface construction was also completed with the erection of an administrative building next to the mining shaft, a new mill for caustics with the aim of removing small fractions of serpentinite, i.e. a magnetic separator was installed.

In the period between 1970 and 1973, the mine went through a new phase, certainly the most important on its development path. In 1970 a decision was made to erect a rotary kiln for the production of sinter-magnesite. Works on this project were completed in 1973 and in mid-1973 a new mill was put into trial production. Semi-final products (caustic and sinter) were still being produced up until May of 1985. In the following years, especially during the Balkan war production reduced substantially. Eventually all production stopped in the year 2002.

From operational records and discussions with site personnel it is understood mining and main production ceased in 1997, with the mine being put on care and maintenance in 2002. However, the mine still produced some crushed rock of dunite using the crushing and screening facilities.

The first data on the geological structure of the Goleshi massif was provided by G. Hissleitnel (1951), S. Karamata and V. Knežević (1956), B. Milovanović and S. Karamata (1957), while the most complete data on geological structure of the Goleshi massif was delivered by the team from the Institute for Geological and Geophysical Exploration in Belgrade, under the direction of V. Terzin. The team completed a basic geological map of the area in scale 1:25.000.

As of 1984, prior to the completion of the final historic resource and reserve estimate issued on December 31st, 1984 Goleshi mine was exploited by the Magura open pit and four main underground horizons, marked as:

- III horizon elevation 602m;
- X horizon elevation 545m;
- XIV horizon elevation 480m; and
- XX horizon elevation 438m.

A brief overview of some of the horizons and which magnesite veins have been explored and exploited up to now in that horizon.

a/ III horizon at elevation point 602m.

In this horizon, besides the preparatory and exploration works, mining of several magnesite veins is being done. Following magnesite veins have been explored in this horizon: Magura no. 14, no. 15. no. 22. no. 28. no. 29, no. 30 and magnesite vein of area „Gropa Ruše“.

Apart from these abovementioned, exploration work was started in direction of area Mirena, but due to lack of funds and certain technical difficulties the work was suspended. All mentioned magnesite veins were explored through raises from this horizon and followed up to the surface. In graphical documents, an overview was given of magnesite veins in transverse and longitudinal cross-section with all necessary geological documentation.

b/ X horizon at elevation point 545m.

This horizon has been worked on in last several years and following magnesite veins were explored in detail: Magura no. 1, no. 14, no. 15, no. 20, no. 21, no. 22, no. 22a, no. 22b, no. 22 (K1, K2, K3-roofing arms), no. 23 and 23a. Length of all works done to this date in this horizon is over 6.000m. Mentioned magnesite veins in this horizon in descend are expressed by raises. These raises at the same time represent a link to the higher horizon at elevation 602m. Relevant graphical documentation exist for all magnesite veins.

c/ XIV horizon at elevation point 480m.

This horizon is most developed and most diverse horizon at the Goleshi mine. All ore bodies and magnesite veins known by now at Goleshi pit had been explored, prepared and exploited in this horizon. Also, according to the amount of ore and tailings that are being transported today through this horizon, it has the greatest significance for Goleshi mine. Graphical documentation with necessary geological documents exists for all explored magnesite veins in this horizon.

d/ XX horizon at elevation point 438m.

All magnesite veins that were explored at higher horizons are noted and explored in XX horizon at elevation 438m. Previous exploration works have shown that magnesite veins with general strike direction of north-south (Maura no. 1, no. 14, no. 15, no. 21, 22 etc.) in dip outcrop towards lower horizon, except for magnesite vein no. 20 which is becoming thicker the deeper it goes, for now data obtained up to horizon at elevation 438m.

Magnesite veins that have general strike direction east-west and northeast-southwest (Magura no. 22-roofing arms, no. 23a etc.) also have the tendency to increase thickness by going deeper.

Below XX horizon at elevation 438m, magnesite vein Magura no. 1 was partly explored and opened. Higher volume of exploration works was not done due to technical issues and greater inflow of underground water. Detailed preparations are being done to activate this horizon and to continue exploration, both in magnesite vein Magura no. 1 and in other magnesite veins, which in dip direction reach to this horizon.

It should be mentioned that drilling has proven spreading of magnesite vein Magura no. 1 up to the level of elevation 400m, so it can be expected in foreseeable time that level V horizon at elevation 400m will be subject to intense exploration, which will result in considerable increase in reserves. For the time being, the largest part of proven reserves through exploration work done in last several years is between XX horizon at elevation 438m and XIV horizon at elevation 480m.

Exploration is reported to have continued on from 1985 to 1990 in the form of underground drive sampling and mapping, surface and underground drilling and inter-level raise development sampling and mapping. Mining continued between 1985 and 1997 on the 4 main levels and developed sub-levels.

4.1 Historical Resource and Reserves

The following section has been modified from the report entitled *“Complex organization of associated labor magnohrom – refractory materials – Kraljevo Work Organization Magnesite Mine and Industry Goleshi – Magura, May 1985”*.

It is important to note that these are historical estimates and are not reported in accordance or compliance with JORC code 2012 or similar CRIRSCO aligned international reporting codes for mineral projects and do not provide evidence of their existence on the project.

Exploration works completed between 1964 and 1968 allowed a GKZ resource and reserve calculation at Goleshi, and the results are shown Table 4-1. These reserves were verified by the State Committee for Certification of Mineral Resources Reserves in its Decision number 02 no. 6657/1-68.

Table 4-1 1968 Reserves and Categories

Reserves and categories				
A	B	A+B	C-1	A+B+C-1
653.150	1,468,763	2,121,903	439,950	2,561,863

Based on exploration works between 1969 to 1971 (and the works completed from 1964) reserves of magnesite at Goleshi were recalculated and are presented in Table 4-2. These reserves were verified by the Committee for Verification of Mineral Resources Reserves of the Secretariat of Economy and Executive Council of the FR Serbia.

Table 4-2 1971 Reserves and Categories

Reserves and categories				
A	B	A+B	C-1	A+B+C-1
1,040,163	1,159,781	2,199,944	464,697	2,664,641

Exploration works continued from 1972 to1975, albeit at a somewhat lower intensity. The updated reserves are shown in and Table 4-3 1976 Reserves and Categories.

Table 4-3 1976 Reserves and Categories

Reserves and categories				
A	B	A+B	C-1	A+B+C-1
868.496	1,098,737	1,967,233	481,942	2,449,175

In period from 1975 to 1979 the intensity of exploration works in the Goleshi mine significantly increased.

An estimate of magnesite reserves at Goleshi was completed on the 31st of December 1979. Reserves were verified by the Committee for Verification of Mineral Resources Reserves of Kosovo. The status of the verified reserves is presented in Table 4-3 above.

Table 4-4 1979 Reserves and Categories

Reserves and categories				
A	B	A+B	C-1	A+B+C-1
656,536	764,807	1,421,343	880,628	2,301,971

According to the reports, sampling of the deposit was done in accordance with applicable regulations (Regulation on Classification and Categorization of Reserves of Mineral Raw Material and Recordkeeping – *"Official Gazette SFRY no. 53, dated 19 October 1979"*).

The author interprets the regulations for exploration, estimation and reporting of mineral resources and reserves as similar to the Russian GKZ.

4.2 1984 Historical Resources and Reserves Estimates

This section has been modified from the report entitled *"Complex organization of associated labour magnohrom – refractory materials – Kraljevo Work Organization Magnesite Mine and Industry, Goleshi – Magura, May 1985"*, and provides the most detailed explanation of the Goleshi deposit modelling and estimation inputs and methodologies.

The most recent known historical resources and reserves estimated were completed in 1984 with a reporting date of 31st December 1984.

It is important to note that these are historical estimates and are not reported in accordance or compliance with JORC code 2012 or similar CRIRSCO aligned international reporting codes for mineral projects, and do not provide evidence of their existence within the project.

4.3 Method for Estimation

The estimation of ore reserves was done using the method of geological blocks or a polygonal block model. Deemed as the most suitable for this type of narrow vein deposit. Outlines of blocks were determined based on data from exploration works and interpretation of geological characteristics of accessed parts of the deposit.
Calculation of reserves was done with status as of 31.12.1984. Calculation included magnesite veins Magura no. 1, 20, 14, 15, 30, 29, 22, 21, 21a, 28, 26, 27 and veins Mirena no. 2, 3 and 4.

Polygonal blocks outlined in long section (figure 4-1) for each vein were filled with the average grade from sampling for that area based on channel and drilling data and then the block volumes and tonnes were added up to give a total grade-tonnage report, as shown in Table 4-5 below.

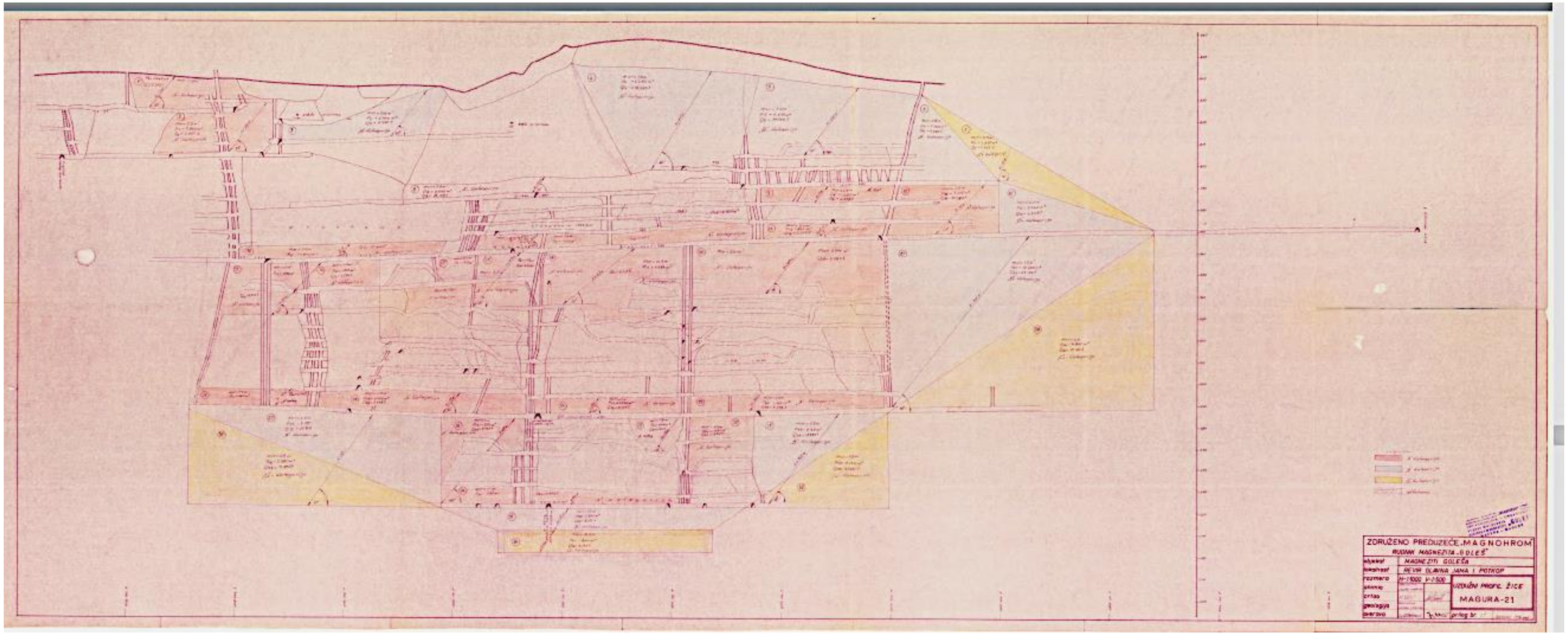


Figure 4-1 Block cross-cut

At Goleshi, the thickness of the ore body was determined by measurements at every 2 metres and an average value obtained.

The real height of the vein was taken for the height of blocks and sampling of the veins was done every 10 meters along strike. A generic bulk density figure of 2.9 g/cm³ was used which included magnesite and waste rocks. There are no separate figures located to date.

4.4 Classification and Categorization of Historic Magnesite Resources and Reserves

According to the regulation on classification and categorization of reserves of solid mineral raw material and recordkeeping – *"Official Gazette SFRY, no. 53, dated 19/10/1979"* the Goleshi deposit falls into the II group of first sub-group of magnesite deposits.

The categorization of magnesite ore reserves was done based on the above regulation. As most of the exploration works was done before enacting the newest regulations, the timeframe between certain programmes will not fully satisfy applicable regulations. However, the Goleshi mine was producing magnesite for more than 50 years and some estimation procedures have been observed.

The resource categories were determined based on data from exploration works (drill holes, galleries and raises), as required by the regulations.

The author interprets the regulations for exploration, estimation and reporting of mineral resources and reserves as similar to the Russian GKZ system.

The amount of ore reserves was determined as per the aforementioned blocks. The block profile was set as per the strike of magnesite vein and the square area of blocks was calculated geometrically, where the lengths were read off the levels, while height was determined based on exploration works done on vein dip.

Real length and height and formula used for calculation of square area will not be shown in the textual part, but rather it will be shown in a separate attachment no. 60. In following table no. 39, we will show the magnesite reserve as of 31.12.1984.

Table 4-5 Magnesite reserves at Goleshi as of 31/12/1984

Vein	A	B	A+B	C1	A+B+C1
Magura no. 1 with branches	211,434	114,937	326,371	126,751	753,122
Magura no. 20	93,831	167,722	261,553	154,583	416,136
Magura no. 14	55,645	43,899	99,544	67,748	167,292
Magura no. 15	47,626	150,433	198,059	420,516	618,575
Magura no. 30	-	33,505	33,505	78,292	111797
Magura no. 29	-	18,453	18,453	21,878	40,331
Magura no. 22 – underlying, overlying and south branch	62,915	86,338	149,253	126,434	275,687
Magura no. 21 and 21a	30,596	-	30,596	40,021	70,617
Magura no. 28	9,227	9,396	18,623	3,107	21,730
Magura no. 26	5,278	7,349	12,627	7349	19,976
Magura no. 27	5,957	5,464	11,421	3,642	15,063
Mirena no. 2	16,652	1,827	18,479	913	19,392
Mirena no. 3	-	16,146	16,147	870	17017
Mirena no. 4	-	38,287	38,287	3,977	42,264
T o t a l :	539,161	693,757	1,232,918	1,056,081	2,288,999

4.5 2008 Historical Resources and Reserves

This section has been modified from the 2008 research report titled "*Istrazivanje, otkopavanje, Prerada Rude Magnezita I Dunita, Mart, 2008, Magura*" completed by two experts from Magnohrom Kralevo, and an expert of MIM GOLESHI", report prepared in Serbian language and summarised in 2018 report in English language "*Current Geological Reserves Of Raw Magnesite Ore in MIM GOLESHI - I with short explanation*".

The 2008 study is understood to represent the most recent review and evaluation of remaining resources for the project.

The report presents total pre-mining geological reserves of Magnesite ($MgCO_3$), according the exploration work from year 1964 – 1990 of approximately 4.25 million tonnes in A, B and C1 categories (Table 4-6). The average grades for the resource / reserve tonnages are not presented.

Table 4-6 Pre-mining geological reserves of magnesite according the exploration work from Year 1964 – 1990

Category	Quantity (t)
A	950,000
B	1,300,00
A + B	2,250,00
C_1	2,000,000
A + B + C1	**4,250,000**

The 2008 study considers depletion through mining operations up to 1997, and presents current historical resources and reserves by horizon, and as total remaining, as presented in Tables XX to XX below.

2008 historic magnesite reserves, above horizon XX, P = 438 m, are given in Table 4-7.

Table 4-7 Historic magnesite reserves, above horizon XX, P = 438 m

Category	Quantity (t)
A	426,833
B	459,387
C_1	615,460
A + B + C1	**1,501,680**

2008 historic magnesite reserves under horizon XX, P = 438m (reserves of horizon XXI), are given in Table 4-8.

Table 4-8 Historic magnesite reserves under horizon XX, P = 438m

Category	Quantity (t)
A	91,850
B	201,976
C_1	474,776
A + B + C1	**768,602**

2008 historic magnesite reserves (above horizon XX and below horizon XX), are given in Table 4-9.

Table 4-9 Historic magnesite reserves (above horizon XX and below horizon XX)

Category	Quantity (t)
A	518,683
B	661,363
C1	1,090,236
A + B + C1	2,270,282

2008 historic magnesite reserves in open pit “SHPATI” are given in Table 4-10.

Table 4-10 2008 Historic magnesite reserves in open pit “SHPATI”

Category	Quantity (t)
A	25,599
B	35,507
C1	68,390
A + B + C1	**129,496**

2008 total historical magnesite reserves above horizon XX, below horizon XX and open pit “SHPATI” are given in Table 4-11.

Table 4-11 Historical magnesite reserves above horizon XX, below horizon XX and open pit “SHPATI”

Category	Quantity (t)
A	544,282
B	696,870
C_1	1,158,626
A + B + C1	**2,399,778**

In the 2008 report, the total remaining historic resources and reserves are also presented with mechanical losses included. The 2008 total geological magnesite reserves (above horizon XX, below horizon XX and open pit “SHPATI”, after reducing quantity by 1.72 % (mechanical losses) are given in Table 4-12.

Table 4-12 Total geological magnesite reserves
(Above Horizon XX, Below Horizon XX and Open Pit “SHPATI”, After Reducing Quantity by 1.72 %)

Category	Quantity (t)
A	534,927
B	684,892
C_1	1,138,712
A + B + C1	**2,358,533**

Table 4-13 below details the quantities of historic resources including the standards elements that are relevant for the quality of a product.

Table 4-13 1984 Estimated resources and reserves along with grade information
(Tonnages Incorporate -1.72% Mechanical Losses)

Category	Quantity in (T)	G.Ž.	SiO_2	R_2O_3	Cao	MgO
A	518.683	49,60	2,29	0,61	0,90	46,48
B	667.395	49,32	3,09	0,56	0,83	46,00
A + B	1.186.078	49,45	2,75	0,58	0,86	46,23
C1	1.172.457	49,40	2,78	0,54	0,93	46,21
A + B + C1	2.358.535	49,42	2,76	0,57	0,89	46,22

4.6 Reserves in Pillars and Panels

The report entitled "*Complex organization of associated labor magnohrom – refractory materials – kraljevo Work Organization Magnesite Mine and Industry Goleshi – Magura, May 1985*" suggests that there is potential ROM supply contained within the pillars at the mine, which are not accessible until the end of the mine and final retreat.

These reserves are shown in Table 4-14 and are also included in the final total of reserves but should be considered "off-balance" as they are not accessible until the mine closes.

Table 4-14 Reserves contained with pillars at Goleshi

Vein	Level	Block	Category of reserve in tons		
			A	B	A+B
1	2	3	4	5	6
Magura no. 1	IV to surface X – IV XIV – X XX – XIV	1,2,3, 4-13 14-18 21-26	15,536 22,592 26,172 40,875	- - - -	15,536 22,592 26,172 40,875
TOTAL	"	"	105,185	-	105,185
Magura no. 20	VI to surface XIV – 545	2 14,38	4,698 6,344	- -	4,698 6,344
TOTAL	"	"	11,042	-	11,042
Magura no. 14	III to surface 526 – III 480 – 526	5,6 14,15 17	7,685 6,585 3,300	- - -	7,685 6,585 3,300
TOTAL	"	"	17,570	-	17,570
Magura no. 15	III to surface	17	5,655	-	5,655
TOTAL	"	"	5,655	-	5,655

Magura no. 21	XIV – 545 XX – XIV	3 6	16,321 10,278	- -	16,321 10,278
TOTAL	“	“	26,599	-	26,599
Magura no. 21a	XIV – 545	2,3	3,997	-	3,997
TOTAL	“	“	3,997	-	3,997
Mirena no. 2	690 to surface 690 below	1 2	16,652 -	1,827	16,652 1,827
TOTAL	“	“	16,652	1,827	18,479
Mirena no. 3	720 – 690	1,2,3,4	-	16,147	16,147
TOTAL	“	“	-	16,147	16,147
Mirena no. 4	730 to surface 730 below	1 2	- -	31,398 2,750	31,398 2,750
TOTAL	“	“	-	34,148	34,148

5 Geological Setting and Mineralisation

5.1 Regional Geology

The regional geology consists of various varieties of peridotite and residues of the weathering crust on peridotites, which have relatively little distribution. South of the deposit, peridotites are in contact with a diabase-chert formation and in the eastern parts of the terrain, isolated tertiary formations are observed.

The oldest rocks in this terrain belong to a diabase-chert formation, in which the Middle and Upper Jurassic is the most distinguished. The diabase-chert formation is mostly built of phyllite and sericite schists and quartz metaconglomerates and metasandstones have considerably less distribution. The peridotite lies across the diabase-chert formation and the peridotite is of Upper Jurassic age.

The peridotite forms Goleshi massif and from a metallogeny point of view, they represent the most interesting rocks in the winder area.

In terms of mineral composition, peridotites are essentially the same. The differences between the varieties of peridotites occur in quantitative content of orthopyroxene and clinopyroxene.

The Goleshi massif was built, for the most part, out of harzburgite, dunite, serpentinized harzburgite, dunite and serpentinite with Harzburgite dominating the central part of the massif. (Figure 5-1 Geological map of Kosovo).

Mineralogical testing, performed on several specimens, have shown that these rocks are made of olivine, enstatite and small amount of monoclinic pyroxene and accessory chromite. Grains are different in size, and among them the largest is enstatite, and sometimes olivine. Olivine is the predominant mineral, accounting for up to 90% when the rock becomes enstatite-dunite. In fresh rock, it is light green in colour and there is very little presence of monoclinic pyroxene. It usually makes about 1% of the rock, very rarely 3%. Chromite is present in negligible quantities, usually less than 1%.

Dunite usually occurs in the south-east part of Goleshi massif, close to villages of Medvece and Vrelo. Dunite from the Medvece deposit is very interesting because it occurs in economically large concentrations.

During 1969 and 1970, this dunite deposit was thoroughly explored by drilling and proven reserves amount to over 100,000,000 tonnes. Mineralogical testing has shown that this rock is mostly composed of olivine, pyroxene, enstatite and chromespinelide. As for secondary minerals, serpentine and iron oxides arise.

Olivine appears in the form of a grain, mostly irregularly shaped. It is fresh, although along fissures and cracks, serpentinization is observed. Enstatite grains are of different size and are for the most part, smaller than the olivine grains. They have prismatic form and there are frequent occurrences of their transformation into bastite. Chromite grains are rare and show octahedral form and the rock structure is hypidiomorphically granular.

Serpentinite occurs in smaller parts and build peripheral parts of Goleshi massif. All transitions from fresh harzburgite to serpentinite are established. Colours are dark green or dark grey to black. They consist of mesh and latticed serpentinite, chromite, iron oxide and relic olivine and pyroxene.

The process of serpentinization of peridotite is of different intensity. Intensively serpentinised peridotite are localized mostly along the underlying bed of the peridotite massif. Serpentinization is the most widespread and basic process of automorphic transformation of peridotite rocks. Apart from serpentinization, the processes of thermolytisation, antigoritisation, silification and limonitisation of peridotite is also observed.

At Glavica, which is located in the immediate vicinity of the mine, the weathering crust is isolated, below which, mesh magnesite ore occurs. In this locality, preparatory works were being done for open-pit exploitation of nickel and cobalt.

Due to the special significance of the weathering crust at the magnesite deposit, more detail is provided on the products of peridotite in surface conditions, namely of the peridotite weathering crust, which is preserved in certain parts of the Goleshi massif. The most complete profile of the weathering crust was preserved at Glavica where the upper horizons of the weathering crust had been partially observed which have eroded in other places.

In the profile of the weathering crust, looking top to bottom, the following is found at the locality Glavica:

a)	Ochers	>10m;
b)	Ochers pervaded with opal (birbirite)	5-10m;
c)	Nontronite	5-10m;
d)	Leaching and cerolite serpentinite with mesh magnesite	35-50m;
e)	Fresh dunite	
	Overall thickness of weathering crust:	60-80m.

Vein magnesite and other linear forms of the weathering crust can go to much greater depths, in excess of 300 m.

Erosion of the weathering crust was completed before the deposition of tertiary sediments, but at the time of their deposition, as observed by serpentine breccia found in these sediments. However, the most intense erosion was done after the deposition of the Tertiary sediments and subsequent elevation of the terrain. The weathering crust ages between the Late Cretaceous and the Eocene.

East and south-east rims of the Goleshi massif were built of Pliocene sediments that overlay older rocks. These sediments are deposited in the Kosovo basin and are mostly represented by; sand-clay, clay, sand and terrace gravels.

To this date, no occurrences of sediment magnesite have been found in these sediments, but considering the geological conditions near Kosovo’s lakes, as well as observations of a peridotite weathering crust, all conditions for sediment magnesite genesis exist and should represent an exploration target.

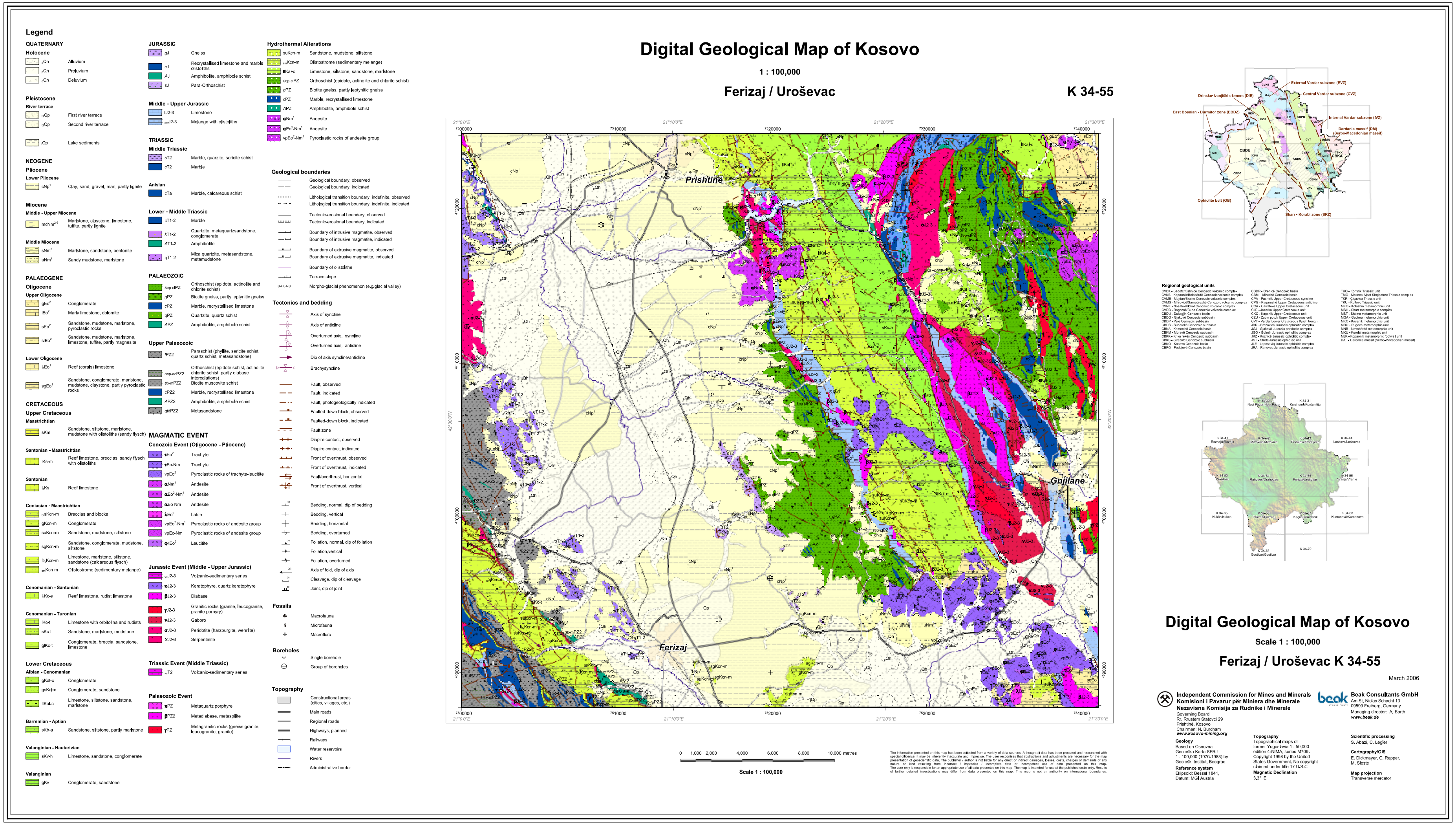


Figure 5-1 Geological map of Kosovo

Geotectonic Units of Central Balkan Peninsula Scale approx. 1 : 5,000,000

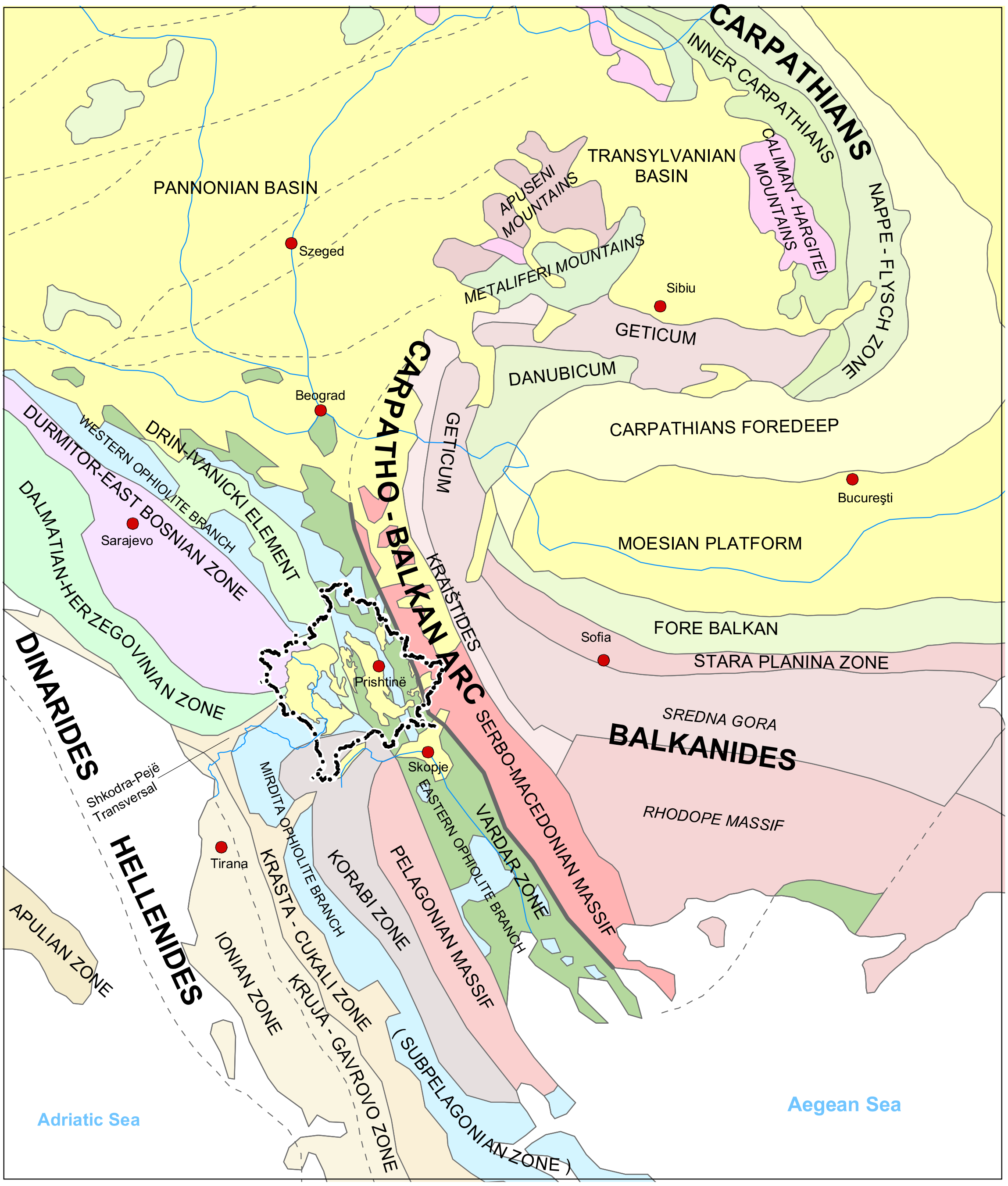


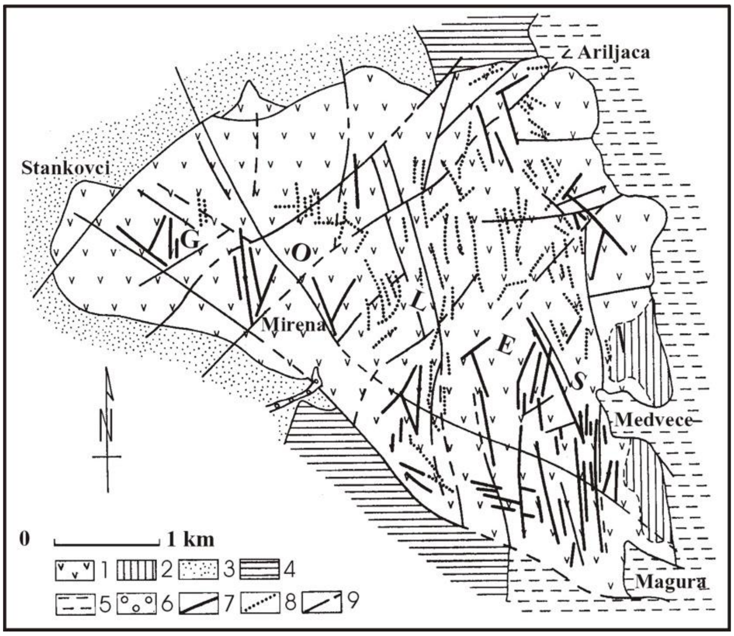
Figure 5-2 Geotectonic map of the Balkan Peninsula

5.2 Project Geology

The Goleshi magnesite deposit is in the Goleshi ultramafic massif, covers an area of about 15 km^2. The massif is mostly built up of fresh ultramafics: dominant harzburgite, lherzolite, enstatite-dunite, and dunite; serpentinite and fossil lateritic weathering crust of ultramafics (mostly harzburgite) occur in places. Serpentinite occurs in marginal parts of the massif, around larger fractures as well as around magnesite veins. Fossil (Palaeogene) lateritic weathering crust occurs (in the form of erosional remnants) in massif edges, mostly in the eastern one. According to Maksimovich (1981) the crust contains four zones: 1. silicified zone, 2. goethite zone, 3. smectite zone, and 4. altered harzburgite with magnesite stockwork. The depth of the first three zones is 5-15 m, and the fourth one is 15-70 m.

Magnesite mineralisation within the ultramafic massif forms a few separate concentration centres as: Magura (the most important), Medvedce, Mirena, Stankovci and Ariljacha (Figure 5-3). These concentration centres altogether form the Goleshi magnesite deposit. Magnesite mineralization forms the following structural-morphological types: simple veins, complex veins (with apophyses), irregular lenticular bodies, and stockwork (

Figure 5-4). Within structural-morphological types, the following textural types of magnesite mineralization occur: massive, banded, and brecciated.



Legend:
1. ultramafite;
2. weathering crust;
3. Diabase-Chert Formation of Jurassic age;
4. Palaeozoic schist of the Velesh series;
5. neogene sediments;
6. alluvium;
7. magnesite vein;
8. magnesite vein with the ìsilica hatî;
9. fault.

Figure 5-3 A Simplified geological map of the Goleshi Ultramafic Massif with major magnesite veins

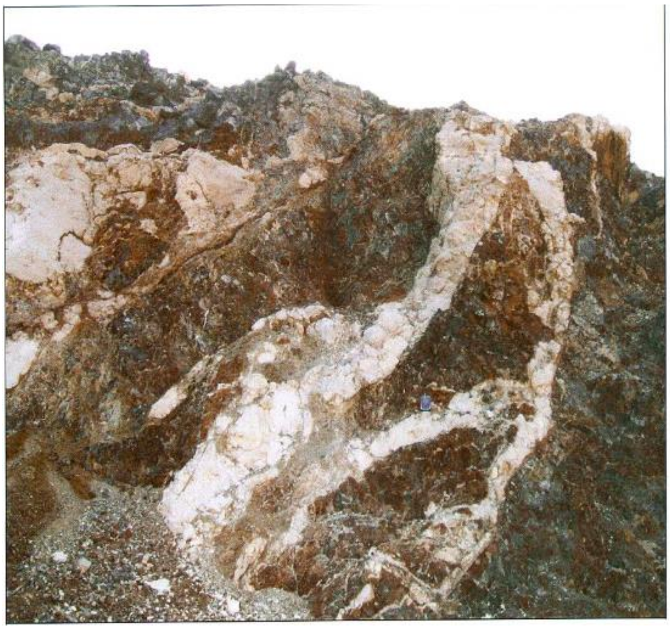


Figure 5-4 Exposure of typical magnesite veins in ultramafic rocks near Magura (source ICMM, 2011)

Magnesite veins (simple and complex) have regular, tectonically predetermined orientation because they were formed by filling of open fractures (faults and cracks) in the Goleshi ultramafic massif. They form two perpendicular systems: the main one of approximate N-E strike and 50-70 dip towards E, and the second of approximate W-E strike and a dip of 40-50 towards N (Figure 5-3).

The greatest part of magnesite veins that have been mined or investigated have a thickness of 0.5-3 m while its maximal value is about 20 m (Magura 1). Vein length mostly ranges between 100 m and 500 m, while its maximum is about 1,200 m (Magura 1). Veins spread into depth ranges between few tenths to a couple hundred meters, while the maximum depth spread is above 300 m (Magura 21), see Figure 5-5.

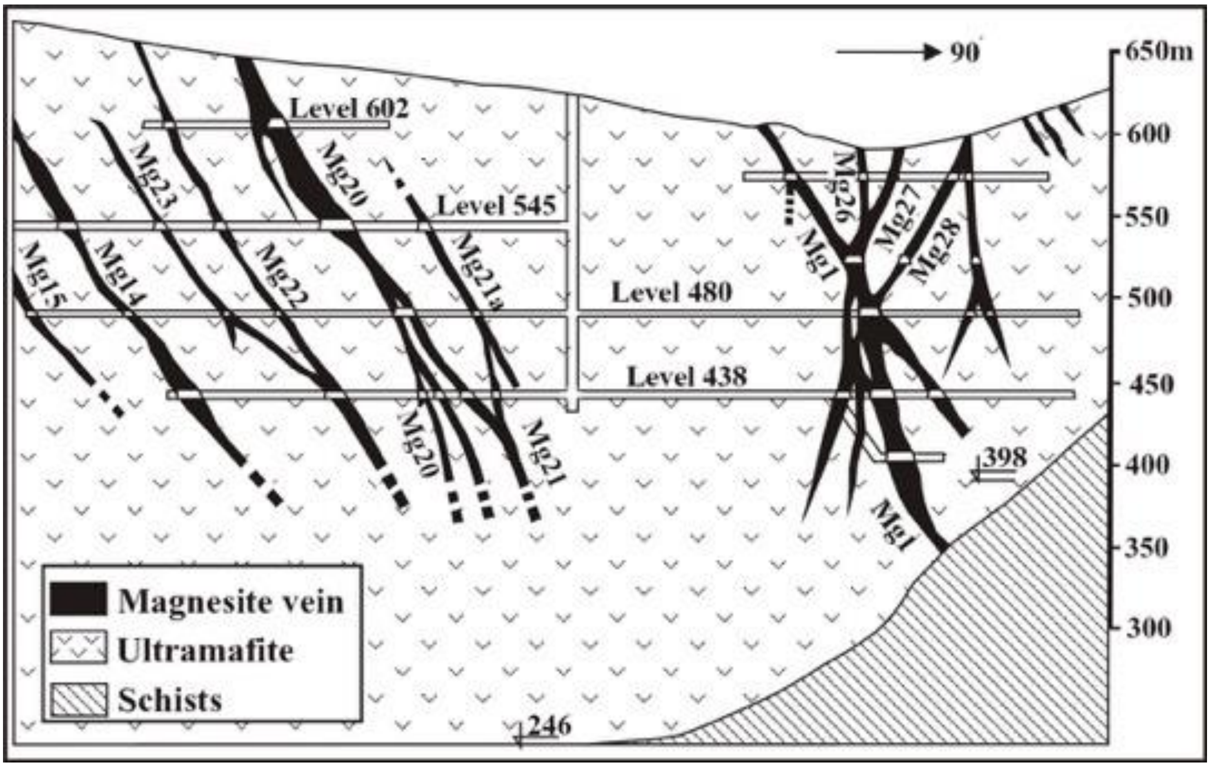


Figure 5-5 Geologic cross-cut of the Goleshi vein magnesite deposit

5.3 Deposit Geological Structure

This section has been modified from the report entitled *“Complex organization of associated labor magnohrom – refractory materials – Kraljevo Work Organization Magnesite Mine and Industry Goleshi – Magura, May 1985”*.

The Goleshi magnesite deposit is located in the southern part of the peridotite massif bearing the same name.

In the area of the Goleshi peridotite massif, several centres of concentration of magnesite were observed, out of which, the one near Magura appears to be the most significant. Other areas of magnesite Mirena, Stankovci, Medvece, Vrelo and Ariljača have lesser significance but represent future exploration targets.

The most significant magnesite concentration appears in the shape of lodes and are genetically bound to the dominant system of stress. Most of the magnesite veins have a general strike of north - south, and dip towards the east at an angle of 50 – 600. A smaller number of magnesite veins belong to the second system, which have strike of east-west with a dip towards the north, at about 400.

Most of the magnesite veins, which are under exploration, have an average thickness of 0.5 – 3m, with a maximum thickness of 18m. The length of the magnesite veins also varies and is mostly about 100 – 500m. The longest known magnesite vein, Magura no. 1 is around 1200m and the down dip extent has been explored up to 300m but may extend much further. Boundaries of magnesite veins towards the surrounding peridotite are very clear, except the serpentinization is more pronounced in the parts of massif that are not mineralized. Inclusions of serpentinite in magnesite veins are very frequent, and their size starts from several centimetres up to larger lenses of several meters, but always encased with magnesite.

Bifurcation of magnesite veins is very frequent, both in strike and in dip. The underlying bed of magnesite veins in the Goleshi deposit usually consists of harzburgite that are mostly fresh or partially altered by serpentinization, while the overlaying cover is mostly represented by a brown serpentinite.

The most common structural form of magnesite veins in Goleshi deposit are veins with apophysis and irregular with lenticular shapes.

Detailed exploration determined that in the Goleshi deposit, there are four main texture types of magnesite veins: clean, monolithic veins, strip magnesite veins, breccia magnesite veins and serpentinized breccia cemented with magnesite. These texture characteristics are the result of ore and post-ore tectonics, as well as pulsating movement of solution so there is no strict regularity. In most of the cases, it does not represent a characteristic feature of the Goleshi magnesite deposit, as all these texture varieties can be seen in one vein and in a very short distance.

There are practically no clear, monolith veins in Goleshi, rather, this texture features only in part of some magnesite veins, which have not been affected by the intensive post tectonic movements. Striped textures in magnesite veins are observed due to pulsation feeding of solution and their variation in chemistry.

Breccia textures are the consequence of intensive ore and post-ore tectonics. Here magnesite veins are already formed, first by movement and crushing, and then they are cemented with a magnesite binder. In magnesite veins, there are clearly visible stretch marks, which point to post-ore tectonic movements. Evidence that similar movements were done also during the forming of the deposit itself are certain marks of the veins with these textures in which leached magnesite or silicon has served as a binder. Serpentine breccia was created due to movement of magnesite solution through different zones filled with serpentine debris.

Apart from the four aforementioned varieties of magnesite ore in the area of the mine, there is another type which is economically significant, a mesh or stockwork type magnesite mineralisation. This phenomenon near the village of Vrelo, i.e. eastern rim of Goleshi massif towards the tertiary rocks, was subject to the exploration between 1975 and 1976 and probably represent a significant exploration target. Magnesite ore of this mineralisation type has all characteristics of a vein type, and mineralisation in overall mass is about 20-30%.

Besides the Vrelo deposit, a deposit of mesh or stockwork magnesite at Laletić was also explored in detail during this period, located in the immediate vicinity of the entrance to the Goleshi pit. Stockwork mineralisation of magnesite spreads far wider than in Laletić. Mineralization covers a zone that is 300 - 400m wide, and which stretches from Laletić all the way to the old mining works in Mirena, a length of approximately 1.5km.

Based on the exploration (drilling) and information from the pit, it was determined that mesh / stockwork mineralisation ends somewhere between 610 and 625mRL, namely, it can be followed in depth between 40 and 20m from the surface of the terrain. The average grade of the mesh / stockwork mineralisation of magnesite is approximately 13%. Reserves were estimated and verified as: A category 59,851t, B category 184,747t and C-1 category 254,620t.

Magnesite veins in Goleshi contain magnesite that is very firm, sturdy but brittle, white in colour, rarely yellowish and the fractures are irregular. Microscopically, it looks amorphous, and under the microscope shades of interferent colours were observed and based on that it was concluded that it is cryptocrystalline magnesite. A kidney-shaped form of magnesite was also observed, which indicates that this mineral was originally leached in form of a gel, and later on it received the cryptocrystalline structure.

Cleaning the magnesite from the inferior parts of Goleshi, a relatively large number of samples of such magnesite was taken in order to determine mineral composition to analyse the main impurities (Si02, Ca0 and R203), as well as other characteristics to determine their separation from magnesite, i.e. choosing the most favourable method for beneficiation of this raw material.

The following results were obtained: microscopic and X-ray testing have shown that the main carriers of silicon at Goleshi is serpentine (3Mg0.2Si02.2H20), parasepiolite (2Mg0.3Si02.4H20) and silicon minerals (quartz, opal and chalcedony).

Serpentine is present in all magnesite veins and in all horizons, although not in an equal amount. In III horizon (elevation 602) in magnesite veins Magura 15 and Magura 14 serpentine appears in the form of inclusion in magnesite mass and is rarely fresh. It is usually found in the phase of intensive decomposition, in some magnesite veins expressed so much to the extent that original serpentine has turned into a mixture of secondary materials: opal, dolomite and iron oxide.

Among the silicon materials, the most common is quartz, which appears in relatively large amount, especially in magnesite vein number 15; drainage gallery Gropa Ruša and Mirena. While in other magnesite veins it appears in smaller amounts or is not present at all, such as magnesite vein Magura no. 1. Quartz usually appears in different forms and it is more intimately mixed with small grain magnesite mass when it is usually followed by parasepiolite. Quartz grains are inequal in size and usually are smaller than serpentine grains.

Opal was discovered in very decomposed serpentine grains, where it represents a final product of alteration of serpentine.

Chalcedony is observed in a smaller number of samples, in veins Magura number 21 and Magura number 15. Both of these minerals (opal and chalcedony) are represented in very small amounts and practically have no importance as carriers of Si02 component.

Parasepiolite is constantly present in all magnesite veins, with the exception of magnesite vein Magura no. 1 on XX horizon. This silicon material follows the occurrence of quartz and very often it is with quartz in close contact. It is noted that magnesite veins that contain parasepiolite in greater amounts, also contain larger amount of free quartz. Parasepiolite appears in shape of thin flakes, which pervade cryptocrystalline magnesite mass, or it appears in the shape of accumulation in cracks.

The main carrier of calcium component at Goleshi is dolomite, whose quantitative participation in all magnesite veins is approximately equal and low. Somewhat larger amounts were noticed in magnesite vein number 15 on III horizon and assays taken from the drainage gallery Gropa Ruša and Mirena. Dolomite in this deposit appears in the form of flakes and geodes, or on the walls of cracks in magnesite mass. Crystals of dolomite are relatively small, and sometimes of cryptocrystalline structure (vein Magura no. 1 on XIV and XX horizons; vein Magura 21 on VI horizon; vein Magura 20 on XX horizon).

Detailed X-ray testing on many dolomite samples have shown that it was not dolomite mineral, but rather isomorphic mixture CaCO3 in magnesite.

Iron oxides are found in decomposed serpentine inclusions, where they appear as a final product of disintegration of serpentine. Certain X-ray testing indicated the possibility of existence of siderite in magnesite veins in Goleshi.

5.4 Physical Criteria

The magnesite from the Goleshi deposit is dense, cryptocrystalline to microcrystalline. It is snow white when is clean but could be yellowish or reddish owing to limonite staining. The main impurities in magnesite are silica, lime and sesquioxides (R2O3) in case of increased contents. Mineralogical examinations of the past showed that carriers of these impurities are the following minerals: silica - opal, calcedony, quartz, sepiolite and serpentine; lime and dolomite; iron - magnetite and limonite.

Silica (opal, chalcedony and quartz) occurs in form of crack and cavity fillings in magnesite. In uppermost parts of some veins, silica could prevail and form a "hat" above magnesite. These "silica hats" often make pronounced reefs on the surface.

Dolomite appears in the way similar to silica but is less abundant. Sepiolite also appears in the form of crack and cavity fillings in magnesite but in some places in form of thicker veins.

5.5 Chemical Criteria

Chemical examination of great number (few hundreds) of magnesite samples from the Goleshi deposit, showed that contents of the main components are within following limits:

- MgO 44.00-47.50%
- CaO 0.20-1.50%
- SiO_2 0.20-5.00%
- R_2O_3 0.20-1.80% $R_2O_3 = Al_2O_3 + Fe_2O_3 + FeO$

5.6 Loss on Ignition (LOI) Statistics

Of a few hundred chemical analysis of Loss of Ignition (LOI) had been determined as follows:

- LOI 48.00-51.50%

5.7 Deposit Genesis

There are opposing opinions among the researchers of genesis of magnesite in peridotite concerning the origin of solutions and what has transferred magnesite fluids and deposited it into tectonic cracks.

Vein shape of magnesite mineral bodies in peridotite, volcanic activity in the wider area of magnesite mining regions, as well as proving the presence of some elements typical of hydrothermal occurrence (Pb, Cn etc.) through spectrochemical analysis, were the main cause for attributing hydrothermal genesis to magnesite deposits associated with peridotite. Presence of magnesite mineral bodies in demolished serpentinite, and then spatial connection of those magnesite parts of peridotite rocks with areas of development of young sediments that lie over it, uniform mineral ore composition, and general analogy of magnesite deposits of Serbia with products of old weathering crusts have led to critically examine the validity of such deposit.

During the formation of magnesite deposits from descending solutions, four zones are created: first, the highest zone is mostly built of opal, limonitised and silicified peridotite, below it is a nontronite zone, which is predominantly built by nontronite clay that are carriers of silicate ores of nickel and cobalt; and below there is a zone of mesh / stockwork magnesite that is gradually transitioning into a fourth zone, zone of magnesite mineralisation. In it, an increased concentration of CO2 knocked the magnesite from the descending solutions, mostly in intensively serpentinised peridotite. Below the zone with magnesite, poorly altered peridotite usually occurs. There it was established that from the first surface zone, zone of altered harzburgite and nontronite zone there is significant drainage of matter during circulation of solution, MgO and Si02 components, from the surface zone 28% and from nontronite zone 29% of total matter. Content of other components is more or less persistent.

Isotopic testing of magnesite was carried out on this deposit and it was noted that water that was draining the magnesite substance did not have typical meteoric characteristics but did not have juvenile character either. It was then determined that oxygen from the examined magnesite shows the characteristics of oxygen from connate water, and also that temperature of the water, which drained magnesite substance from the ultrabasics, was 10º-150ºC.

Research has given considerable contribution to the genesis of magnesite deposit as a product of the weathering crust in peridotite, although it also opened the question of solution; it cannot completely ignore the descendent character of solution, nor accept that solutions existed in serpentinite in fracture type water horizon, assuming the existence of protective surface screen made from the waterproof rocks.

In the wider area of Goleshi, there are all four zones of weathering crust. Locality Glavica is a typical pillar of such crust, with preserved nontronite zone, zone with limonitised peridotite above the nontronite zone and both zones, carriers of magnesite mineralization below the nontronite clays. At Laletić deposit, only mesh magnesite zone can be distinguished, which in dip passes into zone of vein magnesite. Upper parts of the weathering crust at the deposit are eroded.

Based on the previous exploration, data was obtained that indicate formation of magnesite in descendent manner from the weathering crust. This is especially indicated by the following facts:

- Unwedging of magnesite veins in dip;
- Affiliation and connection of magnesite veins with zone of altered ultrabasic;
- Existence of completely developed weathering crust of ultrabasic preserved in area of “Glavica”, then below the Kosovo tertiary (concluded by drilling);
- Character of changes noted in Golesh peridotite is identical to the changes of such rocks in older weathering crusts;
- Regular presence of parts of decomposed and cerolite serpentinite with magnesite vein;
- Spectrochemical analysis have indicated that appearance of elements: Pb, Zn, Cu etc. does not exceed their characteristics for peridotite.

Vein magnesite is connected to zones of tectonic breaks, which existed in this terrain even before the formation of the weathering crust. Magnesite veins can be considered original line weathering crust, formed at the expense of yielding decomposition products.

Age of the epoch of forming weathering crust at Goleshi, and therefore vein and mesh magnesite, which are one of its members, is still not clear. Weathering crust was formed after the deposition of the ultrabasic, but before the depositing of Miocene sediments. Since the Jurassic age of ultrabasic in Serbia is proven, then the epoch of forming of magnesite deposit Goleshi (and other magnesite deposits in Serbia) should be placed in period of time between Cretaceous and Tertiary.

According to the announcement of B. Milošević et all on IX Congress of geologists in Sarajevo, the age of weathering crust on ultrabasic of Serbia, and therefore magnesite deposits, is Eocene.

6 Exploration

This section has been compiled from the review of limited available historic scanned hardcopy plans, sections and program reports, and summary reports entitled "*Complex organization of associated labour Magnohrom – refractory materials – Kraljevo Work Organization Magnesite Mine and Industry Goleshi – Magura, May 1985*", and March 2008 research study report "*Istrazivanje, otkopavanje, Prerada Rude Magnezita I Dunita, Mart, 2008, Magura*", made by two experts from Magnohrom Kralevo and an expert of MIM GOLESHI, which is written in Serbian language.

Documentation suggests that there are at least 19 drill holes for around 5,800m in the project area. However, little information on these holes has been found to date and cannot be verified.

The following section documenting exploration pre-1964 to 1984 is modified from the May 1985 report. There is no precise data regarding the volume and type of the exploration works performed at Goleshi before 1964, and no comment can be made. Exploration data from 1964 is discussed below.

In Table 6-1 below, the exploration works completed between 1964 and 1968 are presented.

Table 6-1 Exploration works from 1964 to 1968

	Type of work				
Year	Drives	Raise	Drill Hole	Chem. analysis	Value of work
1964	1,000m	-	-	-	350,000
1965	1,050m	-	-	-	520,533
1966	875m	120m	-	-	912,276
1967	416m	1,195m	-	171 pcs	1,115,534
1968	996m	106m	391m	56 pcs	837,630
TOTAL:	4,337m	1,421m	391m	227 pcs	3,735,973 Din

Exploration of magnesite veins at Goleshi continued from 1968 to 1971, with the exploration works completed and amount of investment presented in Table 6-2.

Table 6-2 Exploration works from 1969 to 1971

	Type of work				
Year	Drives	Raise	Drill Hole	Chem. analysis	Value of work
1969	996m	142m	1,827.0m	85 pcs	1,025,020
1970	979m	382m	164.5m	50 pcs	1,025,050
1971	463m	472m	593.5m	20 pcs	943,065
TOTAL:	2,438m	996m	1,827.0m	155 pcs	2,993,135 Din

Exploration works continued from 1972 to1975, albeit at a somewhat lower intensity. The works carried out is shown in Table 6-3.

Table 6-3 Exploration works from 1972 to 1975

	Type of work				
Year	Drives	Raise	Drill Hole	Chem. analysis	Value of work
1972	633.5m	285.3m	605.5m	40 pcs	1,069,250

1973	396.5m	113.8m	236.8m	30 pcs	1,667,250
1974	459.9m	184.5m	766.0m	40 pcs	2,455,933
1975	710.5m	321.5m	313.1m	15 pcs	3,100,370
TOTAL:	2,200.4m	905.1m	1,921.4m	125 pcs	8,292,803 Din

In period from 1976 to 1979 the intensity of exploration works in the Goleshi mine significantly increased, and this period saw more exploration activity than any period previously. The volume and value of the exploration work is presented in Table 6-4 below.

In order to complete such volume of exploration works, the mine had to engage an external contractor. Enterprise "Geosonda" from Belgrade was contracted to carry out the exploration work, which was completed in early 1980. Due to the increased volume of exploration work, the investments also increased, and the mine could not afford without assistance and funds for geological exploration were secured through loans and increased investment of the mine and wider socio-political community.

Table 6-4 Exploration works from 1976 to 1979

	Type of work		
Year	Drives	Raise	Value of work
1976	1,153.20m	327.70m	8,930,000
1977	1,823.00m	726.60m	13,817,000 Din
1978	1,545.10m	560.80m	13,852,000
1979	867.50m	270.20m	6,361,000
TOTAL:	5,388.80m	1,885.30m	42,961,000 Din

There was limited exploration completed in 1980. However, between 1981 and 1984, the aggressive exploration works continued and the work accomplished is shown in Table 6-5.

Table 6-5 Exploration works from 1980 to 1984

	Type of work		
Year	Drives	Raise	Value of work
1980/81	538m	408m	10,400,000
1982	1,233m	28m	23,000,000
1983	1,660m	317m	40,000,000
1984	1,400m	500m	45,000,000
TOTAL:	4,831m	1.502m	118,400,000 Din

Sampling from the development drives was done using the method of "coarse furrow" or channel sampling with an approximate width of 10 cm. The channel was done over the entire thickness of the vein, where possible and perpendicular to the mineralisation. However, the channel sampling was done selectively, i.e. only in magnesite, while the larger barren inclusions of serpentinite were omitted.

All the exploration up until 1984 was used as part of the estimate of historic "ore reserves" as per the results below. The final estimate was released on the 31st of December 1984.

A summary of exploration work metrics is modified from the March 2008 research study report as per Table 6-6 below.

Table 6-6 Exploration work in Year 1964 – 1990

Year	Corridors (m)	Raises (m)	Holes (m)	Chemical analyses (pieces)	Value of jobs (USA $)
1964 - 1970	6,312	1,945	2,382	362	2,830,650
1970 - 1980	8,051	3,262	2,514	330	3,824,900
1980 - 1990	9,000	2,200	1,000	750	3,697,000
1964- 1990	23,363	7,407	5,896	1,442	10,352,550

6.1 Underground Exploration Drives and Raises

Review of available scaled hardcopy level plans and sections provide a reasonable insight into historic underground drive and raise exploration data collected, location points and interpretation for use as input to subsequent mineral resource and reserve estimation and mine planning.

Figure 6-1 and Figure 6-2 below shows historic plans for the XXI 408m level, and part of the Magura 1 vein mapped and sampled at that level. Plans record the ID and location of regular sample points (assumed to be channel samples across the vein), the vein thickness and the associated chemical analysis as a table.

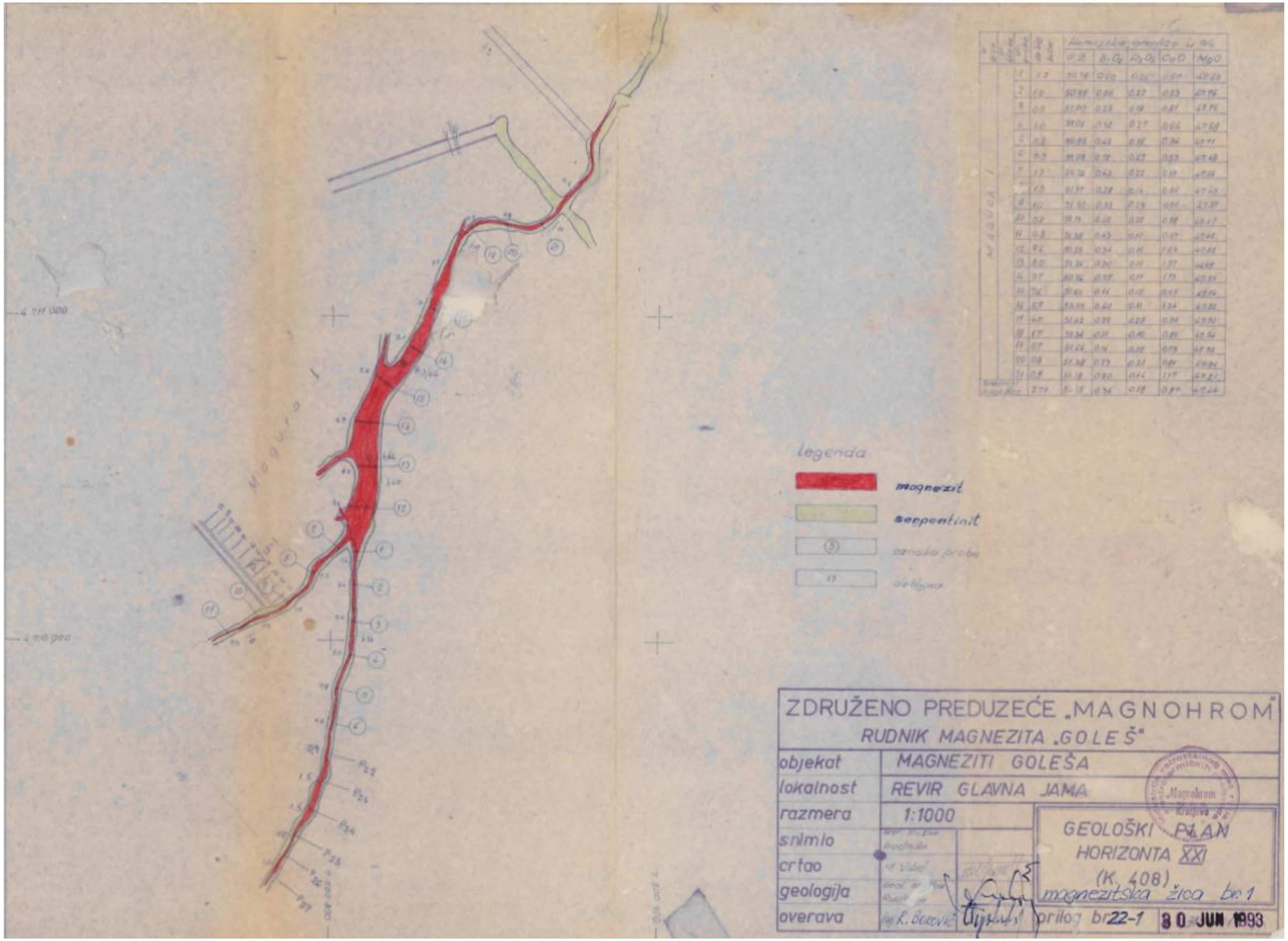


Figure 6-1 Historic plans for the XXI 408m level

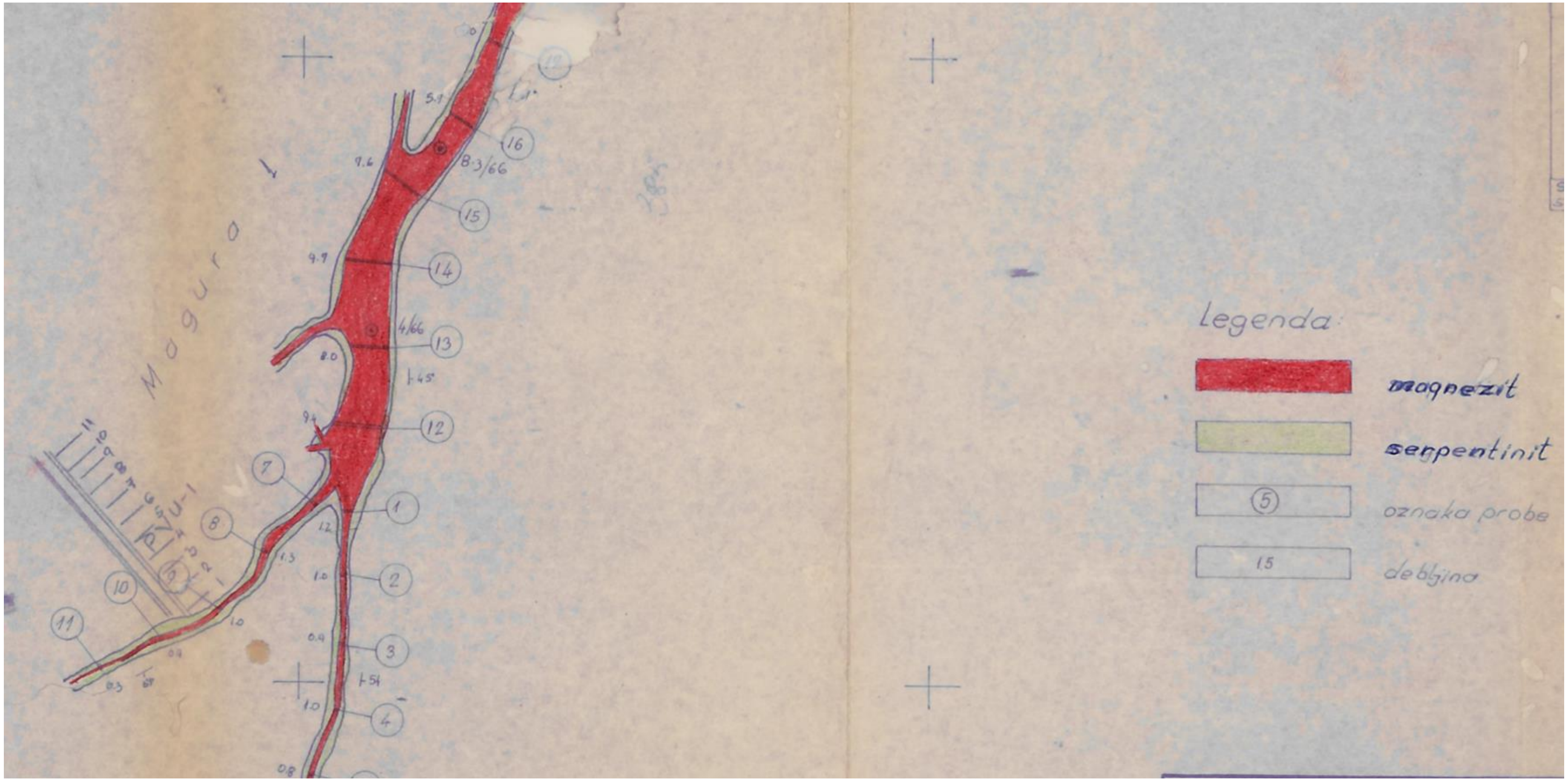


Figure 6-2 Historic plans for the Magura 1 vein

The hardcopy plan key denotes the interpreted magnesite vein, serpentinite host unit, channel / probe sample location and vein thickness. Location of exploration raise between level XXI 408m and the level above also shown.

Figure 6-3 below shows an example scaled hardcopy profile for exploration raises from level 438mRL to approximate 490mRL level with interpretation of the magnesite veins and serpentinite host unit. ‘Probe’ locations are displayed, however without thickness measurement and analytical results. Exact profile location is currently unclear.

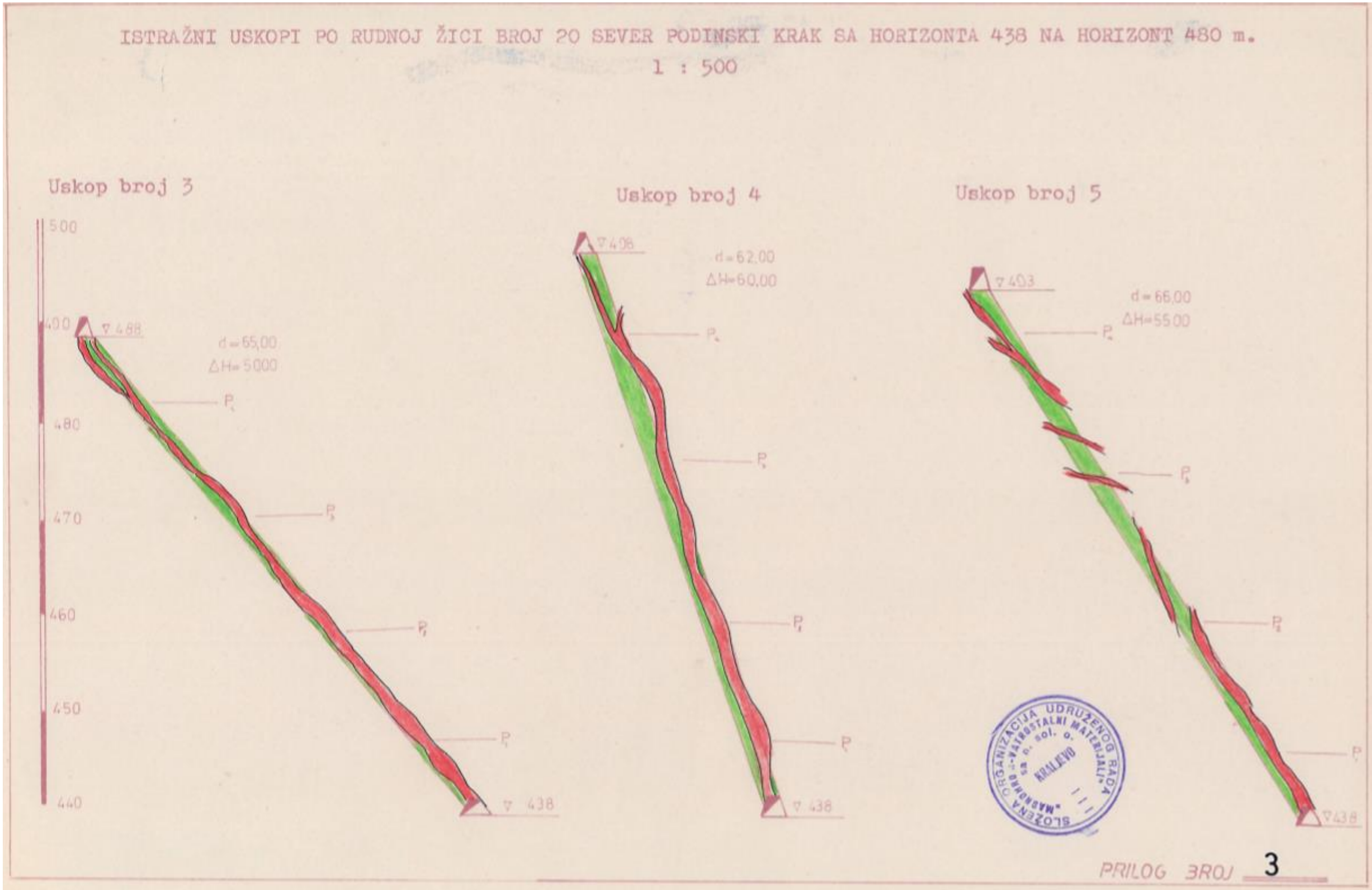


Figure 6-3 Scaled hardcopy profile for exploration raises from level 438mRL to approximate 490mRL level

It is the authors opinion that the historical exploration and interpretation work, although at present unverified in terms of accuracy of location control, thickness measurements and analytical results appears to be of a very good standard.

Available selected reports, old sections and level plans were used to build a basic representation model of the veins, topography and underground development from the Goleshi project. The objective of the models being to aid visualise the extents, orientations and geometry of magnesite vein mineralisation in relation to topography, known locations, existing pits and infrastructure. The models are a 1st pass schematic representation, by no means complete or at the level of accuracy to enable reasonable volumetric and tonnage estimates, nor have they been depleted by removal of mined areas.

Firstly, a topographic contour map was constructed using a number of old plans, which were georeferenced into MicroMine. The contours lines were simply traced and an RL assigned to each string, which was subsequently used to create a 3D surface. Once the 3D wireframe was created, a Google Earth image was draped onto it. The results are shown below in Figure 6-4 taken from screengrabs of work with MicroMine modelling software.

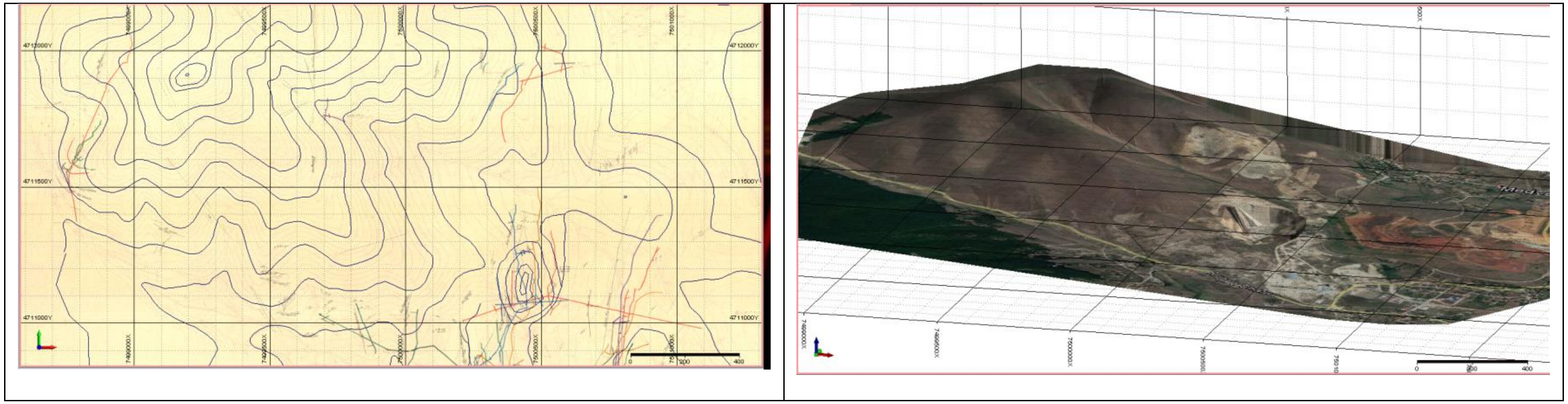


Figure 6-4 Two screen-grabs of work with MicroMine

Additional maps and plans were georeferenced into MicroMine and the veins were digitised, creating strings which were labelled by vein name which helped in identification, as shown in the images below. The veins were assigned an RL for 3D purposes which was used in the wireframing process. Any underground development on the plans was also digitised. The development was digitised (see Figure 6-5) as strings and later converted to a profile shape, representing a typical underground drive.

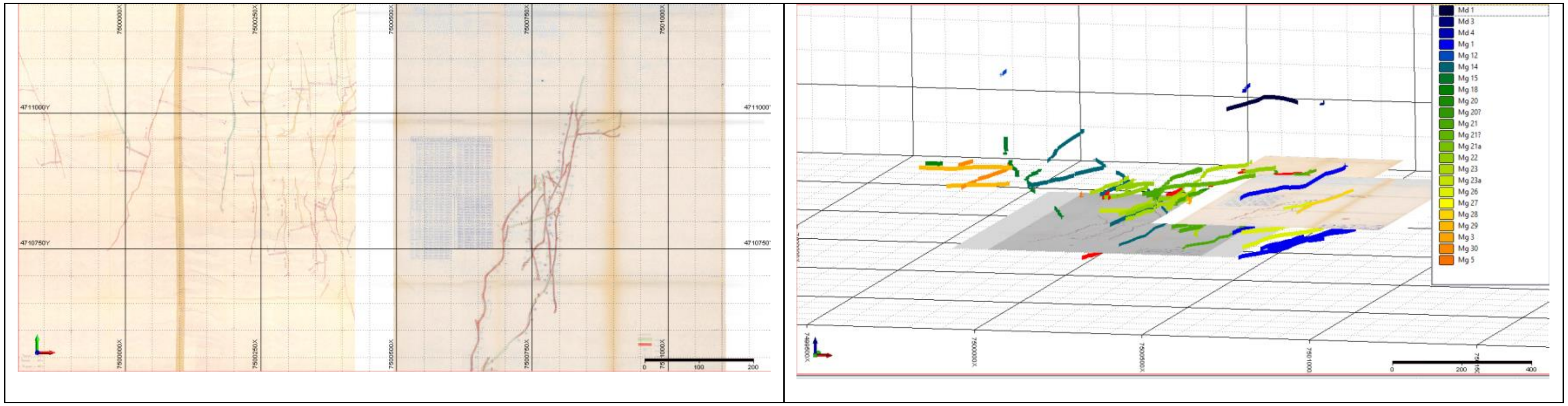


Figure 6-5 Digitised underground plans

The veins were then wireframed using additional control strings using the previously digitised vein strings in 3D and verifying with plans and cross / long sections (see Figure 6-6). The wireframes were then booleaned to the topographic surface. The final veins are shown below.

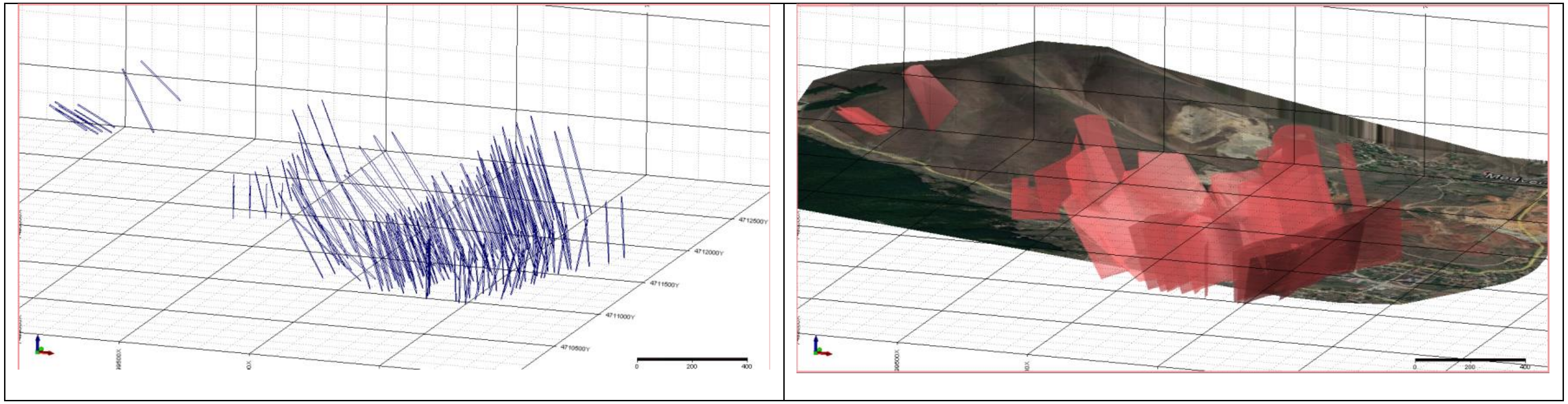


Figure 6-6 Digitised veins

Cautionary Notes

The georeferencing of historical plans and sections is subject to errors and the associated veins should only be used for schematic and illustrative purposes only.

The dimensions of the veins are based on incomplete historical plans and sections and have not been independently verified. The veins are used for illustrative purposes only and should not be used for any resource estimation studies.

6.2 Drilling

Reports suggests that there are at least 19 drill holes for over 5,800m at the project area. Hole numbering observed on hardcopy plans, sections and logs suggest a greater number than 19 holes.

At present, only five drill logs and several plans have been located within the historic data. An example plan and drill hole log is shown in in Figure 6-7 and Figure 6-8 below.

There is no geotechnical data associated with the drill logs and no accompanying procedures or other documentation.

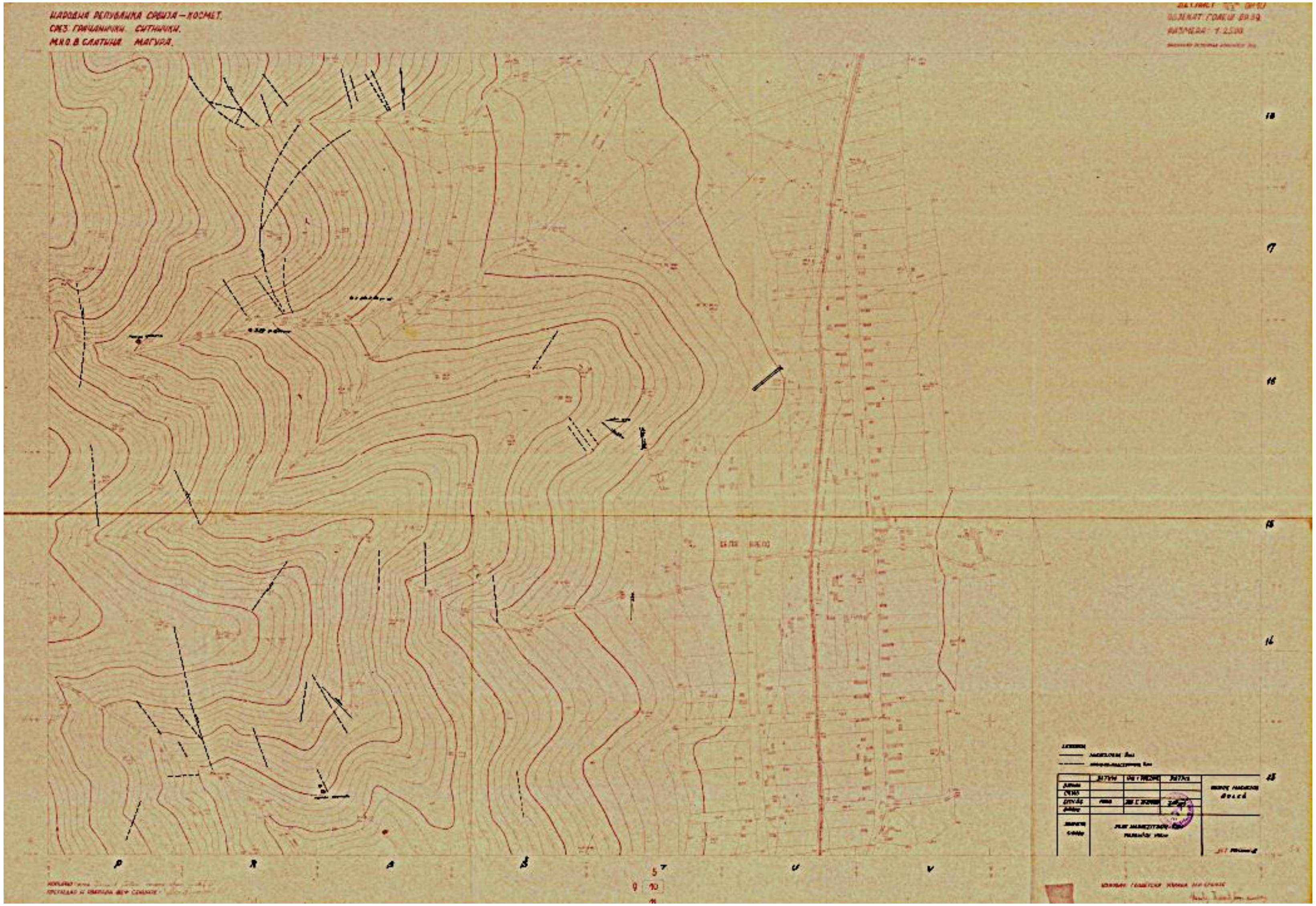
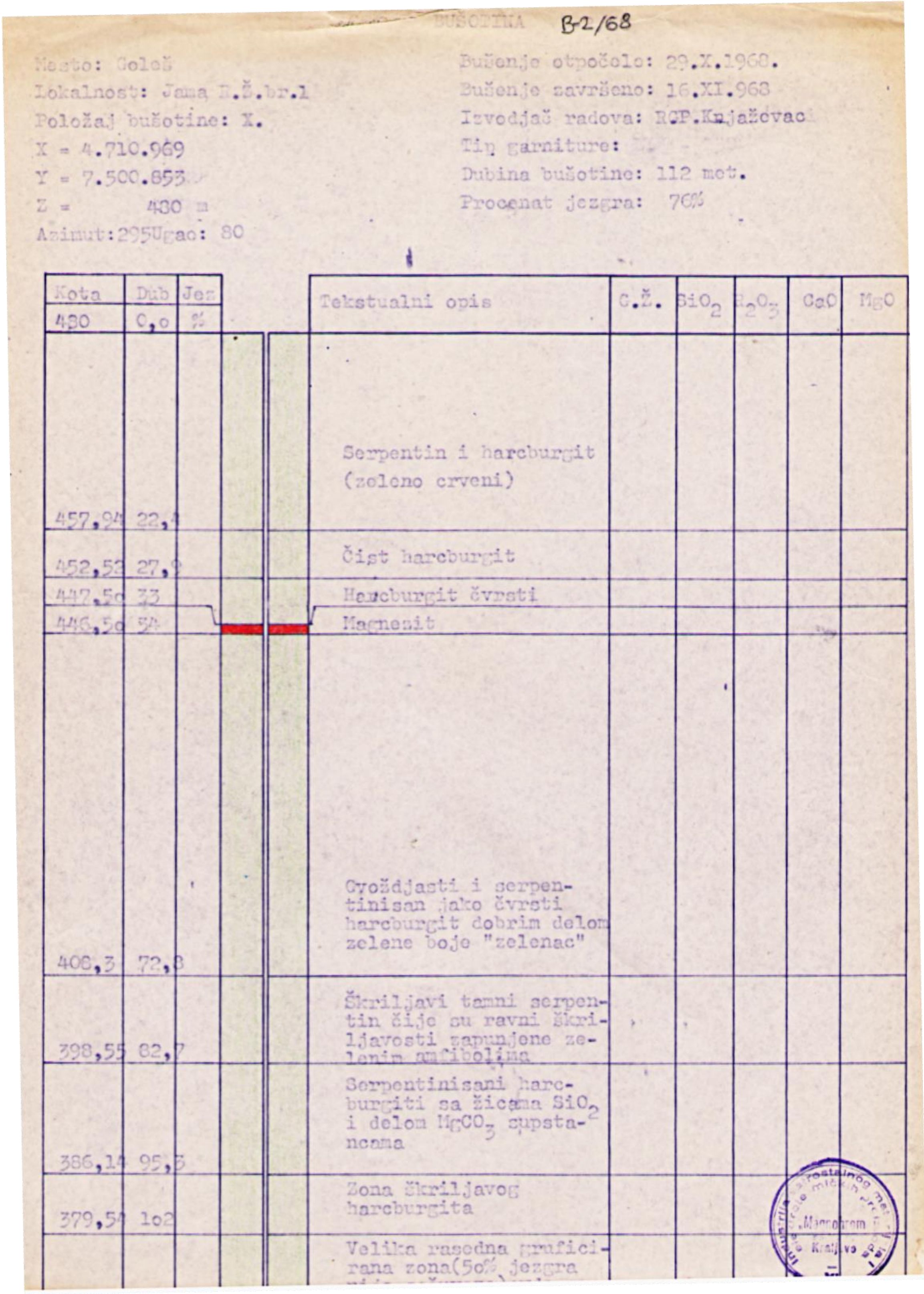


Figure 6-7 Drill hole plan with holes B29, B30, dated 1956



BUŠOTINA B-2/68

Mesto: Goleš
Lokalnost: Jama R.Ž.br.1
Položaj bušotine: X.
X = 4.710.969
Y = 7.500.853
Z = 480 m
Azimut: 295 Ugao: 80

Bušenje otpočelo: 29.X.1968.
Bušenje završeno: 16.XI.968
Izvodjač radova: RGP.Knjaževac
Tip garniture:
Dubina bušotine: 112 met.
Procenat jezgra: 76%

Kota	Dub	Jez	Tekstualni opis	C.Ž.	SiO_2	R_2O_3	CaO	MgO
480	0,0	%						
457,94	22,4		Serpentin i harcburgit (zeleno crveni)					
452,52	27,9		Čist harcburgit					
447,50	33		Harcburgit čvrsti					
446,50	34		Magnezit					
408,3	72,8		Grozdjasti i serpentinisan jako čvrsti harcburgit dobrim delom zelene boje "zelenac"					
398,55	82,7		Škriljavi tamni serpentin čije su ravni škriljavosti zapunjene zelenim amfibolima					
386,14	95,5		Serpentinisani harcburgiti sa žicama SiO_2 i delom $MgCO_3$ supstancama					
379,54	102		Zona škriljavog harcburgita					
			Velika rasedna grufici-rana zona(50% jezgra ...					

Magnohrom Kraljevo

Figure 6-8 Drill hole log B2-68

In 2009 some limited amount drilling was completed in the Shpati using an Atlas Copco 442 PC, as shown in Figure 6-9 below. However, the purpose and details as to the depth azimuth and direction, and any data collected from the drilling program are unknown.

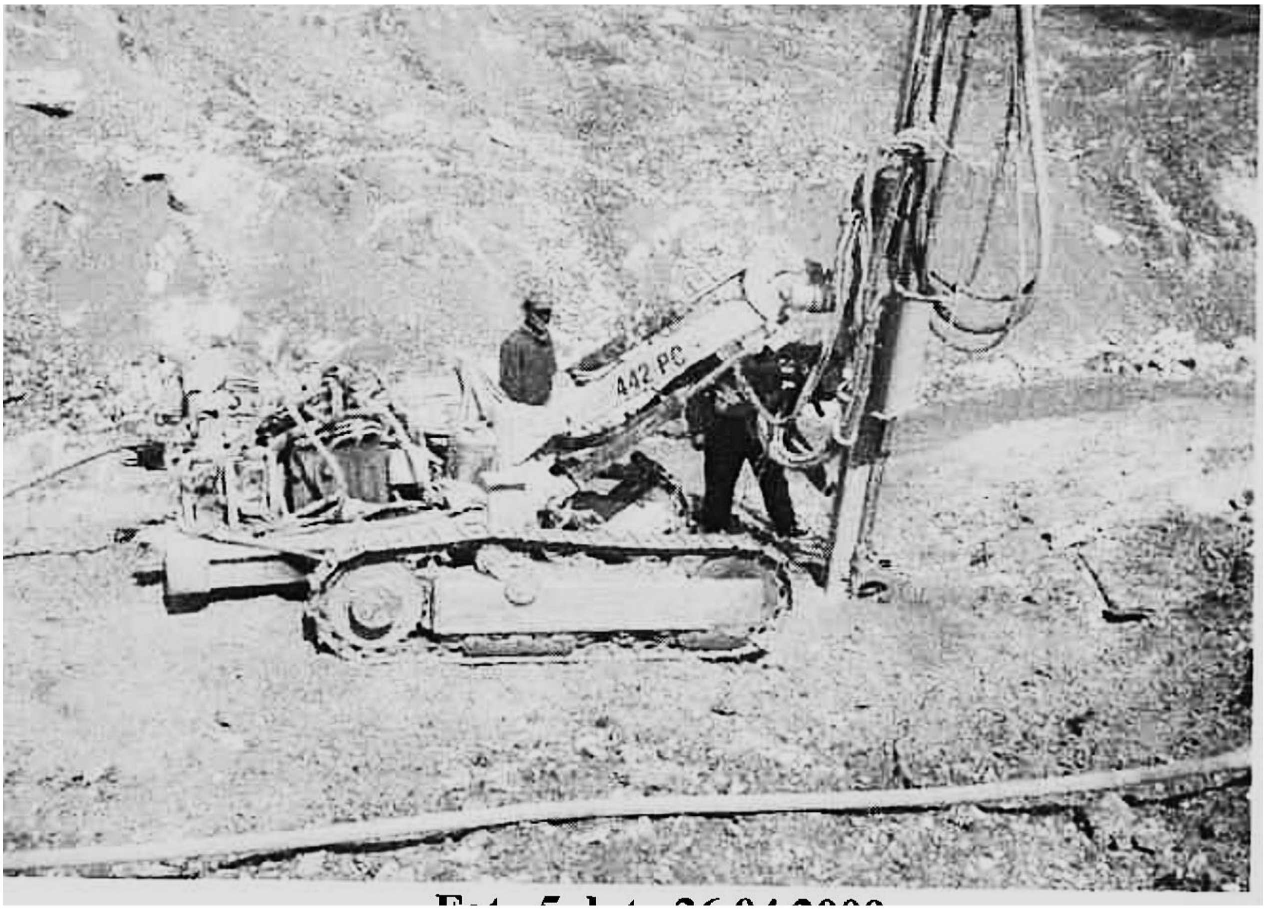


Figure 6-9 Atlas Copco 442 PC photo dated 26.04.2009

A review of available hardcopy plans and sections reveal a number do show drill hole collar, trace and interpreted contact information, an example of which is shown in Figure 6-10 below. Approximate collar locations, drill hole trace and significant contact with the dolomite-schist basement are shown for holes BR23 and BR7.

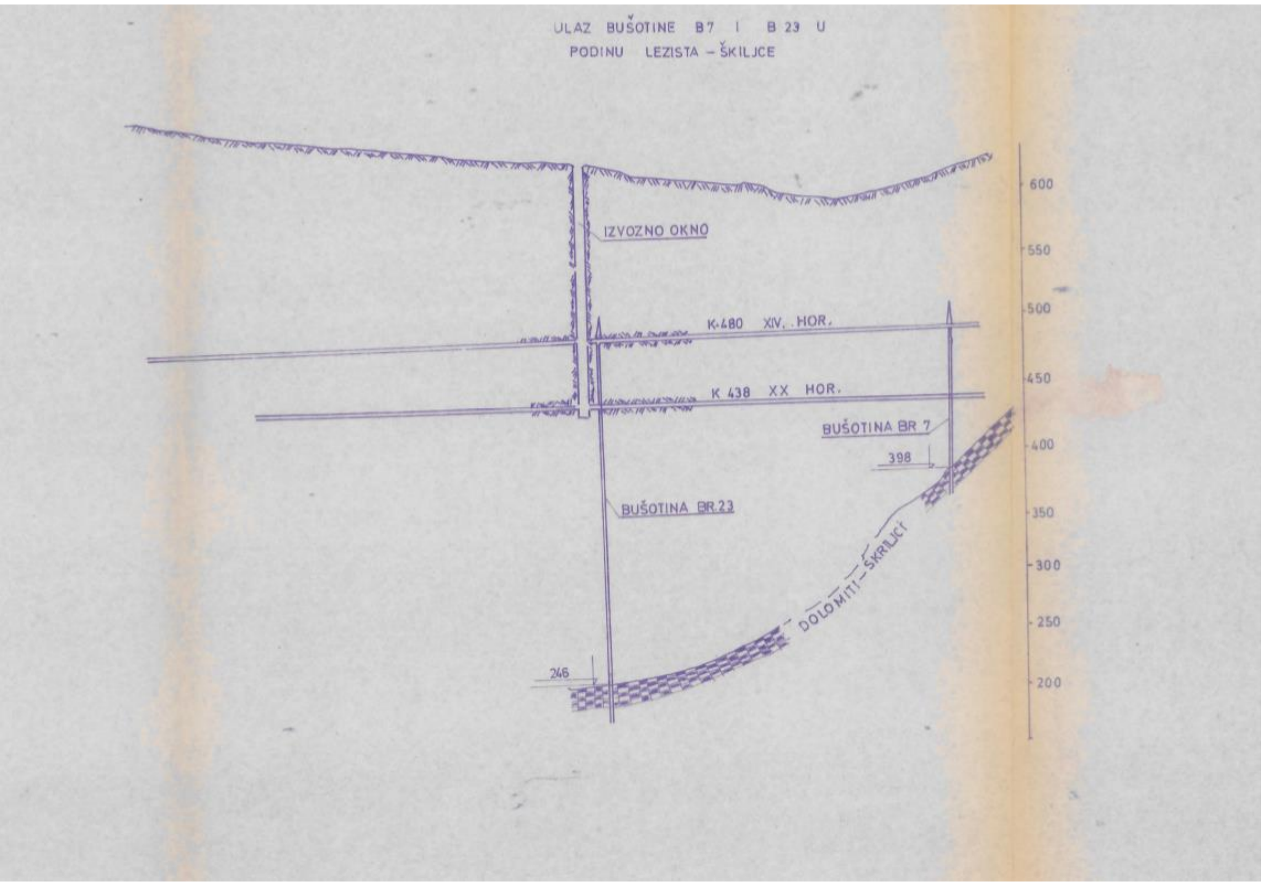


Figure 6-10 Cross section showing Approximate collar locations, drill hole trace and significant contact with the dolomite-schist basement for holes BR23 and BR7

With such limited data, it is impossible for the Competent Person to comment on the accuracy and reliability of drilling procedures and results. However, the author has no reason to disbelieve the recorded drill data and interpretations provided and reviewed, however at the current time uncertainty exists as to exact location and trace of historical drilling, and associated geotechnical, geological and analytical data.

The project would immediately benefit from the capture and import of available drill data into a digital format, compilation in a drill hole database for use in 3D geological modelling and mining software.

6.3 Sample Preparation, Analyses, and Security

There are currently no sample preparation procedural descriptions, associated data or independent analysis data to verify the raw and combined calculated mean analytical values for the deposit. It is impossible for the Competent Person to comment on the sample preparation, analyses, and security of data.

6.4 Data Verification

All the results described in this report result from work completed by previous operators.

The authors have completed a site visit including check of geology and mineralisation, verification sample collection; desktop report, news releases, hardcopy and digital data review; database cross-reference and validation as part of the data verification exercise.

There is no QAQC data or significant comparison analytical data to assess for verification purposes. It is impossible for the Competent Person to comment on the accuracy of any analytical data at this stage.

Inros Lackner have relied upon information contained within historical exploration reports, maps and level plans. The author is satisfied with the level of detail and accuracy between the geological logs, and geological interpretation and levels. A digital geological database, certificates correlate for sampling, and the hardcopy assay database were not presented to the team of experts during the site visit.

The author believes that the data quality is adequate for the purpose of exploration stage assessment, interpretation, and definition of exploration targets. However, use of historical data as input to mineral resource category estimates compliant with JORC 2012 will require further addition of exploration data, further verification work including, duplicate check sampling and / or twin verification drilling.

6.5 Mineral Resource Estimates

There are currently no resources defined in accordance with JORC 2012 for the project.

6.6 Mineral Reserve Estimates

There are currently no reserves defined in accordance with JORC 2012 for the project.

7 Historic Mining

The Magura Mine at Goleshi, is one of the most developed pits in the country with an overall length estimated development at over 55km. Between 1971 and 1985, over 15,000m of exploration drives and over 8000m of explorations raises were completed.

Data on the amount of exploration works done per year are provided in the History chapter (Chapter 6). The following section discusses the spatial relationships of deposit within the different levels, noting which magnesite veins were explored on that level.

7.1 Level Review

Originally, the Goleshi mine was opened by drift and cut, both from the surface and individual levels. All the raises were built in the exploration phase in magnesite veins and were later converted into main export facilities.

During the opening of the mine, the central area was divided in two parts, called: “Pogon Glavna jama” (*Section Main pit*) and “Pogon Potkop” (*Section Drift*), although in both areas the same magnesite veins are explored. There is a link between these two areas through drives and raises.

Today, the Goleshi mine is opened with four main levels, marked as: III level elevation 602m; X level elevation 545ml XIV level elevation 480m and XX level elevation 438m. A brief overview of some of the levels and which magnesite veins were explored and exploited will be discussed in this section.

7.2 Level III at Elevation 602m

In this level, besides the preparatory and exploration works, mining of several magnesite veins was done. The following magnesite veins were explored on this level: Magura no. 14, no. 15. no. 22. no. 28. no. 29, no. 30 and magnesite vein of area “Gropa Ruše”.

Apart from these abovementioned, exploration work was started in the direction of area Mirena, but due to lack of funds and certain technical difficulties, the work was suspended. All mentioned magnesite veins were explored through raises from this level and followed up to the surface. There are graphical documents with an overview of the magnesite veins in transverse and longitudinal cross-section with all necessary geological documentation, as illustrated in Figure 6-10 and Figure 7-1.

7.3 Level X at Elevation 545m

This level was worked in last several years of production and followed veins: Magura no. 1, no. 14, no. 15, no. 20, no. 21, no. 22, no. 22a, no. 22b, no. 22 (K1, K2, K3-roofing arms), no. 23 and 23a. The total length all development works to this date over 6,000m. The magnesite veins in this level are crosscut by raises. These raises at the same time represent a link to the higher horizon at elevation 602m as shown in Figure 7-1 and Figure 7-2.

7.4 Level XIV at Elevation 480m

This level was the most developed and most diverse, and subsequently the most important at Goleshi, producing the most ore. All the ore bodies and magnesite veins known at Goleshi had been explored, prepared and exploited in this level. The maps and plans for this section are illustrated in Figure 7-1 and Figure 7-2.

7.5 Level XX at Elevation 438m

All magnesite veins that were encountered at higher levels are exploited in level XX at elevation 438m.

Previous exploration works have shown that magnesite veins with a general strike direction of north-south (Maura no. 1, no. 14, no. 15, no. 21, 22 etc.) tend to decrease in width are depth, except for magnesite vein no. 20 which is becoming thicker the deeper it goes, for data obtained up to level 438m.

Magnesite veins that have general strike direction east-west and northeast-southwest (Magura no. 22-roofing arms, no. 23a etc.) also have the tendency to increase thickness with depth.

Below level XX at elevation 438m, magnesite vein Magura no. 1 was partly explored and opened. Higher volume of development works was not done due to technical issues and greater inflow of underground water.

It should be mentioned that drilling intercepted magnesite vein Magura no. 1 up to the level of elevation 400m (unverified by AMS). It is expected that level V at elevation 400m will be subject to similar intense exploitation as that of level XIV at elevation 480m, likely to increase the resources. The maps and plans for this section are illustrated in Figure 7-1 and Figure 7-2.

At present, the largest part of proven reserves through exploration work done in last several years is between level XX at elevation 438m and level XIV at elevation 480m.

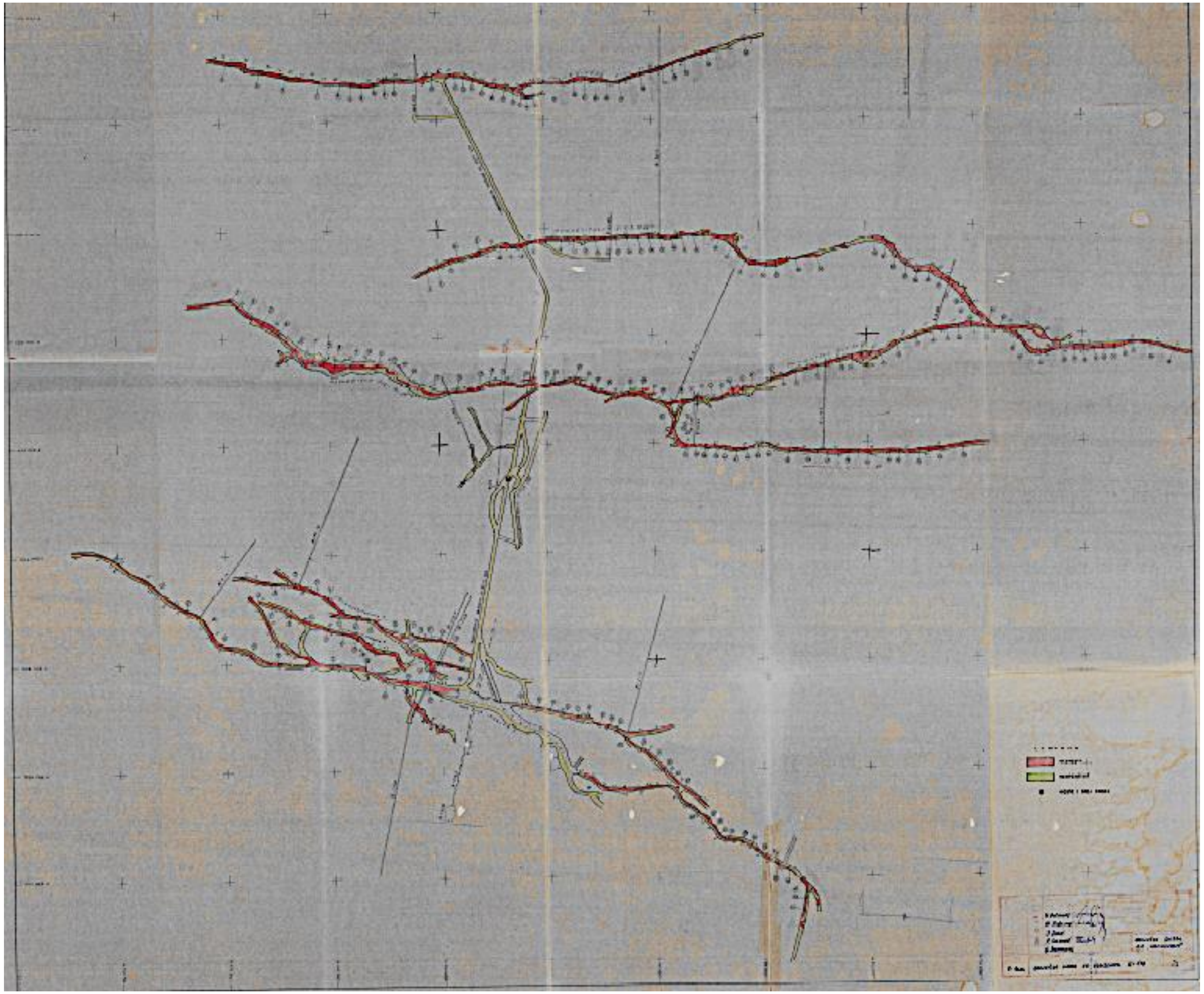


Figure 7-1 Plan view of the Goleshi mine

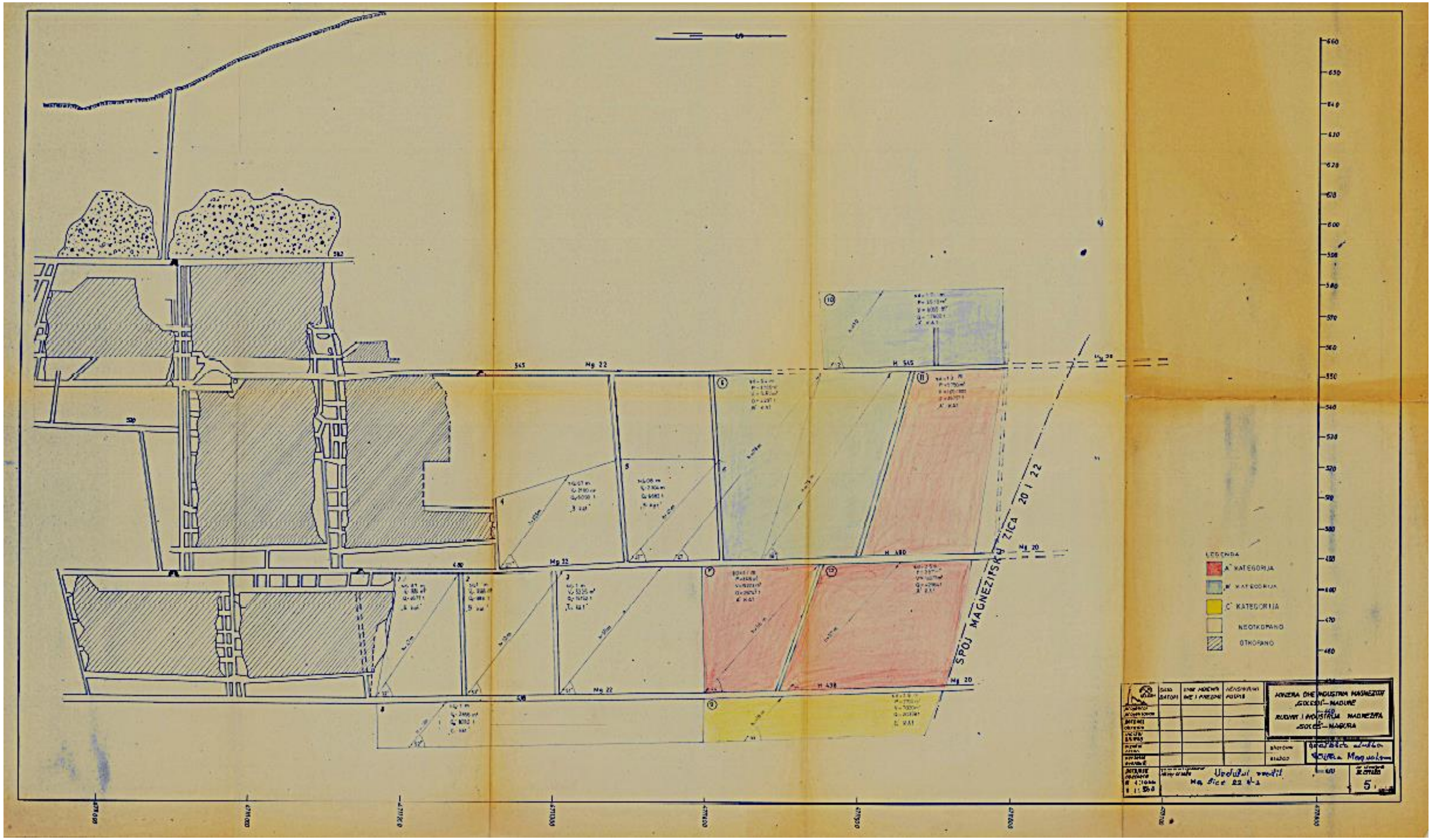


Figure 7-2 Example long section of the Goleshi mine, Magura 22

8 Geology, Resources and Historic Mining Interpretations and Conclusions

The concession, which incorporates the Goleshi deposit represents a structurally controlled hypogene epi / mesothermal magnesite deposit.

Magnesite mineralisation within the ultramafic massif forms a few separate concentration centres as: Magura (the most important), Medvedce, Mirena, Stankovci and Ariljacha. These concentration centres altogether form the Goleshi magnesite deposit. Magnesite mineralization forms the following structural-morphological types: simple veins, complex veins (with apophyses), irregular lenticular bodies, and stockwork (Figure 5-4). Within structural-morphological types, the following textural types of magnesite mineralization occur: massive, banded, and brecciated.
Magnesite veins (simple and complex) have regular, tectonically predetermined orientation because they were formed by filling of open fractures (faults and cracks) in the Goleshi ultramafic massif. They form two perpendicular systems: the main one of approximate N-E strike and 50-70 dip towards E, and the second of approximate W-E strike and a dip of 40-50 towards N.

The greatest part of magnesite veins that have been mined or investigated have a thickness of 0.5-3 m while its maximal value is about 20 m (Magura 1). Vein length mostly ranges between 100 m and 500 m, while its maximum is about 1,200 m (Magura 1). Veins spread into depth ranges between few tenths to a couple hundred meters, while the maximum depth spread is above 300 m (Magura 21).

The focus of the assessment rests upon the Magura deposit for which historic hardcopy data, and historic production records have been made available.

Previous soviet-style exploration, although limited appears reasonable, systematic and based on a solid understanding of the geology. This, along with a long history of production has enabled the interpretation of reasonable ‘hard-copy’ model of mineralisation within deposit area with the result that the structural control on mineralisation has become apparent.

It is impossible to say at this time as to the quality of the sampling. Although it was selective, there are no QC sample or duplicate results for comparison and assessment. Sample lengths are unknown and how this relates to the omission of the waste.

In terms of resources and reserves, at present no resources or reserves are currently defined in accordance with JORC code 2012 for the Goleshi project.

The authors interpret historic resources and reserves to have been estimated, optimised and classified in a similar way to the Russian GKZ system.

A broad equivalence between the Russian GKZ and International classifications may be presented as follows: see also Figure 8-1 below.

Russian	International reporting code, JORC etc
A, B	Proven reserve / measured resource
C1	Proven or probable reserve / indicated resource
C2	Probable reserve / indicated resource / inferred resource
P1	Inferred resource
P2	Reconnaissance mineral resource (as found under UN Framework Classification for Reserves / Resources, code 334)
P3	No equivalent

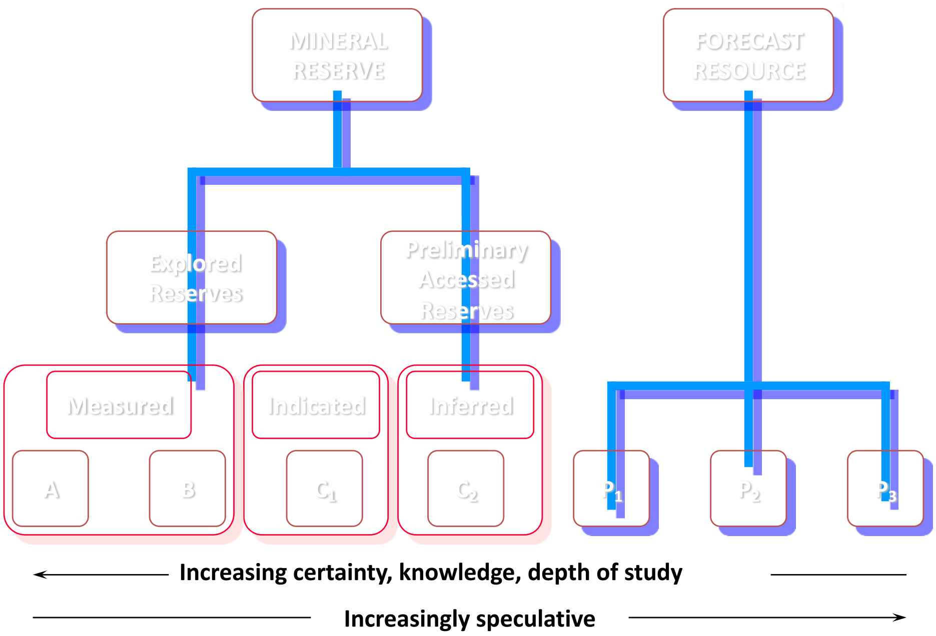


Figure 8-1 Possible conversion of GKZ system to JORC 2012

A discussion of significant risks and uncertainties that could reasonably be expected to affect the reliability and confidence in the exploration information, historic models and grade tonnage estimations are summarised below.

Due to the essential recommended further exploration and verification work to be undertaken by the issuer using JORC 2012 guidelines and industry accepted best practice methodologies, the author does not foresee any significant impact of the current geological risks and uncertainties of the exploration data on the projects potential economic viability or continued viability.

All of the assessment and targeting is based on the review of hard copy capture of comprehensive historic exploration and production records and although the quality of the work done is reasonable, errors are expected to be introduced during the transfer, referencing and drafting of paper copy results. Only very limited field studies and ground truthing of the different generations / eras of exploration has been undertaken at this time. Analytical results are non-verifiable and as such, used to only indicate the presence of mineralisation of potentially significant grades and target identification for further testing.

The author considers the quantity and quality of geological and exploration data insufficient to report resources or reserves in accordance with JORC 2012, however considers geological and exploration data satisfactory for the purpose of exploration target zone development and conceptual scoping study level assessment.

Further work to improve survey control on historical data, digitally capture historic hardcopy data generate geological models and mine workings depletion models are recommended going forward, along with essential additional new data collection programs to improve the quantity and quality of input data to reliable model generation and mine planning.

Based on review and consideration of the deposit type, currently available data, historic resources, level plans and sections, geological interpretations, production records and discussions with site personnel, an immediate Exploration Target is presented in accordance with JORC 2012 for the Magura zone Table 8-1.

Table 8-1 Exploration target tonnage in accordance with JORC 2012

Scenario **	Volume (m^3)	SG	Tonnes	MgCO3 %
Conservative August 2019 Exploration Target	700,000	2.9	2,000,000	42-46
Pragmatic August 2019 Exploration Target	850,000	2.9	2,500,000	42-46

** 0% cut-off

The deposit remains open along strike and at depth below the XX 438 level, and poorly tested between the major vein structures outside the extents of the mining developments.

The historical reports provide no sample evidence for this additional volume but refers to the unexplored strike and down dip extensions of the known vein network. However, it is a reasonable assumption as there are significant areas which do not appear to be within the historic resource area as shown Figure 8-3, as well as the aforementioned strike and dip extensions.

Down-dip potential of the eastern vein cluster around Magura 1 (Figure 8-2) appears constrained by the moderate west-dipping basement contact as shown in the schematic below and evidenced in recorded drill interpretations.

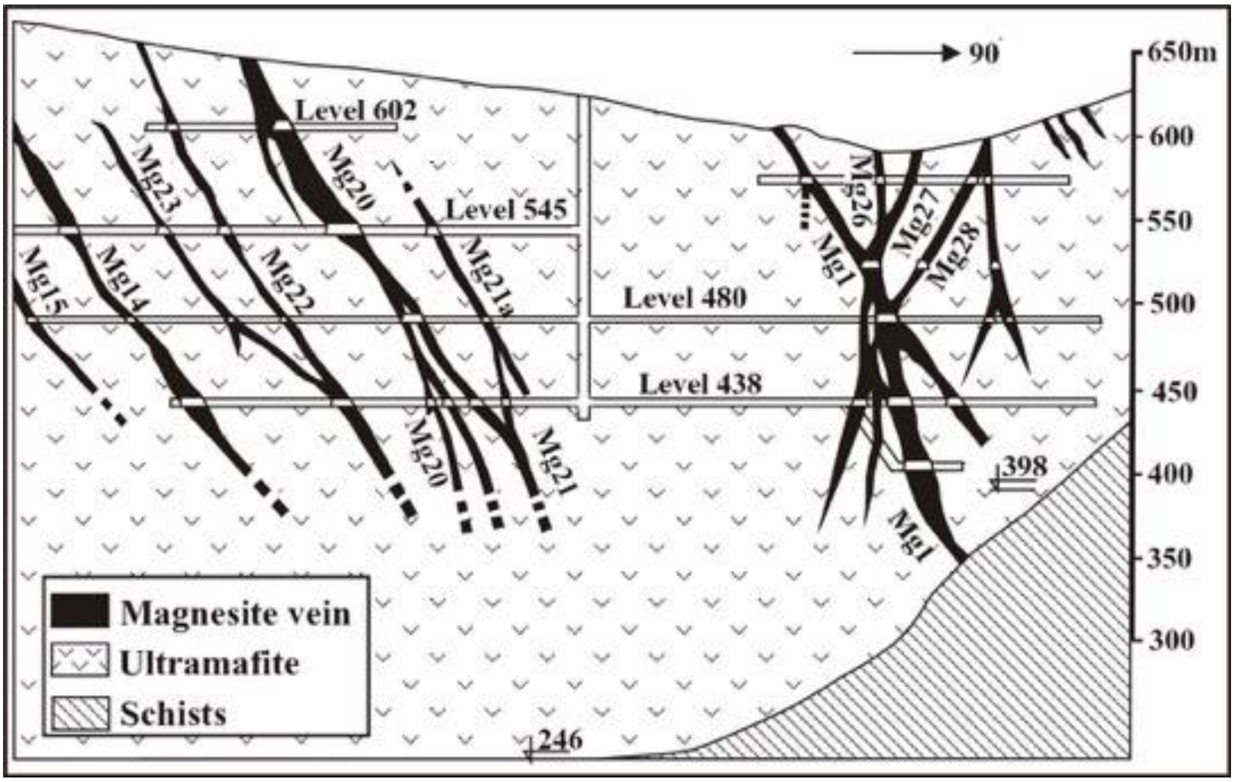


Figure 8-2 Eastern vein cluster around Magura 1

Based on the general knowledge of deposit conditions, unexplored parts of the Goleshi deposit and its peripheral areas, it is estimated that this mine area has an additional

2,500,000 tonnes of reserves of C2 category and this amount also includes poor quality raw material.

Also, in the eighties, exploration of the mesh / stockwork magnesite started at Laletić, with anecdotal reports suggesting that there are potential for approximately 500,000 tonnes of mineralised material for further development. Little is known of the extent and geometry, and grades, and currently this remains an early exploration prospect, along with Medvedce, Mirena, Stankovci and Ariljacha.

The Goleshi deposit is the largest deposit of vein and probably mesh / stockwork type magnesite in the area, which in the past has provided considerable amount of ore to the processing capacities. The author considers potential exists for new exploration to increase the resources of magnesite for input to optimisation and potential conversion for economic exploitation purposes.

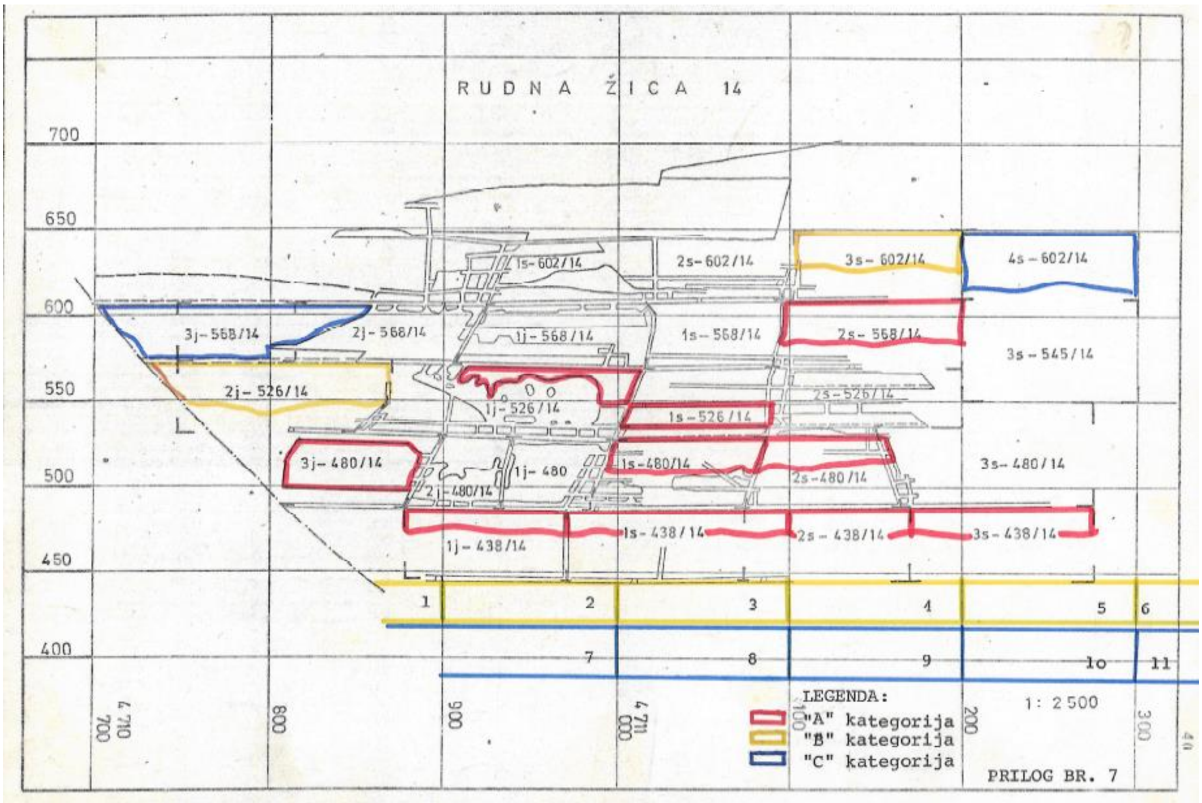


Figure 8-3 Example long section of the Goleshi mine showing “resource” category, from vein number 14

9 Geology and Resources Recommendations

9.1 Geology and Resources

There is a large quantity of valuable hardcopy information and interpretations which require capture in the first instance.

On the basis of this technical report and in consideration of recommended development strategy, the authors make the following exploration and model development recommendations:

- Georeference all hardcopy plans, cross sections and long sections;
- Digital capture all hardcopy data and convert into usable data for import into 3D software;
- Locate all drill hole and assay data and import into a 3D geological and mining software such as MicroMine;
- Create a 3D model of the mine;
- Input of mine plans with sample data into MicroMine, as shown in Figure 9-1;
- 3D laser scan surveys for accurate workings and stope model development for planning, depletion and reconciliation purposes;
- Systematic and controlled underground sampling upon the position of untested mineralisation;
- Underground mapping utilising level plans and sections;
- Twin drilling for verification purposes;
- Bulk density measurement data collection;
- For future sampling programmes, a routine QA/QC program using independent standards and independent umpire laboratory analysis of mineralised drill intercepts is to be implemented as a routine check on the precision of the primary laboratory;
- Re-sampling of historic channel sampling locations where available for verification and input to estimation;
- Set up well documented project specific Standard Operating Procedures to ensure compliance with industry and international best practice, maximise information captured and value from exploration works;
- Develop in-house ‘live’ working geological and deposit models for internal assessment and exploration program planning;
- Development of reliable and classified resource models for inclusion in PFS and FS studies.

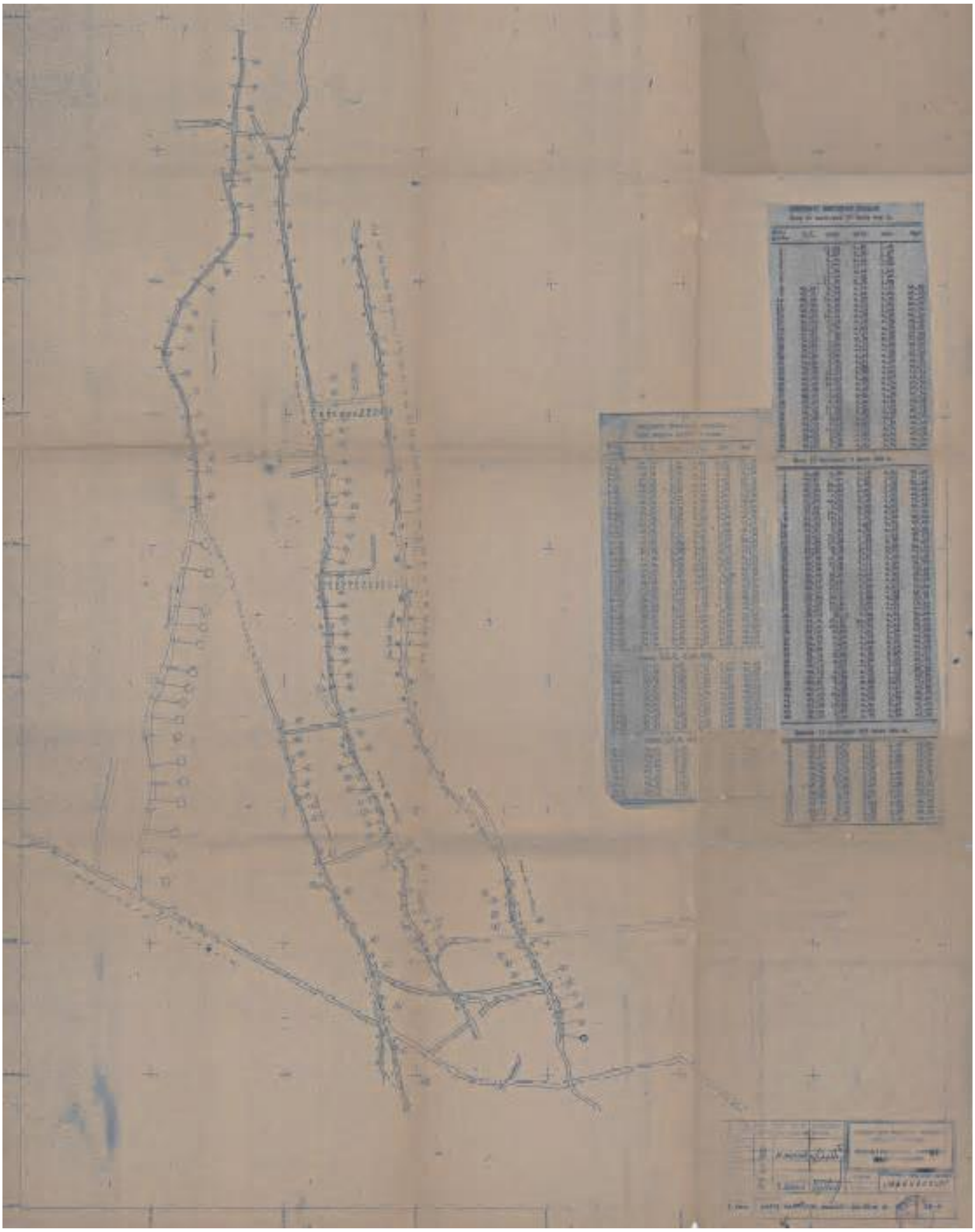


Figure 9-1 Plan of the Goleshi mine with sample data on the right

10 Mining

10.1 Introduction

For the purpose of this study, the conceptual extraction of the Goleshi mineralisation is proposed to be by underground mining methods. The reasons for this proposal are as follows:

- The near surface resources consist of narrow veins and have been extensively mined out;
- Selective mining of these remaining veins would be inefficient and require a high stripping ratio;
- The better grade resources are deeper, and the main underground infrastructure is already in place, although it does need upgrading as defined in this report, and has not been visited by the consultant;
- Underground mining will have the least visual and environmental impact.

Using the conceptual production targets of 150 tonnes per day (tpd) of caustic magnesite, 150 tpd of sintered magnesite and 16 tpd of electro-fused magnesite, which are defined by the capacity of the existing processing facilities, it is necessary to mine around 1,600 tpd of run-of-mine (ROM) material, using the process recovery factors discussed during the site visit. Table 10-1 presents the production requirements.

Table 10-1 Conceptual mine production parameters

	Horizontal furnace	Vertical furnace	Electric arc	Total product
Product	Sintered 92 - 96% MgO	85 - 85% MgO	99% MgO	
ROM tpd	760	760	80	1,600
ROM tpy	228,000	228,000	24,000	480,000
Product tpd	150	150	16	316
Product tpy	45,000	45,000	4,800	94,800

*tpy is tonnes per year

The mine is currently in an unworkable condition. This is due mainly to the following reasons:

- The mine is flooded to around 17 m below the surface. Surface is around 615 m above sea level (asl) and the base of the shaft is 438 m asl, meaning the shaft is 177 m deep. The lowest level reportedly mined was the 520 m level. All levels in metres are quoted in metres above sea level. The volume of water in the mine was reported to be 2.5 million (M) m^3, and appears to be in a steady state. The quality of the water, regarding its pH, or suspended and dissolved solids, was not stated.
- The flooding of a disused underground mine is quite common. Any excavation in a rock mass will enable the water within the rock mass to flow into the open space. Water in rock is transmitted through cracks in the rock or within the pores of the rock itself. Unless pumped out, as would be the case in an operating mine, it will build up to the level of the local water table.
- The mine hoisting gear in the single vertical shaft is not operable and the condition of the shaft itself and the shaft fittings is expected to be poor, whether the shaft fittings are constructed of timber or steel because they have been immersed in water for some time. They are currently submerged and therefore cannot be inspected.

Therefore, before opening up the mine, a programme of rehabilitation works will be necessary, and the work is summarized as follows.

10.2 Mine Rehabilitation

10.2.1 Mine Dewatering

All cost estimates below are conceptual and represent an accuracy of +/- 30%.

The drawings given to the consultant at the time of the site visit show a cross section through the mine workings. The only access shown from surface to the underground levels is the vertical shaft. Therefore, it is feasible to introduce pumps only at this one place.

It is therefore proposed to upgrade the electrical power to the shaft to be able to operate up to two and later four 90 kW electric submersible type pumps.

Figure 10-1 Flygt 2400 submersible pump

Using a Flygt 2400 MT (medium lift) pump as an example, the following performance can be expected.

Table 10-2 Pumping capacity

Head m	80
Capacity L/s	60
L/m	3,600
L/h	216,000
m^3/h	216
Quantity to be pumped m^3	2,500,000
Pumping time h	11,574
Pumping time weeks (two pumps)	35

It may be required only to dewater down to the 500 m elevation in the first instance, since mining was taking place on the 520 m level at the time of closure, and there is evidence of sufficient mineral resources to re-commence mining above the 500 m level. The actual status needs to be established. The use of two pumps in parallel would reduce the time to dewater the whole mine to 35 weeks, and the need to de-water only down to the 500 m level would reduce this further. In either case, it will be necessary to set up a second pump station at the 545 m level (Horizon 10), because the pumping capacity of the MT pump working at a head greater than 80 m would fall off dramatically.

The quality of the underground water will need to be analysed to determine the need for treatment of the water before discharge into local water courses. Specific analysis would be as follows:

- Acidity of the water – pH;
- Dissolved solids to include heavy metals, sulphates, iron;
- Suspended solids.

The type and method of treatment will depend on the quality of the water. Therefore, it is not possible to specify the treatment methods or the cost of treatment until this is measured and reported.

The capital cost of pumping alone will consist of the following elements:

- Upgrade the power supply (380 V or 440 V) to the top of the shaft to handle the 2 and later 4 pumps each of 90 kW, plus the need for a hoist of 5 kW and a ventilation fan of up to 30 kW;
- The purchase of pumps and associated control and switch gear, plus cable;
- An electric hoist to handle the pumps, which should only be submerged to a maximum of 20m into the water and therefore, initially at least, would need frequent adjustment. One hoist per pump with static load of 1,300kg;
- A discharge installation (100 mm or 150 mm) to direct water to its destination;
- Costs associated with the re-fitting of the shaft for access to the pumps, cable and pump line routing, ladderways, lighting and ventilation ducts.

A summary of the capital cost is presented in the following Table 10-3.

Table 10-3 Dewatering capital costs

Job description	Job elements	Quantity	Unit	Capital estimate € each	Capital estimate €
Upgrade electrical power to the shaft	1 kV cable from main mine substation	400	m	25	10,000
	New 1 kV/440 V sub and switchgear	1		35,000	0
	Pump cables 4 times 180 m	720	m	20	14,400
	Pumps	4	each	38,000	152,000
	Electric hoist 5 kW SL 1,300 kg	2	each	20,000	40,000
	Pipe column 100 mm dia	180	m	30	5,400
	Ladders, fittings, cable and pipe supports	180	m	100	18,000
	Lighting	1	set	30,000	30,000
	Vent ducting - plastic, 60 cm dia plus fittings	180	m	25	4,500

Total			274,300

Operating costs for this dewatering programme will consist of the following elements:

- Personnel to operate and maintain the pumps
- Electrical power
- Maintenance spares

Table 10-4 discusses the operating costs for the total pumping procedure.

Table 10-4 Dewatering operating costs

Job element	Quantity	Unit	Cost per unit €	Total cost €	Comments
Personnel - installation	30	man-days	160	4,800	3 people - 10 days
Personnel - operations	490	man-days	160	78,400	2 people - 35 weeks
Electric power	588,000	kWh	0.15	88,200	90 kW, PF 0.95, 35 weeks
Pump spares	5,880	hours	1.35	7,938	€1.35 per hour
Total cost for the programme				179,338	

10.3 Mine Hoist Installation

The current shaft hoisting arrangements appear to be mostly unusable (Figure 10-2 and Figure 10-3). The rope drums may be able to be refurbished but would need stripping down and inspecting. The electric motor is beyond repair and a new installation would be necessary.

Figure 10-2 Current condition of mine hoist

The capital cost would include a new power installation at the shaft head, new hoist motors and controls and new clutches and brakes for the hoist.

The headframe and sheaves would need a detailed inspection before use, and this would lead to complete or partial refurbishment.

It is proposed that a new single drum hoist to hoist 2 skips or cages in balance, be installed. Typically, a hoist rated at 190 kW would be able to hoist a 3 ton skip load and would be able to handle 90 tonnes per hour (tph) over a 14-hour hoist cycle. Since the shaft will also be used for personnel and material, a dedicated skip would be used for ROM hoisting and this would be interchangeable with a cage for personnel and equipment. This would be more efficient than a cage hoisting loaded mine cars, which was the previous method.

The capital cost of a suitable mine hoist, from standard data sheets, is of the order of €800,000. This includes hoist mechanicals, electrical drive and control equipment. An installation cost of €150,000 is added as an allowance. Acquisition of a second-hand hoist unit, if available, would reduce the capital sum.

An allowance for new cages, new ropes and overhaul of the shaft headframe and sheaves is estimated at €200,000 prior to any engineering design or specification. Below Table 10-5 shows the conceptual replacement costs for rehabilitating the mine hoist.

Table 10-5 Mine hoist replacement capital costs summary

Job description	Job elements	Quantity	Unit	Capital estimate €
Mine hoist installation	Mine hoist including all electricals	1	each	800,000
	Installation	1	each	150,000
	Head frame refurbishment and cages / skips	1	each	200,000
	Engineering, design and procurement	1	each	90,000
Total				1,240,000

10.3.1 Shaft Re-Equipping

Figure 10-3 Current condition of main hoisting shaft

Initial re-equipping will be associated with the initial pumping activity, to ensure safe access for the handling and operation of the pumps. It is proposed that the mine would be dewatered to just below the 545 m level in the first instance, before any shaft re-equipping takes place. Once the 545 m level is reached, the level itself can be established, with a water dam, power supply, and lighting. The pumping set-up for the next stage of dewatering will be established and then work can commence on the shaft re-fitting. The main installations in the refitted will be:

- Shaft guides for the cage or skip;
- Columns for the drainage water out of the mine plus columns for clean water for the mining operation;
- A temporary ventilation column;
- Power cables;
- An emergency set of ladders.

Without any engineering work being done, and without a detailed inspection of the existing shaft fittings, it is only possible to make an allowance. The documented capital cost for a 700 m deep shaft for a similar tonnage is around $7.40 M. A shaft of 177 m is therefore expected to cost around $1.87 M. Assuming that the fittings in a shaft are 40% of the capital cost, it is proposed to use an allowance of €680,000 for the upgrading of the shaft. Poor conditions of the shaft equipment are shown in Figure 10-3.

10.3.2 Ventilation

An updated ventilation system will need to be designed and installed. A new ventilation shaft will be built and equipped with an electric force fan. The ventilation circuit will be designed to take fresh air in via the ventilation shaft and the air will be exhausted through the main hoisting shaft.

A fan of the following duty is proposed as an example:

- Airflow quantity (Q) = 50 m^3/s;
- Mine pressure = 1 kPa;
- Fan power (kW) = 90 kW.

A ventilation raise will be required to complete the circuit. This will also serve as a second means of egress from the workings. Initially, a raise of length 200 m will be established. At a mining cost of €2,000 per meter, this will cost €400,000. Plus, the cost of ladderways, which is estimated as €15,000.

The capital allowance for the mine ventilation is therefore as per Table 10-6 below:

Table 10-6 Mine ventilation capital costs summary

Job description	Job elements	Quantity	Capital estimate €
Mine ventilation	Fan, 1230 mm diameter	1	100,000
	Electric motor, AC 90 kW	1	15,000
	Power centre and control	1	25,000
	Engineering, design and procurement	1	25,000
	Installation	1	30,000
	Ventilation raise	1	400,000
	Equip with ladderway	1	15,000
Total			610,000

10.3.3 Mine Accesses

The Cross Section Figure 10-4 through the mine shows the various drives and shafts associates with the different levels.

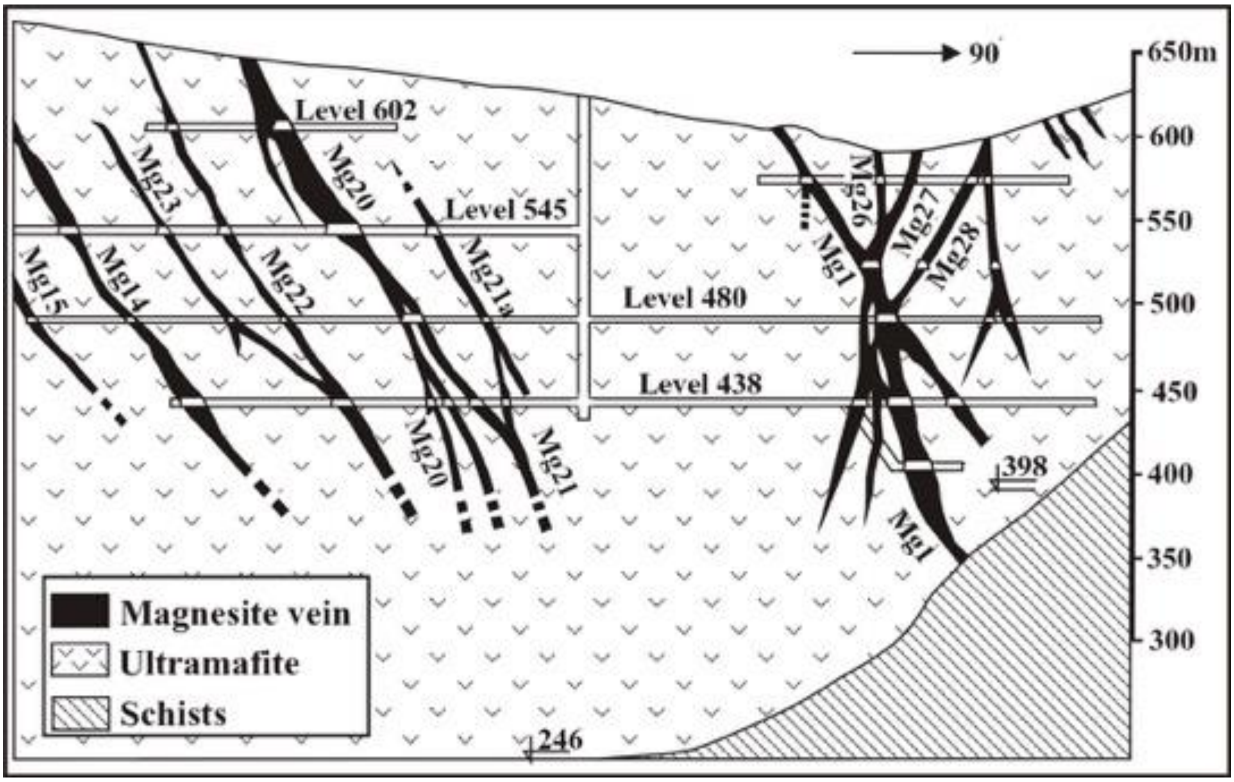


Figure 10-4 Cross section through the mine

All existing mine drives and crosscuts will be cleaned out and assessed for stability and damage. All old track work will be removed, and the mine converted to trackless operations. Without a detailed inspection of the work to be done, an allowance is made based on 25% of the cost of new development of a mine drive or tunnel.

Assuming that there is a requirement to clean out 600 m of old drives, 2.8 m x 2.8 m on each of two levels to re-start mine production, and a cost per metre of clean up and ensuring safe conditions of the drives, of €300, there will be a cost allowance of €360,000 including personnel, equipment and supplies. Table 10-7 below describes the clean-up costs and capital investment required for the surface building complexes; see also Figure 10-5 Mine headframe with old surface buildings showing the current poor conditions of the surface infrastructure.

Table 10-7 Mine access clean-up and surface buildings capex

Job description	Job elements	Quantity	Capital estimate €
Rehabilitation of mine access	Clean and support	1,200 m	360,000
Surface buildings	Rehabilitation, furnishing and equipment	1	400,000
	Change rooms, showers	1	100,000
New explosive magazine	Buildings and fencing	1	350,000
Total			1,210,000

10.4 Surface Buildings

A number of old surface buildings remain. These will need refurbishing and equipping and furnishing. An allowance of €400,000 is made for the general rehabilitation, furnishings, electronic equipment and small equipment for survey and ventilation measurements, plus mine personnel equipment such as safety gear. A further €100,000 is allowed to equip the miners' changing rooms with showers and lockers.

A new explosive magazine will be required and for this, an allowance of €350,000 is made, to include separate buildings for explosives and detonators, plus secure fencing.

Figure 10-5 Mine headframe with old surface buildings

Some general workshop equipment will be required at site. Major overhauls and engineering work will be done off-site by the equipment vendors and only general work such as drill bit sharpening, tyre repairs and minor hydraulic repairs will be done at site. Capital for this is included in the mining equipment capital costs.

10.4.1 Mine Rehabilitation Capital Summary

All cost estimates below are conceptual and represent an accuracy of +/- 30%.

The capital costs for the initial dewatering and rehabilitation of the mine are summarized in the following Table 10-8.

Table 10-8 Mine rehabilitation costs summary

Job description	Job elements	Capital estimate €
Mine dewatering	Capital items	274,300
	Operating costs	179,338
Mine hoist	Hardware and implementation	1,240,000
Shaft re-equipping	Hardware and labour	680,000
Ventilation	Hardware and implementation	610,000
Mine access and surface works	Access clean up	360,000
	Surface buildings	500,000

Total	3,843,638

10.5 Mine Operation

Once the mine has been dewatered and the shaft and mine access rehabilitated, the operation of the mine can go ahead.

10.5.1 Mining Equipment Capital Costs

The proposed mining method for the purposes of this report is cut and fill stopping. Without detailed knowledge of the geology and shape of the mineralised zones, this is seen as a flexible and easily adapted mining method.

Besides the capital cost of refurbishing the mine as described above, new equipment for ongoing underground mining will be purchased. Current existing equipment is unusable as per Figure 10-6 below which shows the scrap remains of a drill rig including compressor.

Figure 10-6 Old mine equipment

The equipment choices are based on the following:

- Handheld pneumatic drilling equipment for mine development is specified. It is assumed that one of the requirements for the re-opening of the mine is to create jobs, and therefore, appropriate technology is proposed;
- Handheld pneumatic stopper rigs will be used in the stopes;
- Small skid steer loaders will be used in the stopes to load the blasted ore to the ore pass;
- Operations will continue on 2 shifts per day;
- The mine will be trackless for flexibility and mobility of operations;
- Small water pumps are used to keep the workings clear of water. The main pumps for the mine will be the 4 x 90 kW pumps used in the mine dewatering. These will remain in operation to handle water from the mine. The inflow quantities have not been

defined, but it is assumed that the four pumps will provide adequate capacity for the continuing dewatering of the mine;

- A backfill plant will be built on surface using tailings product from the process plant. The plant will pump a cemented tailings slurry underground. Additional material for backfill will be provided by the waste rock from tunnel development which will be loaded into the worked-out stopes;
- Standard medium sized pick-ups will be used for underground utility vehicles;
- The actual geotechnical properties of the mine are not known in any detail. Rockbolting is proposed as a support method. Holes for this will be drilled using one of the development jackhammers, and resin bolts will be placed with hand-held equipment. A shotcrete unit is also specified for dealing with possible more serious ground stability issues;
- Compressed air will be supplied by a number of small, semi-portable skid mounted electrically powered compressors. This is preferred to a large compressor on surface with a network of air-pipes around the mine;
- Granular explosives will be loaded into blastholes using a truck mounted pneumatic device. All explosives will be stores at the site in properly designed and licenced explosive magazines;
- A leaky feeder underground communication system is specified for safety and operational reasons. A 3-channel device is proposed with up to 8 handsets. There will be an interface with the surface telephone system. The system is voice only;
- Some waste rock, the excess material that is not used in stope backfill operations, will be hoisted to surface. The will be stored on a waste dump near the shaft. The dump will be designed to ensure stability and good drainage. Waste rock may be reclaimed form the dump if there is a need in the local area for good quality crushed rock for construction purposes. This operation, if required, will be handled by a local contractor;
- Maintenance of the mining equipment will be carried out in a workshop based in one of the rehabilitated buildings on surface;
- A new explosive magazine will be built to replace any previous magazine which was not seen on the consultant’s visit. The magazine will consist of separate buildings for explosives and detonators.

The list is summarised in the following Table 10-9.

Table 10-9 Mine equipment capital costs summary

Unit	Specification	Units	Cost per unit €	Total cost €
Development drill with airlegs		12	5,600	67,200
Production stopper drills		6	9,000	54,000
Development scoops	5 m^3	2	670,000	1,340,000
Skid steer loaders for stope loading	1 m^3	6	50,000	300,000
Production scoops	5 m^3	3	670,000	2,010,000
Water pumps	5 kW	8	6,000	48,000
Backfill plant		1	368,000	368,000
Service vehicles - pick ups	Hi-lux	5	35,000	175,000
Auxiliary fans	12 kW	12	17,500	210,000
Exploration diamond drill		1	65,000	65,000
Shotcrete unit		1	80,000	80,000
Compressors - electric	14 m^3/min	8	76,000	608,000
Explosive loader - pneumatic		2	80,000	160,000

Unit	Specification	Units	Cost per unit €	Total cost €
Communication system	3-channel	1	34,000	34,000
Electrical distribution underground	400 V	1	240,000	240,000
Lighting		1	180,000	180,000
Scissor lift		1	116,000	116,000
General mining equipment, hoists etc	allowance	1	200,000	200,000
Workshop and equipment		1	200,000	200,000
Personal protective safety equipment	allowance	1	12,000	12,000
First fill - hoses, pipes, rockbolts		1	250,000	250,000
Total				6,717,200

10.6 Surface Infrastructure Capital Costs

The present surface buildings are a generally poor shape (Figure 10-5). They require significant rebuilding and rehabilitation. Workshops need re-equipping with tools and equipment. The work is described and costed in section 2 – Mine rehabilitation para xx and mine equipment capital costs above.

The site roads (Figure 10-7) are generally in fair condition and would need regrading and repairs to the drainage, and the electrical reticulation around the site will need checking and upgrading, see also

	Unit	Quantity	cost/unit €	Total cost €
Length of roads (estimate)	m	2,000	50	100,000
Gates	each	1	5,000	5,000
Fencing	m	1,000	30	30,000
Total surface roads	Total			135,000

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10.6.1 Roads and Fencing

Figure 10-7 General site area with mine dump on left and shaft on right in distance

Approximately 2 km of roads will need upgrading at an assumed cost of €50/m. This will include regrading, cleaning the road shoulders and establishing a side drain. A simple galvanized chain link fence will be erected at the front (south side) of the property. It is not proposed to fence the entire property at the preliminary stage. The fence will have a single boom gate.

Summary as follows:

	Unit	Quantity	cost/unit €	Total cost €
Length of roads (estimate)	m	2,000	50	100,000
Gates	each	1	5,000	5,000
Fencing	m	1,000	30	30,000
Total surface roads	Total			135,000

.

Table 10-10 Roads and fencing capital costs estimates

	Unit	Quantity	cost/unit €	Total cost €
Length of roads (estimate)	m	2,000	50	100,000
Gates	each	1	5,000	5,000
Fencing	m	1,000	30	30,000
Total surface roads	Total			135,000

10.6.2 Electrical Reticulation

This includes electrical supply around the site from the main sub-station which is, it assumed, will be maintained by the power supply company.

Reticulation on site will include a power supply to the underground mine, the mine hoist, the ventilation fan, in addition to the processing plant and offices.

The costs for the electrical reticulation can be found in Table 10-11 below.

Table 10-11 Electrical reticulation - mine surface

Description	Quantity	cost/unit €	Total cost €
Transformer rated at 1,500 kVA	1	95,000	95,000
Power centres 300 kVA	4	32,000	128,000
Various switchgear	6	3,000	18,000
Cabling m	5,000	25	125,000
Miscellaneous	1	50,000	50,000
Total			416,000

10.6.3 Vehicles for Surface Use

This will include the following

- Fire tender;
- First response vehicle;
- Bus;
- Pick-ups;
- Delivery truck;
- Senior staff cars;
- Wheel loaders for hauling product around site;
- Wheel loader for loading contractor haul trucks;

A summary is included in the following Table 10-12.

Table 10-12 Management and surface general vehicles capex estimates

Description	Quantity	cost/unit €	Total cost €
Fire tender	1	150,000	150,000
First response vehicle	1	150,000	150,000
Bus	2	200,000	400,000
Pick-ups	4	35,000	140,000
Delivery truck	1	120,000	120,000
Senior staff cars	2	50,000	100,000
Wheel loaders for hauling product around site 3.8 m^3	2	370,000	740,000
Wheel loader for loading contractor haul trucks 6.9 m^3	1	920,000	920,000
Total			2,720,000

10.6.4 Surface Installations

This covers such items as fuel tanks and fuel dispensing. Fuel will be stored in suitably located fuel tanks. It is assumed that only diesel fuel will be stored at site. It is not a remote site and therefore fuel for no more than 2 weeks usage will be required on site. From standard fuel consumption charts for the loaders, and typical fuel usage for the other vehicles, 2 weeks fuel will be 13,599 L. Therefore, tankage for 14,000 L is proposed. This would require a weekly delivery of around 7,000 L.

Twin electric fuel dispensers will be installed – one for light vehicles and the second for the heavier equipment. A water tank, 30,000 L capacity will be installed for site use including underground. Water will be provided by others.

All trucks leaving the site with product will be weighed in (empty) and out (loaded). A 60 t capacity truck scale is provided, with a suitable control cabin. For good community relations, a wheel washing system will be employed to ensure that dirt and stones are not taken onto the local public roads.

The summary of capital costs is shown in the following Table 10-13.

Table 10-13 General surface installations capex estimate

Description	Quantity	Total cost €
Fuel tank 14,000 L, installed	1	16,000
Fuel dispenser	2	10,000
Water tank 30,000 L installed	1	30,000
Truck scales with foundation and cabin	1	25,000
Truck wheel washer system	1	55,000
Total		136,000

10.7 Conceptual Operating Cost (OPEX)

All cost estimates below are conceptual and represent an accuracy of +/- 30%.

An all-in operating cost (excluding personnel) of around €50/t for a mine of this size, using a semi-mechanised cut and fill method, is based on information from the InfoMine handbook. This is based on typical global operations, and includes equipment operation, supplies and administration. Operating personnel are listed separately, since costs vary significantly from country to country. The operating cost covers mine production, access development, ventilation, mine services, maintenance and backfill. The methodology employed in the financial model differs slightly, but this cost serves as a guide.

The detail is included in Table 10-14 below.

Table 10-14 Underground mine operating cost guide

	€/t
Equipment operations	9.00
Consumables	21.00
Sundries	8.00
Electrical power	2.00
Overhead, general	10.00
Total	50.00

10.7.1 Operational Personnel

Based on typical operations elsewhere, the hourly paid personnel are listed in the following table. Actual numbers will depend on the quality of trained personnel and the final layout of the mine. The workers will be split into 2 shifts. Details on all operating personnel are found below in Table 10-15.

Table 10-15 Operating personnel

Daily paid	
Job title	Head count
Stope miners	12
Development miners	14
Equipment operators	12
Hoist operators	4
Support miners	2
Diamond drillers	4
Samplers	8
Backfill operators	4
Electricians	5
Mechanics	8
Maintenance workers	6
Helpers	3
Underground labourers	8
Surface labourers	6
Spare/relief workers	10
Total	106

In addition, there will be a number of technical, supervisory and management personnel directly involved with the underground operation. Again, the numbers are typical for similar operations. These are listed in the following Table 10-16.

Table 10-16 Technical, supervisory and management personnel

Supervisory and technical	
Job title	Head count
Manager	1
Mine foremen	2
Mine engineer	3
Geologist	3
Ventilation technicians	3
Shift bosses	6
Mine technicians	3
Accountant	2
Purchasing and warehouse	4
Human resources	4
Secretaries	3
Clerks	8
Total	42

10.8 Mining Conclusions

- There is a sufficient exploration target tonnage (historic resources) and sufficient basic, although derelict, infrastructure to make the further mining of the Goleshi deposit technically feasible;
- A considerable amount of rehabilitation work will need to be done, plus the acquisition of new or good second-hand equipment before mining is able to re-start;
- New or good second-hand electrical equipment will be needed to provide safe electrical power to the site;
- Most buildings will need to be rebuilt although the refurbishment of some of the structures may be feasible depending on structural examination.

10.9 Mining Risk Areas

The main risks associated with any mining venture are as follows in Table 10-17 below:

Table 10-17 Mine operating risk table

Risk	Mitigation
Resource risk, both in quantity and with grade	Adequate drilling of the resource and appropriate technology to turn this into a block model for measurement
Mine construction risk	Adequate testing and design work of all mine installations. Using correct equipment and procedures
Mine operational risk	Use of appropriate equipment and training of operational personnel to the finest standards. Establishment of good operational procedures
Environmental risk	Good ventilation practice underground, with an ongoing programme of testing and measurement of air quality
Ground conditions	Proper testing of the rock types and correct rock mass classification leading to best practice of mine support
Fire risk underground	Using appropriate materials and understanding of their use. Good operational procedures to be followed at all times and provision of safe areas in the case of fire outbreak
Electrical supply	An agreement with the power supply company to ensure security of supply, plus the provision of back-up power to ensure safe evacuation of the mine and the running of dewatering pumps and ventilation

10.10 Mining Recommendations

A full feasibility study (FS) to international standards will be necessary before any final investment decision can be made. The JORC code 2012 clearly describes the requirements for a feasibility study as per below.

As per best practice guidelines JORC recommend a Scoping Study leading to a Prefeasibility (PFS) and furthermore Feasibility Study8FS). The PFS and the FS can be combined, where the PFS presents interim results leading to the FS.

A Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study.

Source: JORC code 2012

The FS will concentrate on the following

- The mineral resources will need to be updated;
- The geotechnical characteristics of the underground workings will be determined;
- The engineering design of the shaft and hoist system;
- The electrical supply and reticulation for the whole site;
- The appropriate mining technology and design;
- The refurbishment and rebuilding of the surface structures;
- Accurate costings and sales data to complete a financial model;
- Detailed design and engineering including all technical drawings of all facilities;
- Detailed mine planning including monthly min schedules.

A complete FS, together with metallurgical test-work and design is likely to cost up to € 3.3 M and would take a minimum of 12 months.

11 Geotechnical Investigation – Summary

No information was made available.

12 Processing and Metallurgy

12.1 Introduction

The following statements and explanations in this report are based exclusively on the provided information, documents and expert interviews mentioned. It was not possible for the author to verify the given information. All information is considered to be accurate and to reflect the past years of operation. Grab-Samples taken during site visit are not representative and give only a brief idea about the quality of product and the efficiency of the existing processing plant.

12.2 Given Documents

/1/ Magnesite flow sheet, handed over during site visit 3/2019;
/2/ Dunite flow sheet, handed over during site visit 3/2019;
/3/ Power Point Presentation M-I.M. "Goleshi", Date and editor not mentioned.

Expert interviews:
Mr. Rizah Bytyci Goleshi Management Processing.

12.2.1 Site Situation/ Locations

Processing plant	42°32' 33,89" N	21°00' 08,46" E
Rotary kiln	42°32' 13,88" N	21°00' 12,35" E
Vertical kiln	42°32' 21,55" N	21°00' 13,75" E
Electrical kiln	42°32' 14,88" N	21°00' 16,00" E
Storage for rotary kiln	42°32' 19,84" N	21°00' 10,48" E
Dunite dry processing plant	42°32' 49,86" N	21°00' 05,97" E

Figure 12-1 and Figure 12-2 show the current site situation and location of facilities taken on SAT images from Google Earth 2019.

Figure 12-1 Site situation during the site visit in March 2019

(based on source: Google Earth picture from 12.04.2018)

Figure 12-2 Site situation during the site visit in March 2019

(based on source: Google Earth picture from 12.04.2018)

The numbers below can be identified on the SAT images above for better orientation.

(1) Shaft (gallery);
(2) Processing plant;
(3) Settling pond;
(4) Storage area for different material;
(5) Roofed storage area for rotary kiln;
(6) Rotary kiln;
(7) Vertical kiln;
(8) Electrical kiln (in house a bigger building);
(9) Dunite dry processing plant;
(10) Open pit area.

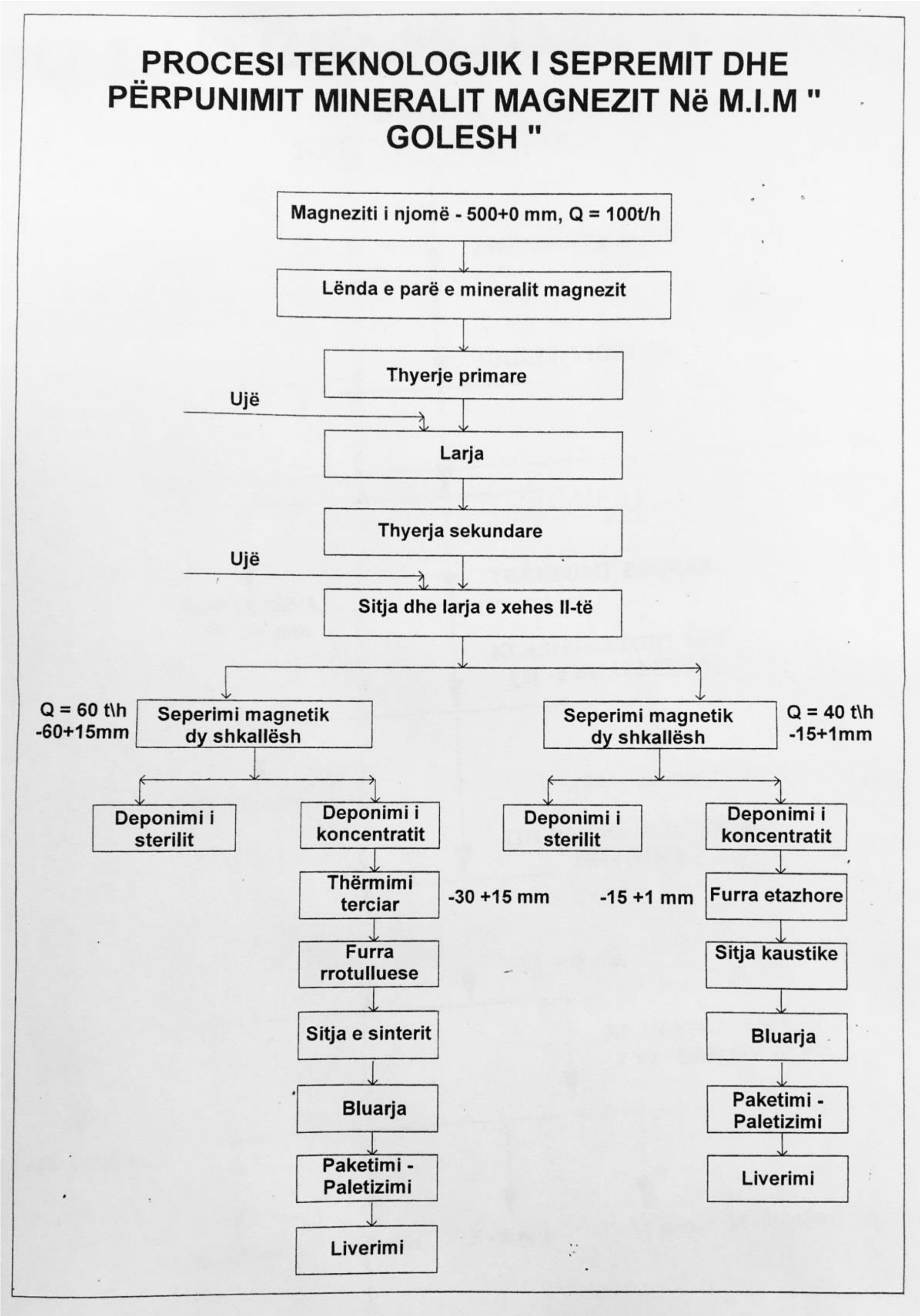


Figure 12-3 Historic magnesite flow sheet

Figure 12-4 Magnesite dry/wet processing plant, location identified during site visit March 2019

(based on source: Google Earth image from 12.04.2018)

The Magnesite flow sheet /1/, Figure 12-3 above, shows the process from ROM ore up to the rotary / vertical kilns. This flow sheet is a theoretical flow sheet in respect of the vertical kiln which had never been operational. The assembling of vertical kiln has not been completed and therefore the author is unable to comment further on productivity and quality of products. For better orientation the facilities of the dry/wet processing plant can be identified at Figure 12-4.

In principle, the mechanical processing part follows the following flow sheet: Figure 12-5.

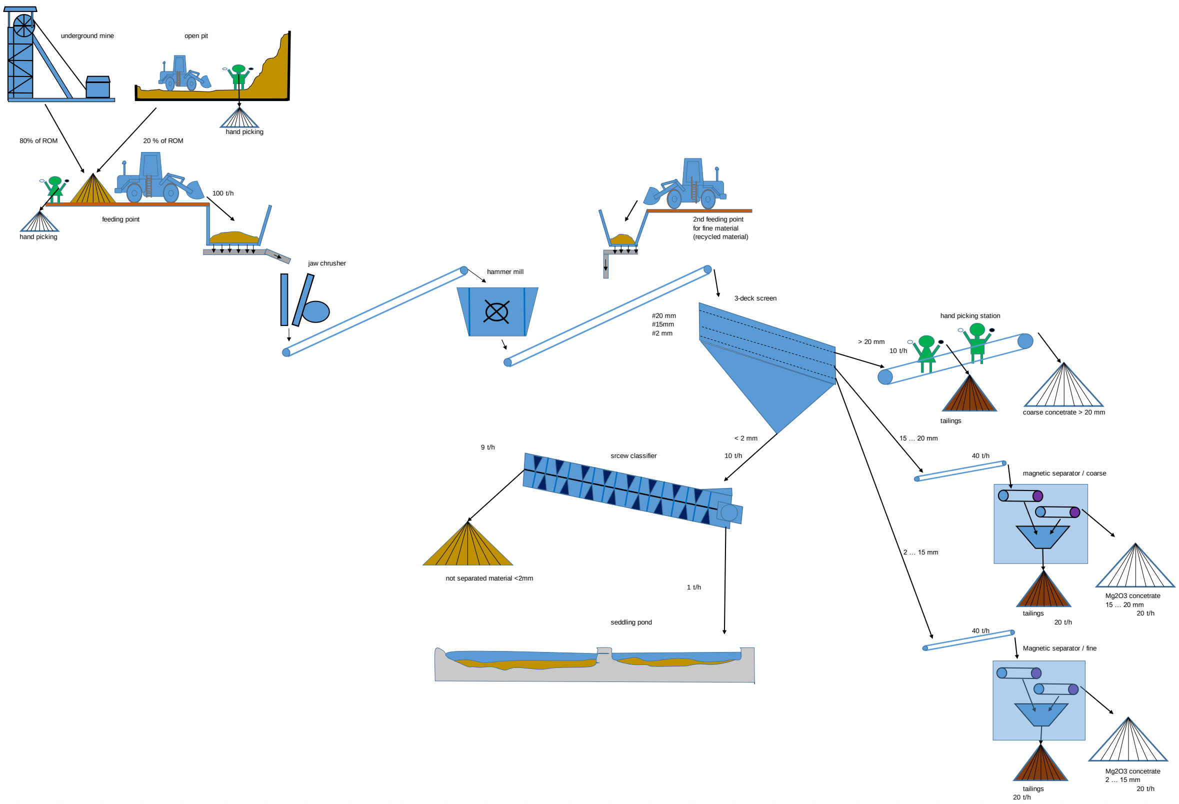


Figure 12-5 Mechanical part of existing processing plant

Figure 12-6 Crushing section

Crushing section: jaw crusher in right building and yellow cone crusher (not in operation) of processing plant, behind the cone crusher is a hammer mill (was in operation).

Figure 12-7 Screening and magnetic separation section of the processing plant

With a jaw crusher and a hammer mill in first section (Figure 12-5) ROM material was crushed before screening at a 3-deck wet screen.

This screen produced 4 fractions:

> 20 mm

20 – 15 mm

15 – 2 mm

< 2 mm

Coarser 20 mm fraction went to hand picking belt. 20 – 15mm and 15 – 2mm went to 2 separate dry magnetic separators. Minus 2.0mm was dewatered with a dewatering screw classifier. Overflow with fine particles of approximately < 0,15mm of the dewatering screw classifier went to settling pond.

The 0,15 – 2 mm fraction was not selected and sent to waste.

Samples from existing stockpiles under the belts were taken during site visit in March 2019.

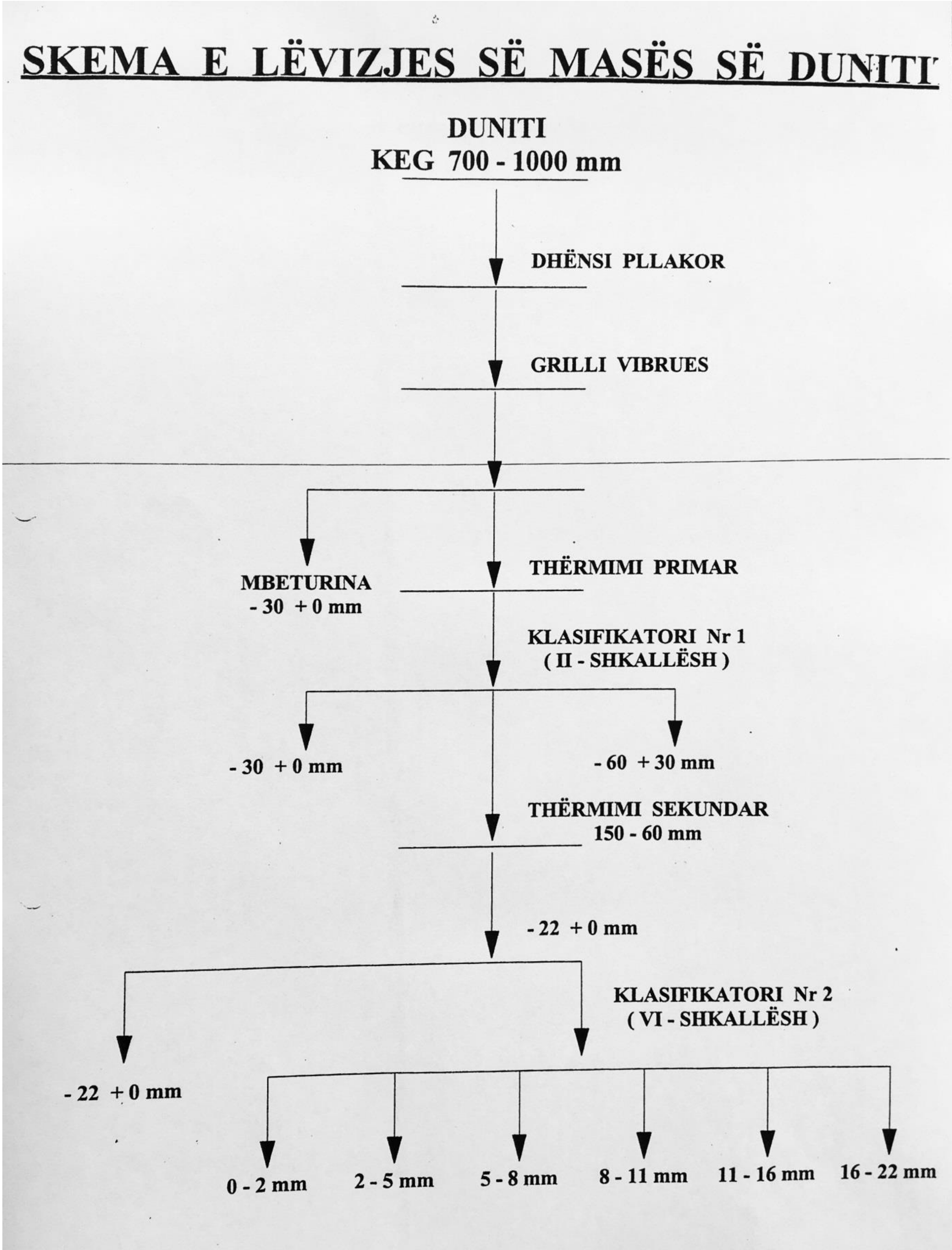


Figure 12-8 Flow sheet of dunite dry processing plant

Figure 12-9 dunite dry processing plant during site visit in March 2019

(Google Earth picture from 12.04.2018)

Figure 12-10 Dunite dry processing plant in March 2019

The dunite dry processing plant (Figure 12-9, Figure 12-10) consists mainly of dry screens and 2 steps of crushers (jaw crusher and hammer mill) to produce following fractions:

- 60 – 30 mm
- 30 – 0 mm
- 22 – 0 mm
- 16 – 22 mm
- 11 – 16 mm
- 8 – 11 mm
- 5 – 8 mm
- 2 – 5 mm
- 0 – 2 mm

The plant was partly used after stop of production (after war) to process hand selected magnesite.

Feed top size to the plant is up to 1000 mm (1m). The capacity depends on the fine fraction content in feed to fine screening after crushing. The plant should be able to process 100 t/h or more. According to Rizah Bytyci, this plant is ready for operation within a few days.

12.3 Additional Equipment for Dry Processing

To crush and mill caustic and sinter after firing there is additional equipment in a separate building behind the rotary kiln installed.

A ball mill has been installed to produce MgO-flour, see Figure 12-11.

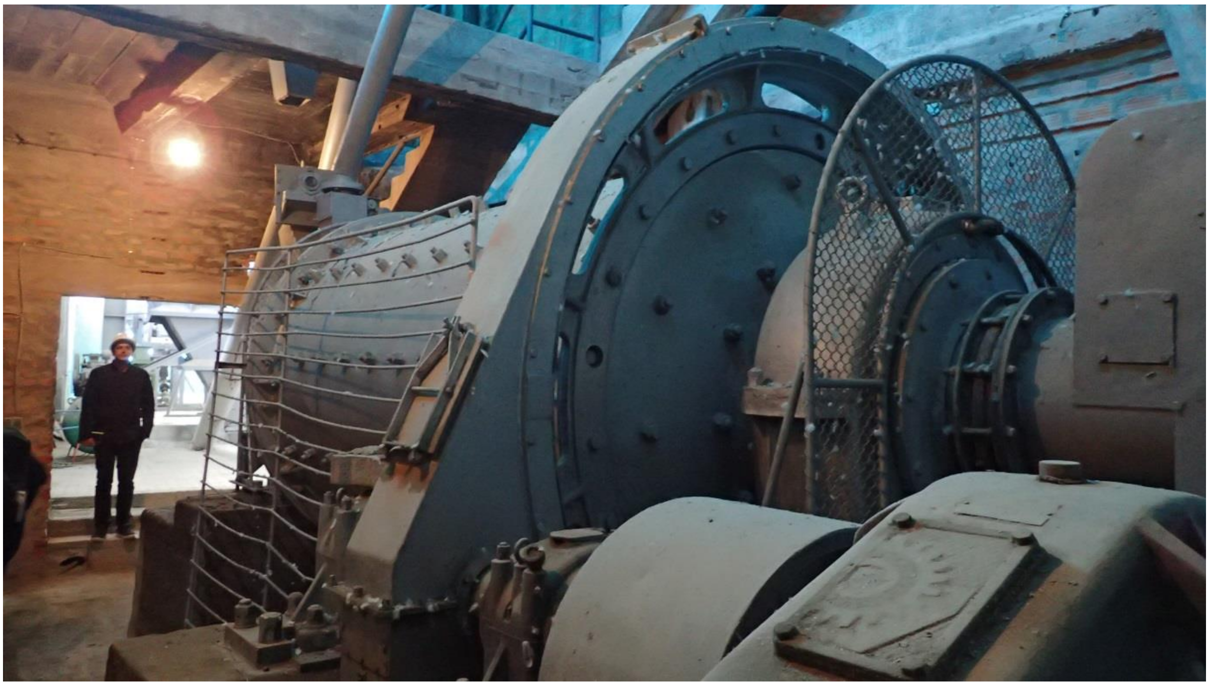


Figure 12-11 Ball mill for MgO flour production

Additionally, there are small crushers and mills for producing special sizes of products as per Figure 12-12.

Figure 12-12 Small crushers for special products (left) and packing station (right)

Figure 12-13 MgO product silos with belt from rotary kiln to silos

Figure 12-14 Product divider on top of the silo section

Due to the current conditions of the equipment the silo section equipment (Figure 12-13 and Figure 12-14) needs a refurbishing before starting it again. Feeding and discharge system is not ready for operation.

12.4 Kilns (Current Situation)

Concentrates from the processing plant are fed to a rotary kiln (Figure 12-15). This kiln was in operation until 2000. The kiln did not process material since it has been shut down.

A vertical kiln and an electrical kiln were under construction in the early 2000 but both units have not been completed. Therefore, both kilns were never operational.

Figure 12-15 Rotary kiln during site visit in March 2019, in front the new gas tanks (Propane 70% and Butane 30%)

The kiln was manufactured in 1972.

Layout data for the rotary kiln:

Feed capacity	15.6 t/h MgCo3;
MgO capacity	6.25 t/h (final product);
Temp.	900ºC at the beginning (caustic) and 1800ºC at the end (sinter)
Feed size	15 - 30 (60) mm;
Gas consumption	70% propane, 30% butane = 94.28 Nm^3/t sinter MgO;
Oil consumption	234.69 kg/t sinter MgO;

Electrical power consumption including dedusting is 376 kW/h or 59.84 kW/t Sinter MgO;

<u>Dimensions:</u>

Length	80 m;
Diameter	2.5 m at the beginning and 3.0 m at the end.

At current stage the staff turns the kiln once a week to prevent deformation of tube. The rotary kiln produces so called “dead burned magnesia” (a sintered magnesia). It is formed when magnesia is calcined at temperatures of 1600–2000ºC. Main use is in heat resistant linings.

From the brief inspection during the site visit the kiln seems to be in good condition and the current staff and technicians have experience to operate the unit. The author had intensive discussions with the main technicians of the kiln during the site visit and could retrieve valuable information for the report.

Fireproof lining is partly new as it seems by a first inspection from only outside.

One advantage is that the kiln was in operation until 2000 and therefore it is expected that the kiln can be put back in operations without any major repairs by just replacing minor parts. However, it will be required that the manufacturer of the kiln does a full inspection during the feasibility study and approves the status of the unit. Details of the conditions of the rotary kiln can be seen in the figures below.

Figure 12-16 Middle section of rotary kiln

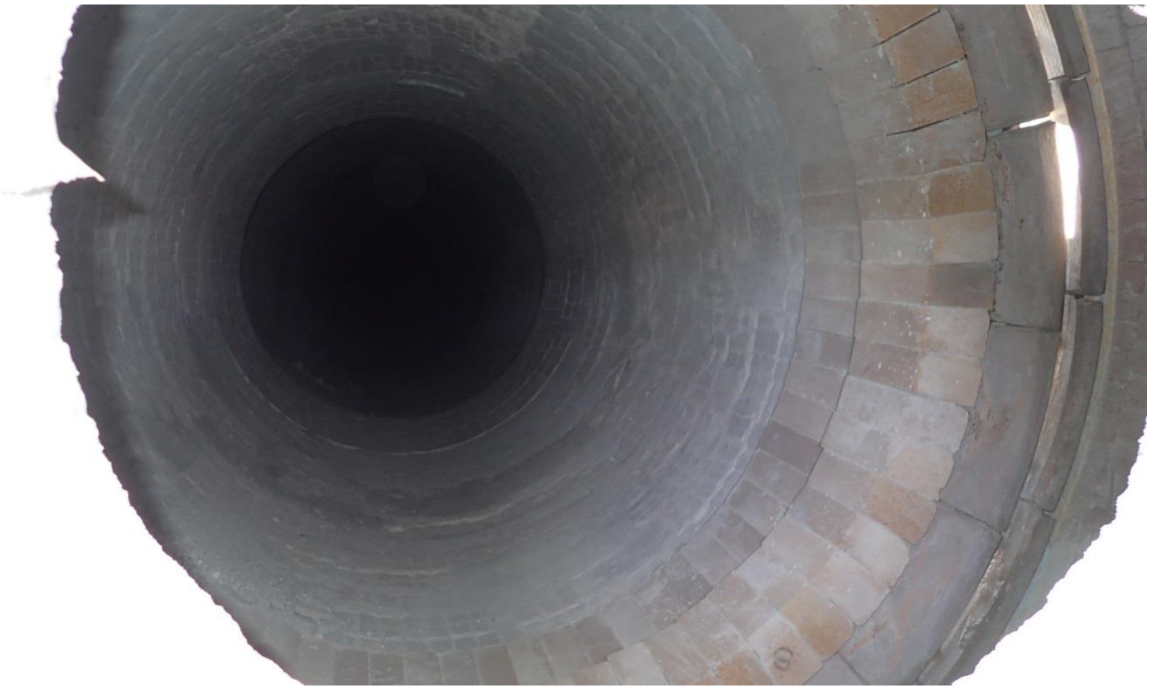


Figure 12-17 New fireproof lining at the end of the 80 m tube

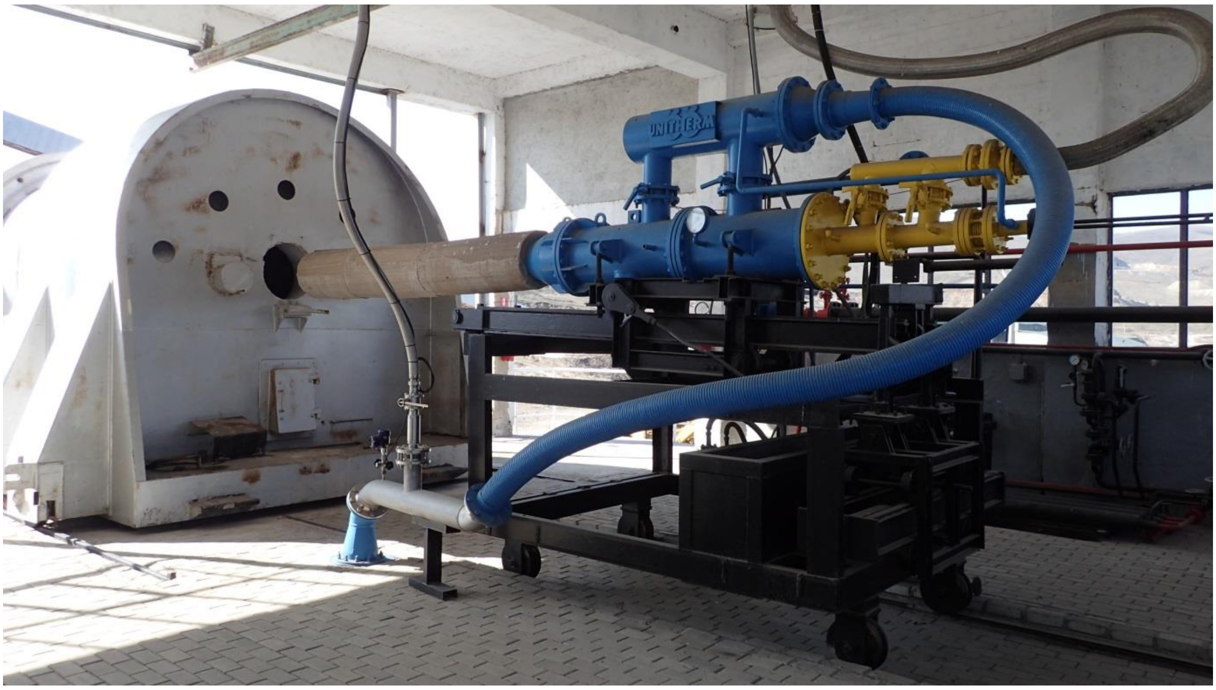


Figure 12-18 Burner

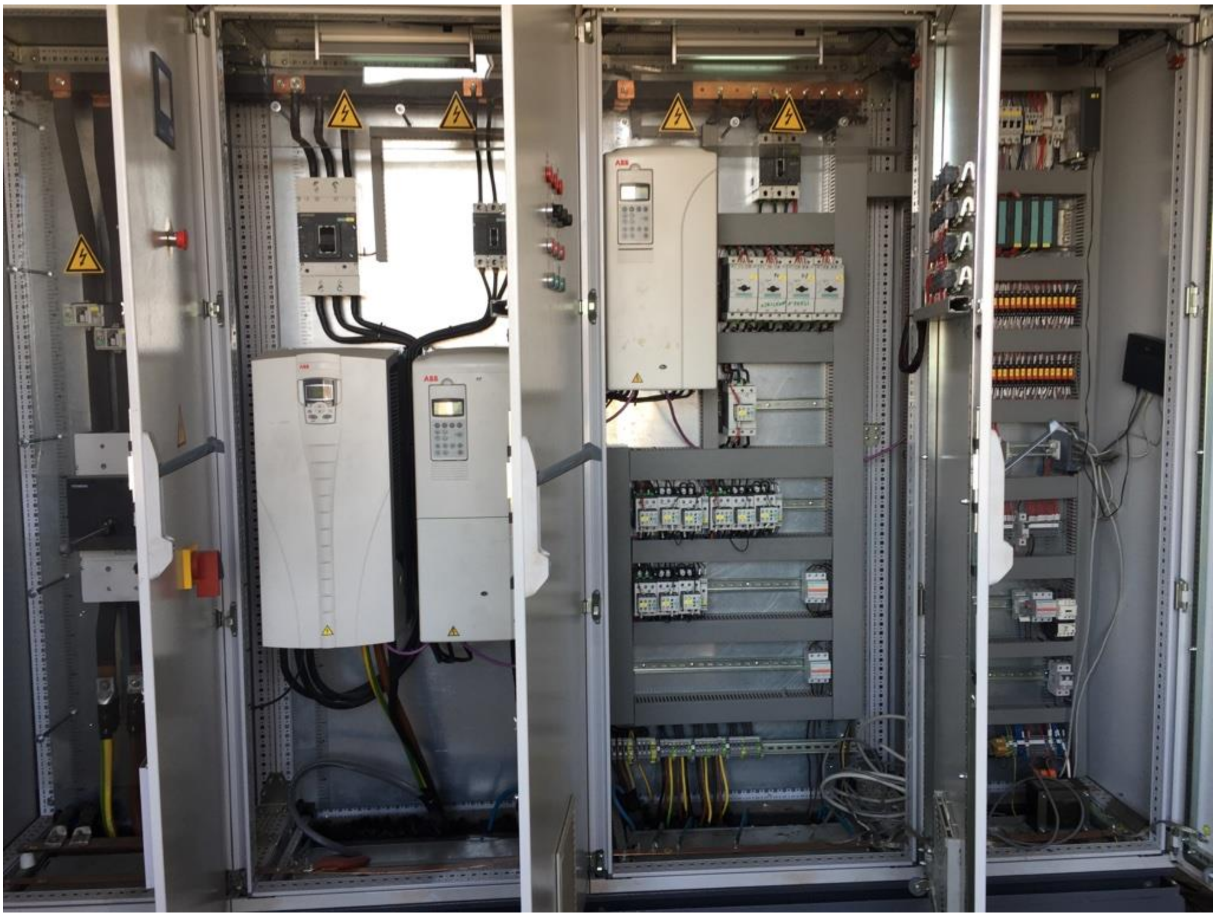


Figure 12-19 Control cabinet for rotary kiln

12.4.1 Vertical Kiln

The vertical kiln is shown in Figure 12-20 and Figure 12-21 below.

Figure 12-20 Vertical kiln, in the back the shaft (gallery) and processing plant

Figure 12-21 Vertical kiln, dedusting system

Feed capacity	12.5 t/h magnesite;
Caustic MgO production	5.0 t/h;
Temperature	1100º - 1300ºC;
Feed size	1 – 10 (15) mm;
Gas consumption	84.8 Nm³/t caustic MgO;

Black oil consumption 212.22 kg/t caustic MgO.

Note, the authors have not seen any documentation on the vertical kiln and therefore conservatively assume a production rate slightly lower than the verbal statement of the engineers. The vertical kiln has not been completed, and therefore, has not been operational; hence, there are no reliable production figures for the vertical kiln at this stage of the study.

Electrical power consumption 290 kW/h or 58 kW/t caustic MgO.

The vertical kiln is not completed yet and therefore not ready for operation. According to Mr. Rizah Bytyci, the installation is approximately 60% completed. It will be required to have the manufacturer of the unit on site during the FS to inspect all and to give a status of the equipment. At this stage it remains unclear what kind of repairs and additional equipment the kiln requires getting into operational stage.

There is no documentation for the vertical kiln available at the mine office. According to information from the technical expert, the feed capacity is 130-150 t/d and it needs approximately 12 months to complete the erection of the vertical kiln.

The vertical kiln will produce so called Caustic Magnesite (sometimes also called Reactive Magnesia or Caustic Calcined Magnesia CCM). The chemical purity of our caustic magnesia products varies from the low MgO content grades for the agricultural industry to the highest grades for pharma and food including other very specific applications.

Currently, the feeding system, dedusting system, all belts, electrical equipment, control equipment and discharge system are not completed or not finally installed.

The unit is a second-hand unit from the manufacturer Eimco Envirotech Tribiano (marked on cover of the unit).

12.4.2 Electrical Kiln

The Electrical kiln (Figure 12-22 and Figure 12-23) has not been completed yet and there currently is no documentation available on site.

Parts of the kiln are not mounted yet. However, the foundation is finished. Manufacturer of the unit is the company Konćar from Zagreb.

Figure 12-22 Electrical kiln

Feed capacity 0.688 t/h calculated MgO from the vertical kiln;

Fused MgO	0.630 t/h;
Temperature	2800ºC;
Feed size	1 -25 mm;
Electrical power consumption	3000 kW/t fused MgO.

The electrical kiln produces so called “Electrofused magnesia” (fused Magnesia) which is a strong, abrasion-resistant material used in premium grade refractories and ceramics.

Note, the authors have not seen any documentation on the electrical kiln and therefore conservatively assume a production rate slightly lower than the verbal statement of the engineers. The electrical kiln has not been completed, and therefore, has not been operational; hence, there are no reliable production figures for the vertical kiln at this stage of the study.

Figure 12-23 Electrical kiln inside the building near the rotary kiln

At the current stage of the Scoping Study the authors have no confirmed information on the exact production rates of the vertical and electrical kiln. Both kilns have never been completed and therefore have never been tested. No documentation was available at the time of the site visit nor during the period of report writing.

The authors therefore consider slightly lower feed and production rates. During feasibility stage detailed audits by the manufacturers of the kilns will describe the exact rates and define also the amount of losses from feed to output.

12.5 Lab

A professional on-site lab does not exist. All rooms, supposed to be used for a laboratory, are in good shape and ready to host a professional on-site lab. Few units of lab equipment have been already placed in the lab rooms. The lab has high temp lab ovens, a lab drying chamber and some lab-size crushers. The lab crushers (jaw crusher’s and a roller mill) can be used for the new laboratory. All other equipment is in bad condition.

Required lab equipment is difficult to identify at this stage – a new owner / investor can outsource part of analytical work to an independent lab. However, a lab for daily production control needs a lab crusher (existing), lab mills (existing), lab screens for particle size analysis (PSD), XRF for chemical analysis. Additionally, the laboratory should be equipped with water analyser, dust and emission control as well as noise and vibration instruments to also carry out analytical work for any environmental aspects.

Additional equipment should be: Microscope, lab magnetic separator, sample divider, sample drying chamber (old one existing), 3 different scales, computer, small things like stopwatch etc.

The lab needs a storage room with shelfs for samples (reference / reject samples).

12.6 Sampling and Test Work

During the site visit some grab-samples were taken from the processing plant to get an impression of the quality of products. These samples are not representative for the deposit and also do not represent the efficiency of the processing plant.

A complete description of ROM material (Figure 12-24) is readable in chapter “Regional and Deposit Geology” of this report.

Figure 12-24 Samples of ROM material magnesite and dunite

There are two physical properties what make a separation possible:

- colour and brightness;
- magnetic properties.

The existing processing plant uses the magnetic separation for sorting out the nonmagnetic Magnesite from magnetic dunite.

Following samples were taken during site visit: see points of sampling in Figure 12-25 below.

a) Screw classifier overflow;
b) Magnetic separator coarse nonmagnetic (coarse magnesite product);
c) Magnetic separator fine nonmagnetic (fine magnesite product);
d) Magnetic separator coarse + fine magnetic (tailings).

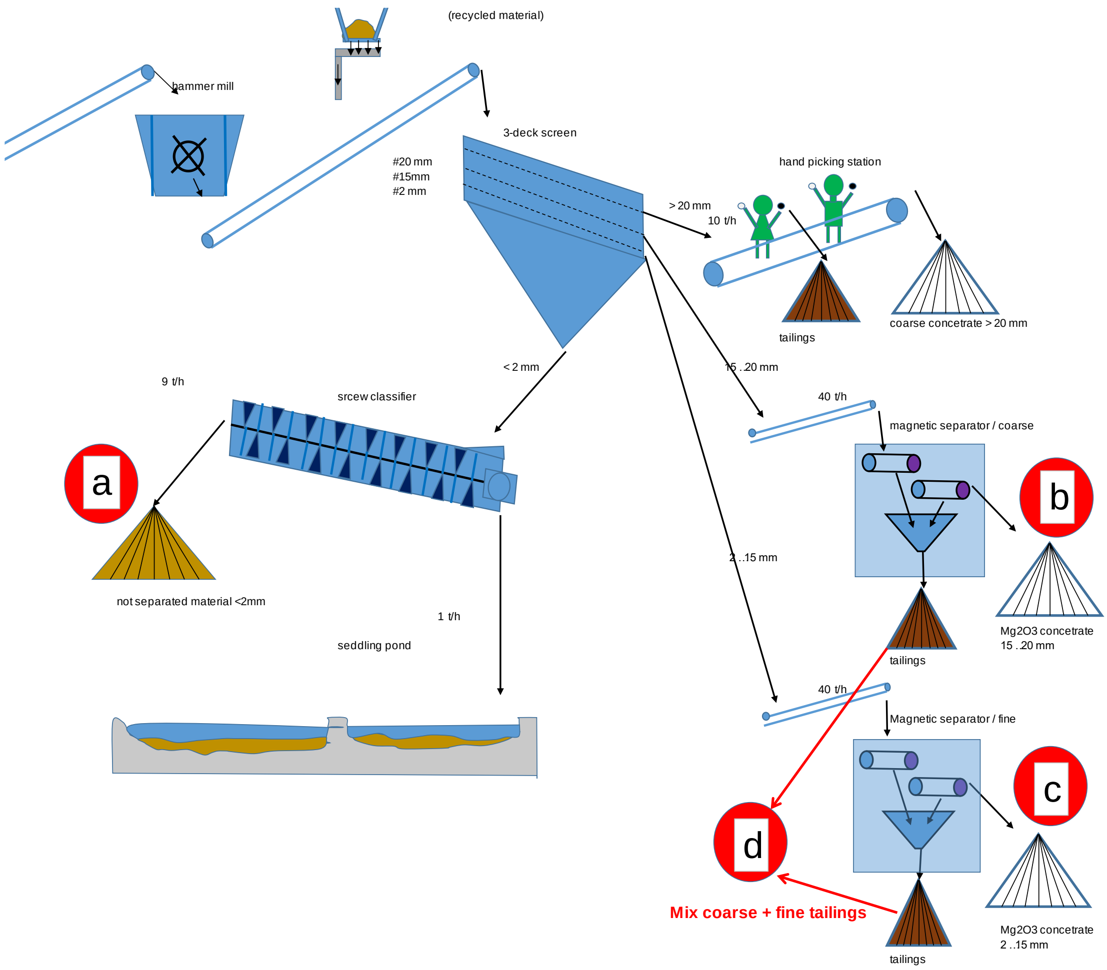
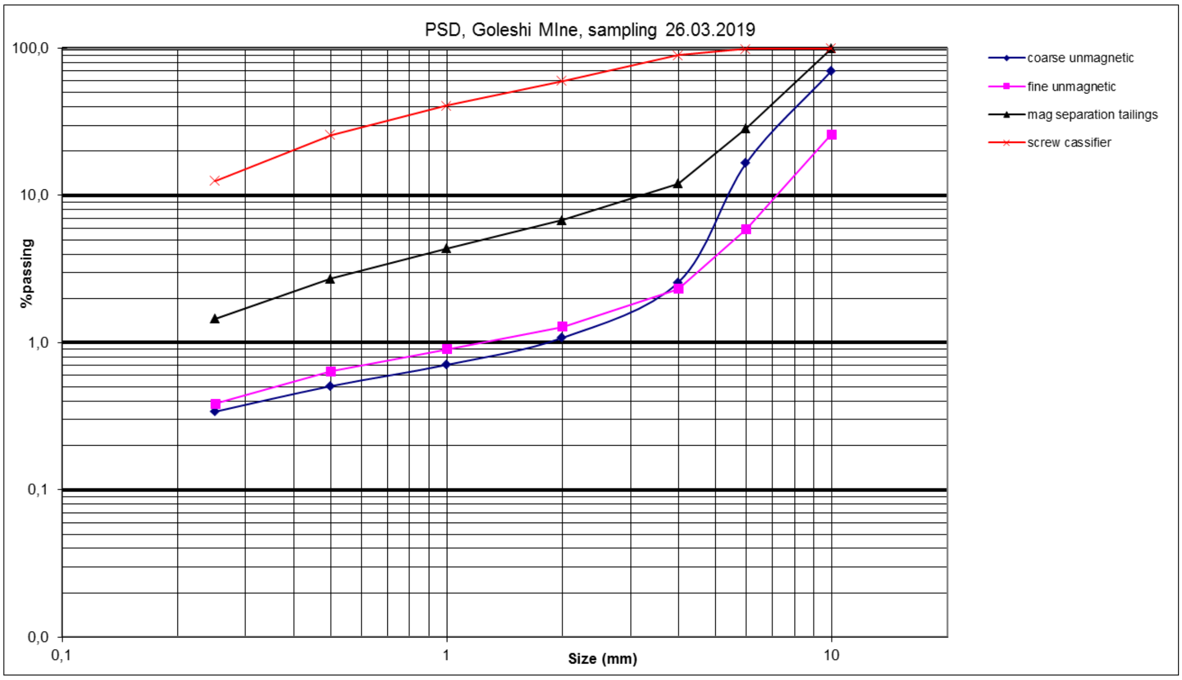


Figure 12-25 Sampling points

Table 12-1 Particle Size Distribution (PSD)

mm	coarse nonmagnetic	fine nonmagnetic	mag separation tailings	screw classifier
	passing in %	passing in %	passing in %	passing in %
10	70,6	25,9	100,0	100,0
6	16,7	5,9	28,7	98,8
4	2,6	2,3	12,1	89,4
2	1,1	1,3	6,8	60,0
1	0,7	0,9	4,4	40,8
0,5	0,5	0,6	2,7	25,8
0,25	0,3	0,4	1,5	12,5
	0,0	0,0	0,0	0,0

Table 12-2 PSD (Graphically)



The PSD (Table 12-1 and Table 12-2) shows that the fine non-magnetic product is partly coarser than the coarse non-magnetic product.

That is an indication that the 3-deck screen and the magnetic separation were not working efficiently.

PSD shows further that the 2 mm lower deck of the 3-deck screen was not working properly because the amount of > 2 mm material in screw classifier overflow is approximately 40 m%, which is good material for magnetic separation.

Figure 12-26 Fractions (PSD) of screw classifier overflow

Screw classifier (Figure 12-26) overflow were screened in different fractions. These fractions were separated with a belt magnetic separator type E.L. Bateman Permroll Separator (dry extra high magnetic separator). Results of mag separation as per Table 12-3 below.

Table 12-3 Mag Separation

			in m%		
fraction	passing in %	nonmag	midds	mag	Sum
10	100,0		no material		
6	98,8		less material		
4	89,4	84,4	4,8	10,9	100,0
2	60,0	87,0	4,0	9,0	100,0
1	40,8	86,4	2,0	11,6	100,0
0,5	25,8	82,5	2,0	15,6	100,0
0,25	12,5	79,4	2,2	18,4	100,0
0	0,0	15,9	29,3	54,7	100,0
		76,0	6,3	17,7	100,0

Figure 12-27 Products of magnetic separation of fraction 4.0 - 6.0 mm and 2.0 - 4.0 mm (screw classifier overflow)

Mass recovery of nonmagnetic material (magnesite) in these two fractions is approximately 85 - 87%, see Figure 12-27 above.

Figure 12-28 Products of magnetic separation of fraction 1.0 – 2.0 mm 0.5 – 1.0 mm mm (screw olassifier overflow)

Mass recovery of nonmagnetic material (magnesite) in these two fractions is approximately 82 - 86 m% as per Figure 12-28.

Figure 12-29 Products of magnetic separation of fraction 0.25 - 0.5 mm < 0.25 mm mm (screw classifier overflow)

Mass recovery of nonmagnetic material (magnesite) in the fraction 0.25 – 0.5 mm is approximately 80 m%, see Figure 12-29.

Dry magnetic separation with material < 0.25 mm is not efficient anymore (recover only 16 m% with bad quality).

Magnetic separation tests with screw classifier overflow shows that approximately 40% is coarser than 2mm and good for vertical kiln. Approximately 86 m% of this material is nonmagnetic (magnesite).

That means from 100t of this material > 2mm can be recovered approximately 35 t as magnesite.

Total from screw classifier overflow 0.15 - 10 mm it is possible to recover approximately 80 t magnesite from 100 t.

12.6.1 Mixed Tailing from Magnetic Separation

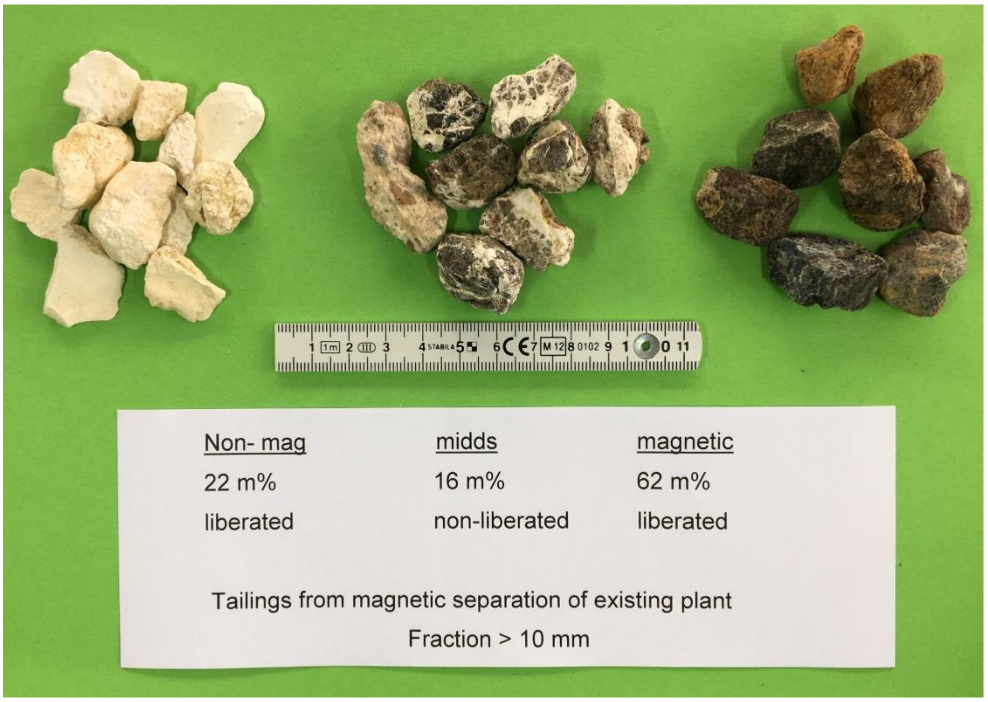


Figure 12-30 Products of magnetic separation tailings (mix >10 mm) after manual selection

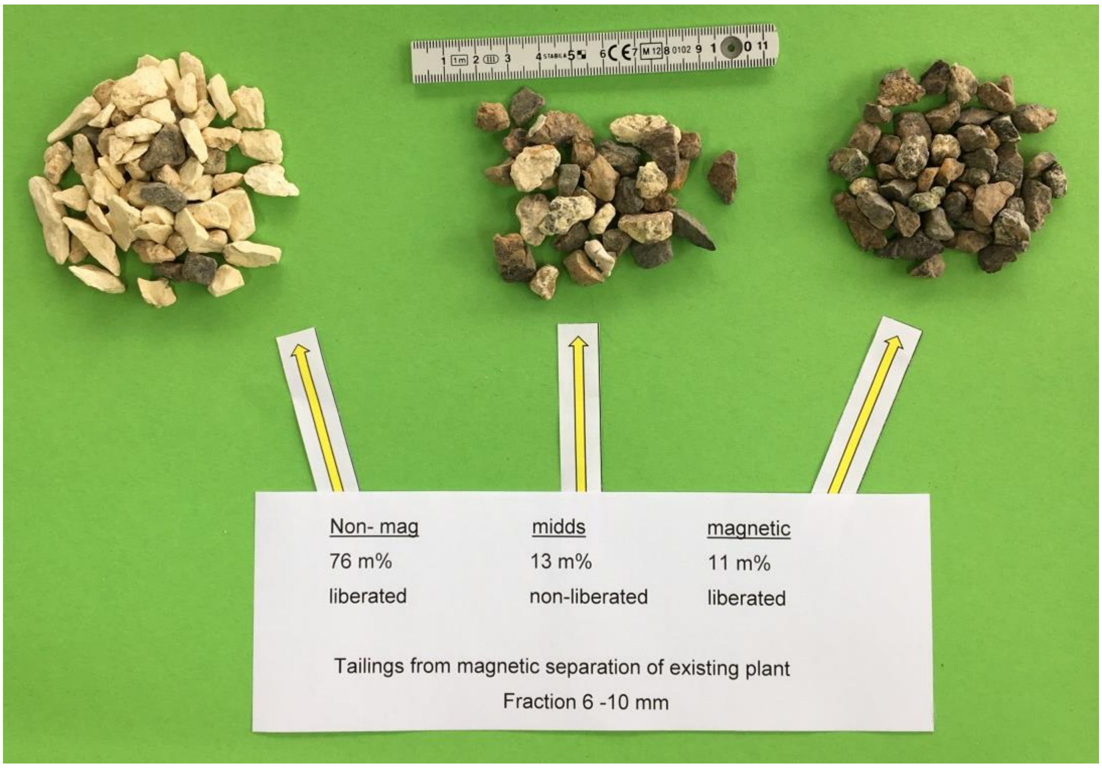


Figure 12-31 Products of magnetic separation tailings (mix 6.0 – 10.0 mm) after manual selection

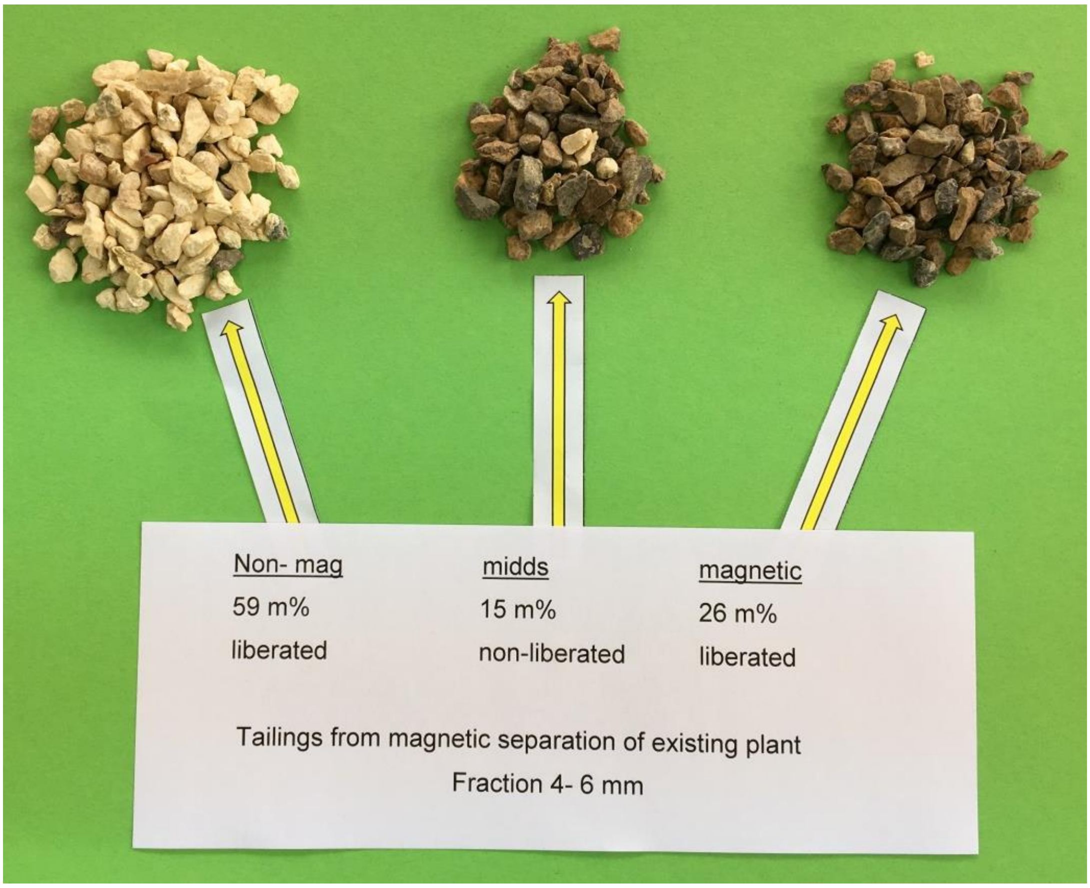


Figure 12-32 Products of magnetic separation (tailings Mix 4.0 – 6.0 mm) after separation with Permroll lab separator.

This test shows that a major part of approximately 40 - 50 m% can be recovered as useable magnesite product for ratary kiln (coarse part) and vertical kiln (finer part). That means nearly half of talings from magnetic separation is magnesite. Difficult for magnetic separation are not liberated magnetite particles.

Figure 12-30, Figure 12-31 and Figure 12-32 show the test results as described above.

Figure 12-33 Example for non-libarated particles

Those particles will be recovered neither to magnetic nor to non magnetic product of magnetic separator (see Figure 12-33).

12.7 Non-magnetic Products

Both products from magnetic separation show optical good quality (Figure 12-34, Figure 12-35).

Figure 12-34 Non-magnetic (magnesite) product from magnetic separation in processing plant, 15 – 20 mm

Figure 12-35 Non-magnetic (magnesite) product from magnetic separation in processing plant, 2 – 15 mm

12.7.1 Summary of Test Work

The samples were taken from old stockpiles in the processing plant and are not representative.

The existing plant was able to recover magnesite by crushing, screening and magnetic separation. However, the tailings have approximately 40 - 50 m% usable magnesite in magnetic separator tailings and approximately 80 m% magnesite in screw classifier tailings.

Screening and magnetic separation was working, but with low efficiency in respect of tailings quality. Magnetic separation works more efficient in a size range between approximately 0.25 - 6 mm.

The fraction 15 – 20 mm and 2 - 15 mm of nonmagnetic products (magnesite) shows optical a good quality with some misplaced dunite particles and other brown nonmagnetic particles. Finer fraction looks better than the coarse fraction.

It was not possible to verify the mass recovery to the different products of the mineral processing plant.

12.8 Conceptual Flow Sheet Suggestion

The following suggestion of a flow sheet is based on the fact that magnetic separation is more effective in a size up to 6 mm. Coarser separation will be better with optical sorting (test work necessary).

The new flow sheet suggests a 3 section plant: see also Figure 12-36.

1st section – Mine site section;

2nd section – Plant site section;

3rd section – Dry crushing and screening section.

Background to suggest 3 sections is to be able to start processing step by step to save Capex cost at the beginning of mine start up.

The plant is designed for 100 t/h total feed. Total recovery of magnesite depends from quality of ROM. Calculation is a total magnesite concentrate of approximately 53 t/h. Fraction 15-30 mm is approximately 27t/h.

Table 12-4 describes the production rates and feed rates of each kiln as used as a base for creating all flow charts. The highest value of product is coming from the electrical kiln; however, the design capacity is relatively low. Best product in regards to grade / product ratio comes from the rotary kiln, as expected and therefore is the focus of first rehabilitation of kilns.

Table 12-4 Design figures describing input-output and grade of each product of each kiln

Design Figures			
	Feed in t/h	Product in t/h MgO	Product grade m% MgO
Rotary kiln	15.6	6.25	92 - 96
Vertical kiln	12.5	5.00	80 - 85
Electrical kiln	0.688	0.63	99.0
Note, the electrical kiln uses product from vertical kiln as feed			

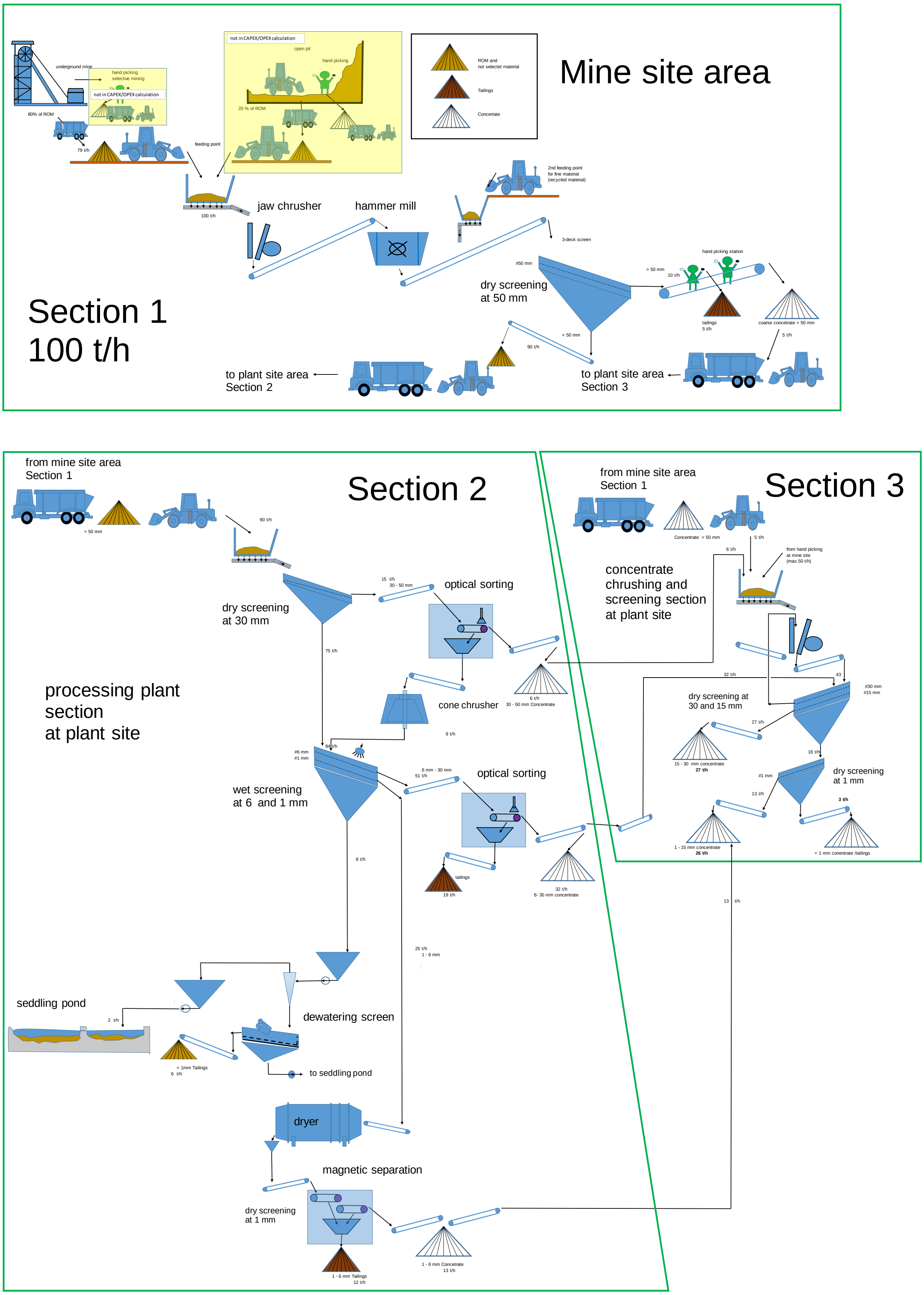


Figure 12-36 Overview over all 3 suggested sections of processing plant

12.8.1 Using Existing Equipment

Most of the equipment in the processing plant is not useable anymore for quality production of magnesite.

However, some equipment can be refurbished in the new processing plant. This equipment needs a detailed check-up (also by the manufacturer of the kilns) before using.

The jaw crusher and hammer mill in existing processing plant seem to be good enough for using them in the new plant. The two magnetic separators need refurbishing and can be used in the new plant as well. All other equipment needs to be replaced by new equipment.

The dunite dry plant needs an audit before starting up. The plant can have dual functions: it can be used for production of crushed dunite (construction material) and / or crushing and screening magnetite (no separation possible).

12.8.2 1st Section – Mine Site Area

This section (Figure 12-37) should be erected in the area of existing processing plant to be able to use the existing jaw crusher and hammer mill near the shaft (gallery) and open pit.

The first step of mineral processing is hand picking of ROM coming from underground and open pit. Hand picking gives high quality magnesite. This material needs to be crushed and screened in section 3 only.

Processing starts with pre-crushing (jaw crusher) followed by a hammer mill. The crushed material is send to a one-deck dry screen. The screen produces a cut at 50 mm. Material > 50 mm is send to hand-picking belt.

Magnesite concentrate from hand-picking goes to section 3.

Finer material < 50 mm shipped to Section 2 of mineral processing plant.

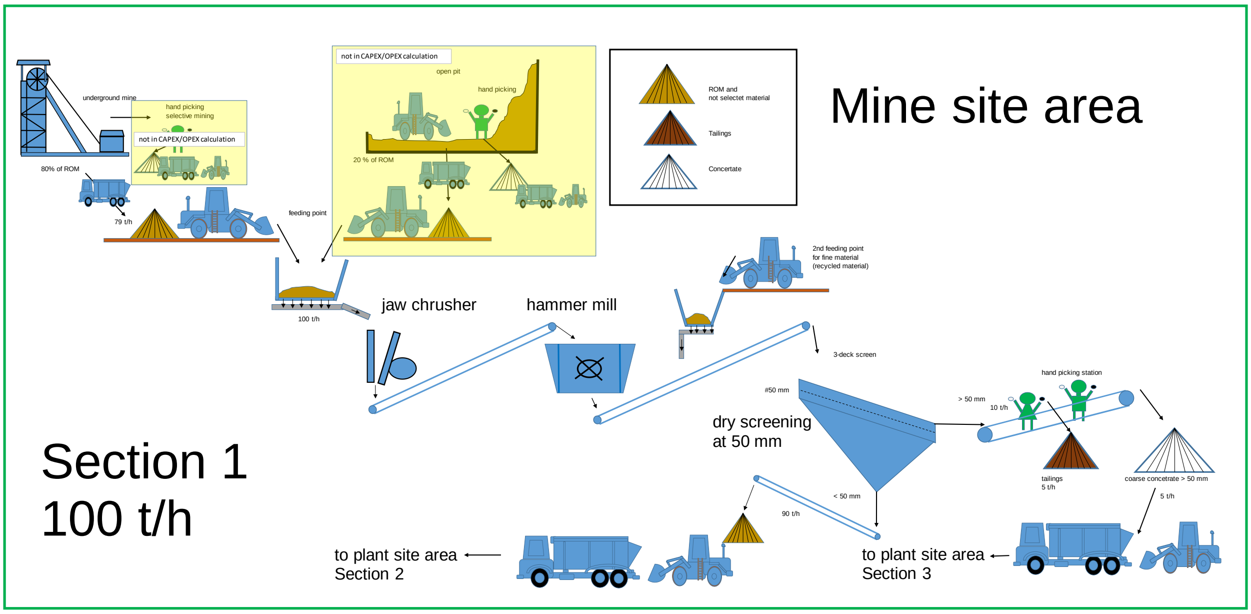


Figure 12-37 1st section – mine site area

12.8.3 2nd Section – Plant Site Area

Section 2 (Figure 12-38) is the main processing section and must be installed in-house near the rotary kiln.

The feed is the < 50mm fraction from Section 1. Section 2 starts with a single-deck dry screen with a cut of 30 mm. Fraction > 30 mm goes to optical sorting and produces a magnesite concentrate and a middlings product. The product will be crushed in a cone crusher > 30 mm and cone crusher discharge will be fed to a double-deck wet screen. This screen cuts at 6 mm and 1 mm and returns 3 fractions.

6 - 30 mm goes to optical sorting. Optical sorting produces tailings and 6 - 30 mm magnesite concentrate. This concetrate will feed to section 3 for screening only. Fraction 1 - 6 mm needs to be dried and drum dryer before magnetic separation. The dryer uses the lost heat from rotary kiln.

The < 1 mm fraction from 3 deck wet screen must be dewartered with a cyclone- dewatering screen-combination. Water with material approximately < 0.075 mm will be storaged in a settling pond. The dewatered fraction 0.075 – 1.0 mm can be stockpiled as tailings. This material consists of a significant portion of magnesite.

Figure 12-39 describes the mass balance of the 3 sections for 100 tph our ROM production.

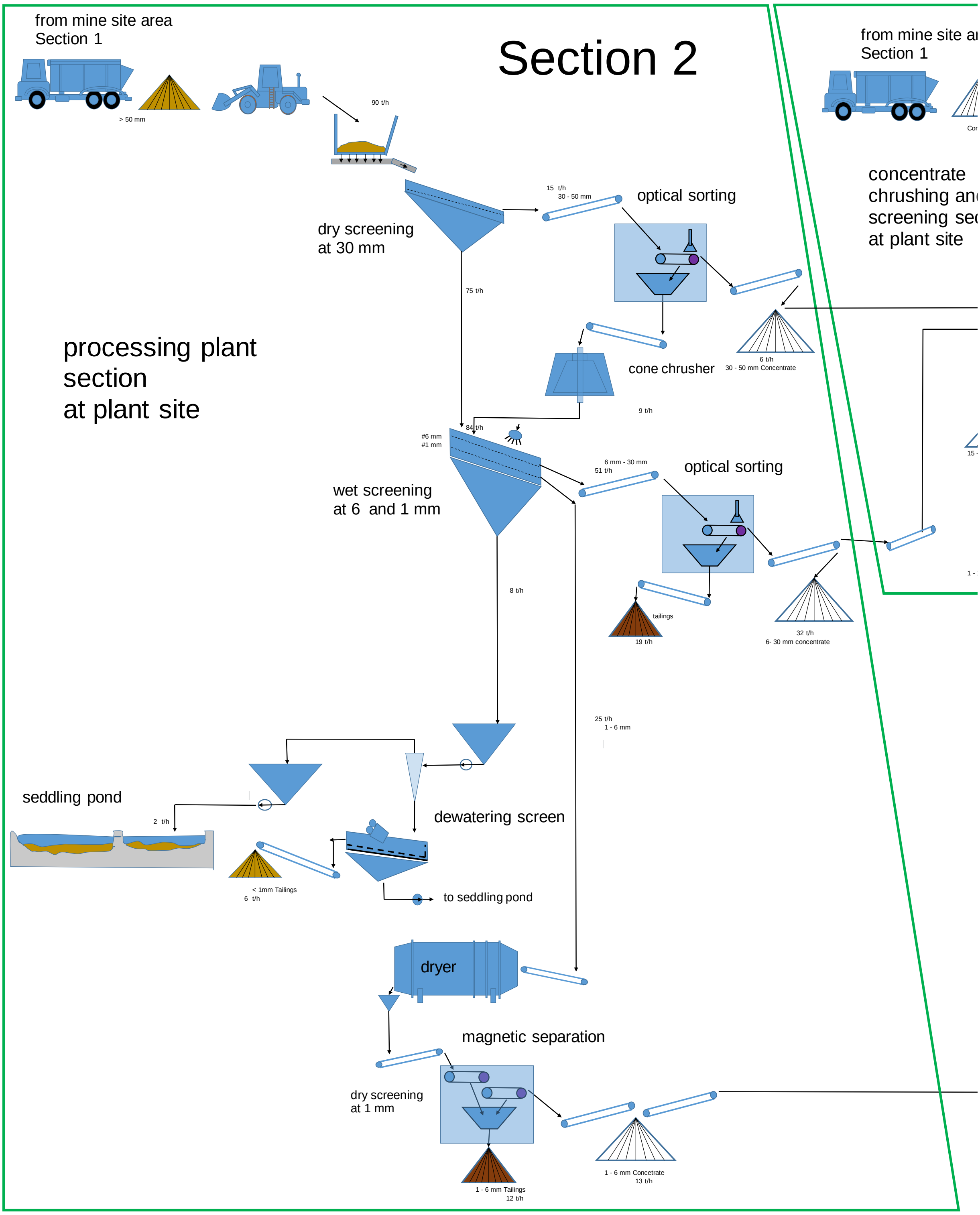


Figure 12-38 2nd section – plant site area

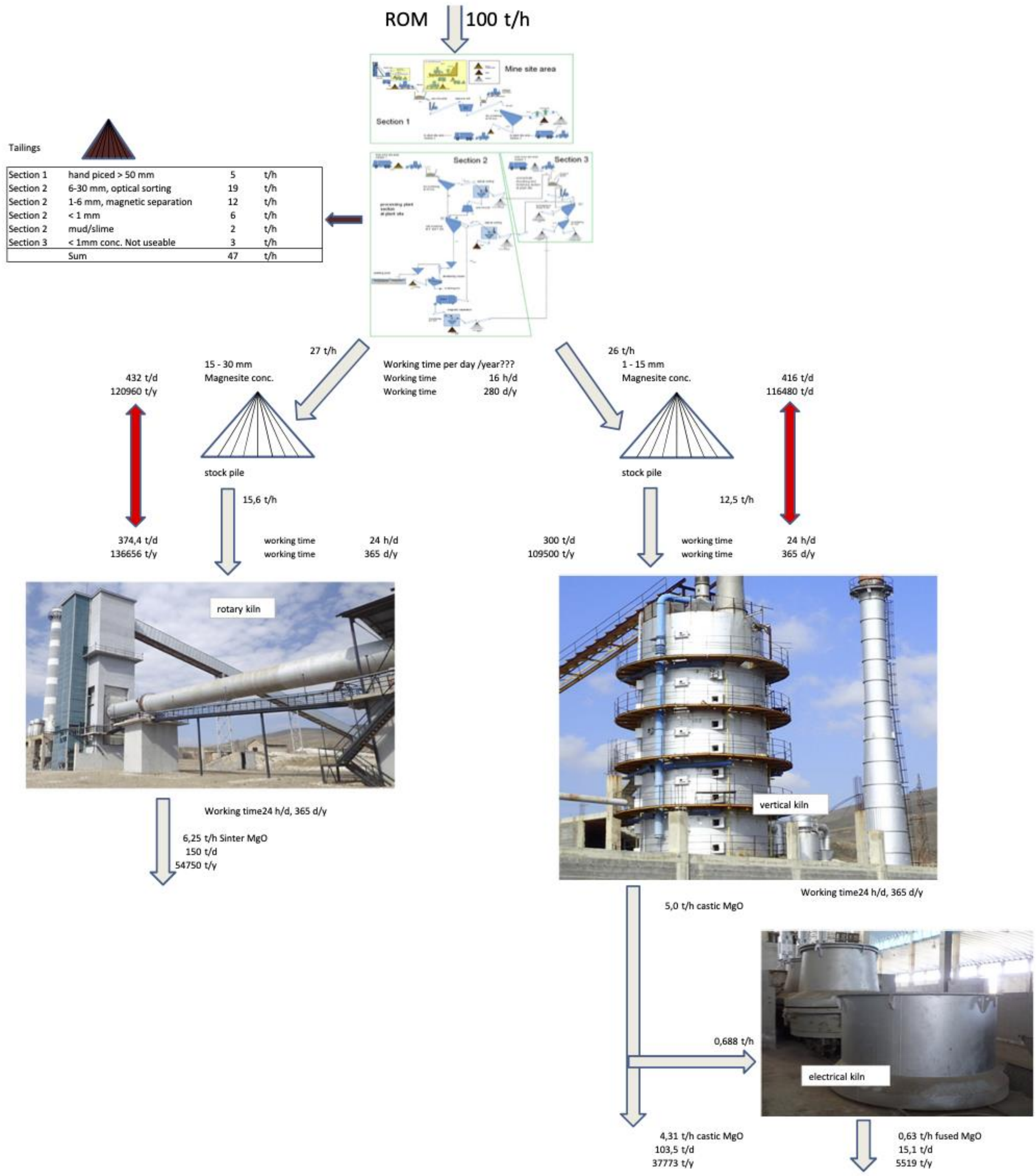


Figure 12-39 Mass-balance model

12.9 3rd Section – Dry Crushing and Screening Section

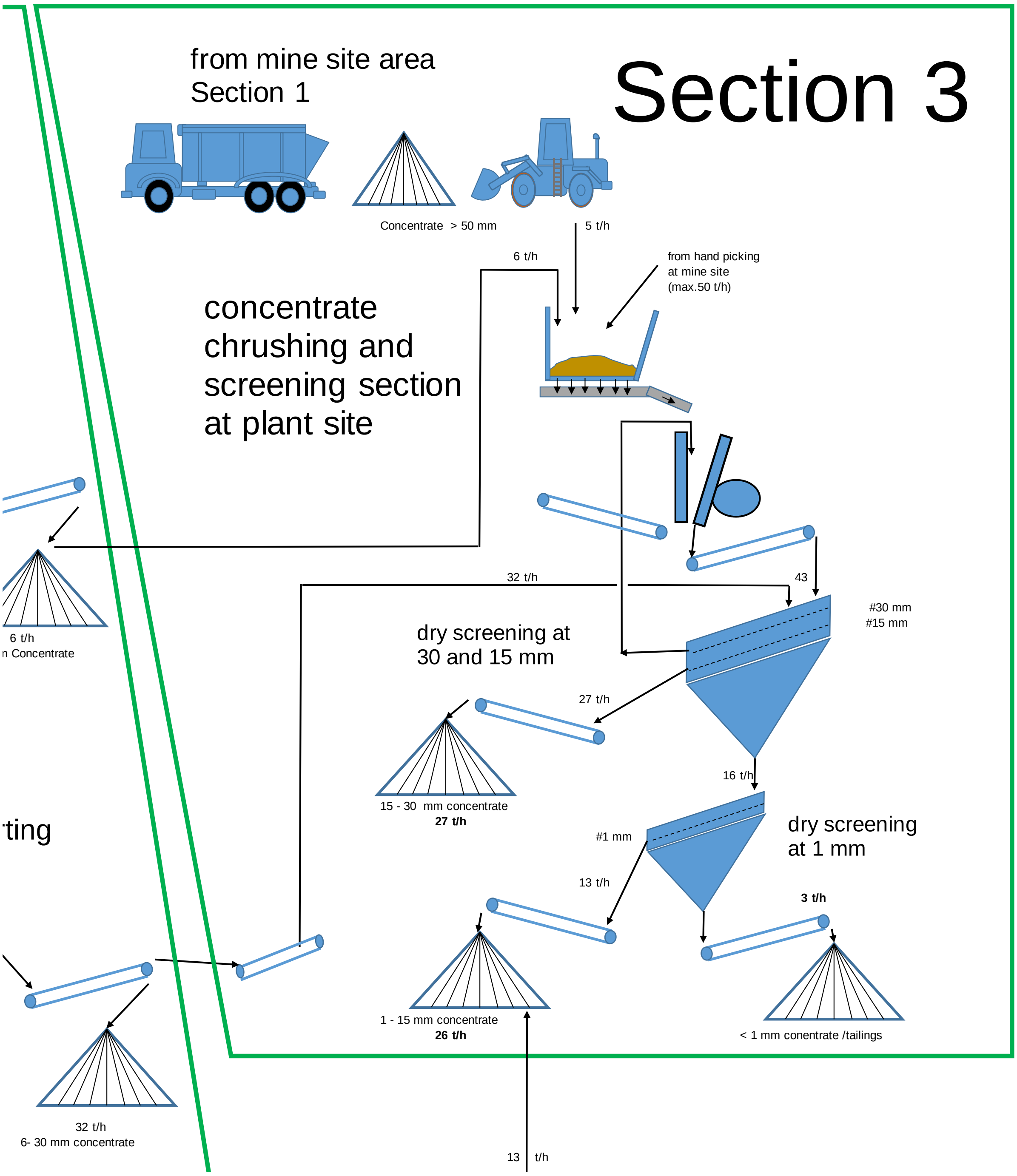


Figure 12-40 3rd Section - dry crushing and screening section

The concept of 3rd section (Figure 12-40) is only crushing and screening into useable fraction for the different kilns.

The 3rd section can work separately from section 1 and 2. That gives the advantage to run with hand-picked material from the adits (gallery) and open pit only. In this case, no water is necessary for processing.

Section 3 should be installed near section 2 in plant site. Feed material for section 3 comes from hand-picking and optical sorting. A jaw crusher will reduce the top size to < 30 mm in circuit with the first deck of the double deck screen.

A double-deck dry screen fabricates the fraction 15 – 30 mm and 1 – 30 mm, ready for the kilns. There will be and extra fraction < 1.0 mm with good quality magnesite, but not in right size.

12.10 3-Section-Philosophy

The philosophy behind the 3 section (Figure 12-36) processing plant is to start up new plant activities step by step.

The first installation should be the section 3 (Figure 12-40). With this section, handpicked material with good quality from open pit and shaft (gallery) can be crushed and screened for rotary and vertical kiln. During this time, middle quality ROM must be stored for future processing. Later on, section 1 and 2 can start operation to come to fully designed capacity.

12.10.1 Kilns

It is not possible to estimate time and costs of start-up of the kilns in this study. Especially the vertical and electrical kiln is not finished for operation. The staff has no experience with this type of kilns. The vertical and electrical kiln needs a professional audit by the manufacturers of the units and erection plan before start assembling the kilns.

At this moment the rotary kiln represents the best option of producing a quality product right at the beginning of re-installing the mine. The unit had been operational over years already and the technicians of the mine do have experience in operating such a kiln. Though the kiln never run with gas which is proposed to be used in the future.

The staff is familiar with this type of kiln and there are some experts on site who worked in the past with this unit.

12.11 Conceptual Process Conclusion

- ROM contains approximately 50 m% magnesite and approximately 50 m% waste / tailings, mainly dunite. Afterwards mentioned as 50% / 50%;
- Pre-selection of ROM by hand-picking can improve the 50 / 50 rate towards magnesite;
- ROM material is well suitable for processing by optical and magnetically sorting;
- There is no specific problem with crashing and screening;
- The existing jaw crusher and hammer mill as well as the cone-crusher and the two magnetic separators from the old processing plant may be useable for the new plant, however, it requires a detailed inspection, maintenance and repairs;
- All other equipment must be replaced by new equipment;
- The rotary kiln was running over years already and can be used after detailed inspection, maintenance and repairs. A technical audit by the manufacturer is proposed;
- The vertical kiln has not been completed up to now. There is no documentation available. The unit is a second-hand kiln;
- The electrical kiln was never in operation and needs a technical audit by the manufacturer before finishing the kiln and starting it up;
- Grab-sampling during the site visit gives non-representative samples from the old product stockpiles in the processing plant. However, the samples show the possible quality of the products;
- It was not possible to verify mass recovery of concentrates and tailings;
- The concentrates from the magnetic separators are locking well (optical evaluation);

- The existing processing plant rejects a substantial amount of magnesite to the tailings;
- The tailings contain approximately 40 - 50 m% usable magnesite in tailings of the magnetic separator and approximately 80 m% magnesite in tailings of the screw classifier;
- Suggestion is to install a 3-section processing plant. This allows higher flexibility in the processing. With the installation of section 3 first, any new investor could start production by using hand-picked, well sorted ROM without optical and magnetic sorting;
- The recommended plant can produce approximately 27 t/h for rotary kiln and 26 t/h for feeding the vertical kiln by feeding 50% / 50% ROM and approximately 80 t/h feed. Designed plant capacity is approximately 100 t/h;
- A professional on-site laboratory to monitor grade of ROM, feed and products does not exist. The rooms for the proposed lab are in good conditions and ready for all lab installation;
- Workshops do not exist, too.

12.12 Process Recommendations

Installing of a 3 Section processing plant:

A) Section 1 at mine site, pre-crushing, pre-screening at 50mm and hand picking of coarse material > 50mm;
B) Section 2 at plant site, processing plant with screening, optical and magnetic sorting and using of waste heat from rotary kiln for drying of fine material before magnetic separation;
C) Section 3 at plant site, jaw crushing and dry screening to get accurate sizes for the 3 kilns.

- Detailed test work to establish detailed flow sheets and plant layouts is recommended;
- Pre-crushing (jaw crusher and hammer mill / cone crusher) as well as the tow magnetic separators probably can be used for the new processing plant, too, after detailed inspection, maintenance and repairs;
- All other processing plant equipment is scrap and cannot be refurbished;
- The rotary kiln could be re-activated after a detailed audit by the manufacturer, maintenance and repairs to produce inter MgO;
- The use of waste heat from the rotary kiln for drying fine material is recommended prior to the magnetic separation;
- Build a new vertical kiln;
- Use the electrical kiln after audit and maintenance by the manufacturer and starting up of vertical kiln;
- Start with section 3 of processing plant and hand-picked well sorted ROM as feed;
- The plant needs an audit for the storage management of ROM, concentrates, tailings, and the tailings pond;
- It is necessary to identify the equipment for the on-site lab and all workshops;
- Organize a training for the mineral processing plant staff;
- Install a quality management system for the processing plant that allows close and exact monitoring of ROM, feed and products with shortest turn-over time as possible;

12.13 Process Technical Risks

- The main risk is the vertical kiln. There is no documentation of the equipment and the current staff experience does not have experience in operating the kiln. The kiln was used in another place before. The supplier of the kiln is unknown. The assembling of it is not completed;
- The rotary kiln has been used with heavy fuel oil in the past. It is foreseen to use a mixture of propane and butane in the future. Gas tanks have already been installed; however, the final gas installation has not been completed yet. There is no experience by using gas in the kiln. This risk is on a low level, however an audit by the manufacturer with regards to the usage of gas is required;
- There is no risk to use optical and magnetic separation for the kind of material. However intensive test work is recommended;
- There is a risk that it is not possible to use waste heat for drying of fine material before magnetic separation;
- Power supply needs an audit to secure enough electrical power for new processing plant;
- Infrastructure risk is low.

13 Environmental Aspects and Permitting Requirements

13.1 Environmentally Relevant Project Aspects

As was described earlier in this report the principal development option for Goleshi mine is the re-activation of the existing underground mine that is currently under care and maintenance. Following the preliminary assessment of the present site conditions in early 2019 the study team concluded that the key steps needed to put the mine back into operation will include the following:

- Either replacement or serious refurbishing of all surface mining infrastructure (e.g. transport and haulage equipment, crushing and sorting plant, shaft buildings and mine roads);
- Total renewal of the electrical supply with probably a new main mine substation;
- Potential upgrading of the existing main powerline from the existing country grid (probably 33 kV) to the site;
- Pumping of about 2.5 Mm^3 of water accumulated in the underground pit;
- Check of the shaft headgear and probably cleaning and strengthening work;
- New ventilation fan on surface with new electric motor and substation;
- Provision of new mine hoisting equipment and electrical motors;
- New underground mining equipment; and
- Repairs to existing buildings on surface.

Once the water that is presently accumulated in the existing underground mine has been pumped out and the shaft rehabilitated, the old workings would need to be rebuilt and new tunnels and facilities constructed underground.

Buildings on surface will be standard industrial construction, brick or steel frame and metal clad. Buildings will comprise mine offices, changing rooms and showers for personnel, a canteen, small workshops and warehouses.

The air compressors and the mine hoist equipment will be on surface and housed in buildings as will the mine hoisting engines and control facilities. There will be electrical transformers and control gear for the mine and the process plant.

Figure 13-1 Existing rail track - partly interrupted and not maintained

13.1.1 Operational Aspects

As re-opening of the existing open pits is not intended (yet), future mining operations would be restricted to underground methods. Access to the existing underground mine is by a vertical shaft for both staff and materials. The ore and waste rock would be hoisted to surface via the same shaft. Waste rock from access drives and crosscuts will be primarily used for backfilling in the worked-out stopes. LHDs will transport waste to the top of old stopes for filling. Any surplus waste will be hauled by LHD to the shaft for hoisting out of the mine and trucked to the waste dumps.

Rock will be blasted using standard explosives (ammonium nitrate / fuel oil) in bulk granular form. Diesel powered equipment will be used for loading and hauling. Compressed air will be used for drilling. The air compressors will be on surface and will be driven by electricity.

Fresh air will be introduced into the mine by electric fans to maintain proper working conditions underground. The mining law will specify the required quality of air in respect of dust content and exhaust gases. Miners will test the air quality on a regular basis with simple hand-held devices. Used air will be exhausted to the atmosphere. It will contain dust particles, gases from diesel equipment exhaust and some NOx from blasting.

Any water that collects underground - either from natural in-flow or from mining equipment - will be channelled into settling ponds for settling and will be pumped to surface to a conditioning pond. This water will be treated to ensure that the final discharges will meet the legal requirements with respect to suspended or dissolved solids.

According to the conclusions of the present study a production of around 380,000 tons of mined material (Run of Mine - ROM) is considered to suit the capacity of the mine and the present and partially completed furnaces.

Transport of materials and mine products from and to the site could be by rail and / or road. Whereas road transport of materials and products is currently anticipated to be by road due to significant high costs of rehabilitating the existing rail tracks (partly missing and running through active mine operations).

The rail track (Figure 13-1) that exists at the mine was connected to the main national railway line and also to the international network. However, about 500m are currently missing in the area of the neighbouring active Nickel surface mine. If the option of rail transport is preferred the tracks would need rehabilitation.

According to the Mayor of Lipjan the local population would definitely favour railway transport, as villagers already feel impacted by road traffic from by the New-Co Ferronikeli Nickel surface mine.

In terms of heavy machinery, the key types of equipment needed at the site would include but are not limited to

- Haulage trucks;
- Bulldozers;
- Cranes;
- Light vehicles;
- Road trucks;
- Water trucks.

Once operational and at full capacity with 3 lines of production the mine may employ about 400 people.

13.1.2 Information Gained During Discussions and the Site Visit – Observations on Environmental Aspects

As part of the consultant’s activities under this study a site visit was undertaken in late March 2019. The objective was to gain an initial understanding of the present situation and to possibly identify environmental issues related to mine rehabilitation and operation. These issues could then be addressed in more detail at the scoping stage / during the EIA.

The findings and conclusions of this site visit are presented below.

13.1.3 Waste

At the time of the site visit various abandoned processing facilities as well as large numbers of abandoned, scrapped machinery and diverse broken-down equipment were spread across the mine area. None of that would be reactivated or reused, thus important quantities of scrap metal will need to be removed, recycled and / or disposed of as part of the necessary clean-up for prior to construction and future mining operations. Abandoned vehicles and some of the machines are also likely to contain fuel and oil and which will need to be handled separately in accordance with the applicable legislation – along with tires and other specific types of waste materials.

Small amounts of asbestos were also spotted at the site – mixed with other types of solid waste.

According to the mine manager some materials were also left behind underground when the mine was abandoned in the year 2000. This includes but may not be limited to:

- Approx. 100 wagons for magnesite transport (capacity: 0.9 m^3);
- 3 small locomotives for pulling the wagons;
- Some hand compressors for drilling;
- A water tank collector (capacity: 450m^3 water/ 8 hrs);
- A water pumping station.

13.1.4 Contamination

In the area of the fuel depot and around some buildings which may previously have served as warehouses large numbers of drums with oil residues as well as localized oil spills were noted during the initial site visit, see Figure 13-2 to Figure 13-5 below.

As part of the future environmental assessment process a systematic survey of possible contaminated sites will have to be undertaken to learn more about the extent and relevance of soil contamination at the mine and to establish a basis for further action as appropriate.

Note that a report issued by MESP / the Agency of Environmental Protection in 2011 classified Goleshi mine as a site as an 'Environmental Hotspot' with contaminations by heavy metals and oil products[1]. According to the MESP (Director of the Division on Industrial Pollution Control), however, this classification was based on the known problems with the management of mining waste and wastewater as well as impacts on soils. From the perspective of the MESP the report is only considered to be a type of initial inventory, however 'without much substance'.

Figure 13-2 Fuel storage area with leftover empty drums

[1] MESP / Kosovo Environmental Protection Agency (2011): 'Environmental Hotspots of Kosovo'

Figure 13-3 Oil separator at fuel storage area

Figure 13-4 Fuel storage area with oil spill

Figure 13-5 Old drums with unknown contents

Figure 13-6 Oil spills in abandoned buildings

13.1.5 Water

13.1.5.1 Surface Water

A small nameless stream (Figure 13-7) originating from a mountain range to the northwest of the mine crosses the land of Goleshi mine area. Whether this stream is perennial or seasonal could not be confirmed, however a seasonal flow is assumed to be more likely. According to the mine manager, this stream ultimately discharges into the river Sitnica.

Figure 13-7 Small nameless stream crossing the Goleshi mine area

Sitnica (Figure 13-8) is the second-longest river of the country and discharges to the Black Sea. This river has a permanent flow which can, however, be very low during the summer / dry periods. In the Report 'The State of Waters of Kosovo' (MESP, 2010) the minimum, average and maximum flows recorded at Nedakovc station are indicated as 0.50, 13.62, and 328 l/s respectively. Riverbank erosion is reported not to be significant and according to the mayor of Lipjan serious floods do not occur in the area. However, due to discharges of untreated urban and industrial wastewater to the river itself and its tributaries, Sitnica is the most polluted river in Kosovo. Therefore, water from Sitnica river is not used for irrigation or other purposes.

Source: Shala A. et al. (2014): The Effects of Industrial and Agricultural Activity on the Water Quality of the Sitnica River (Kosovo). Geoadria 20/1 (2015) 13-21

Figure 13-8 Path of the Sitnica river within Kosovo

A fenced underground storage area for potable water (Figure 13-9) was identified within the area of Goleshi mine. According to the mine manager the capacity of the tank is 500 m³. The tank supplies three nearby villages: Magura, Medveci and Dobraja e Vogel. The tank and pumps are installed within the area owned by MIM GOLESHI, while supervision is under the Regional Water Company - Prishtina. The water is pumped to the site from Vrella (located at distance of about 3km from the site) and then supplied to the above villages by gravity.

Figure 13-9 Underground storage for portable water supply within the area of Goleshi mine

13.1.5.2 Groundwater

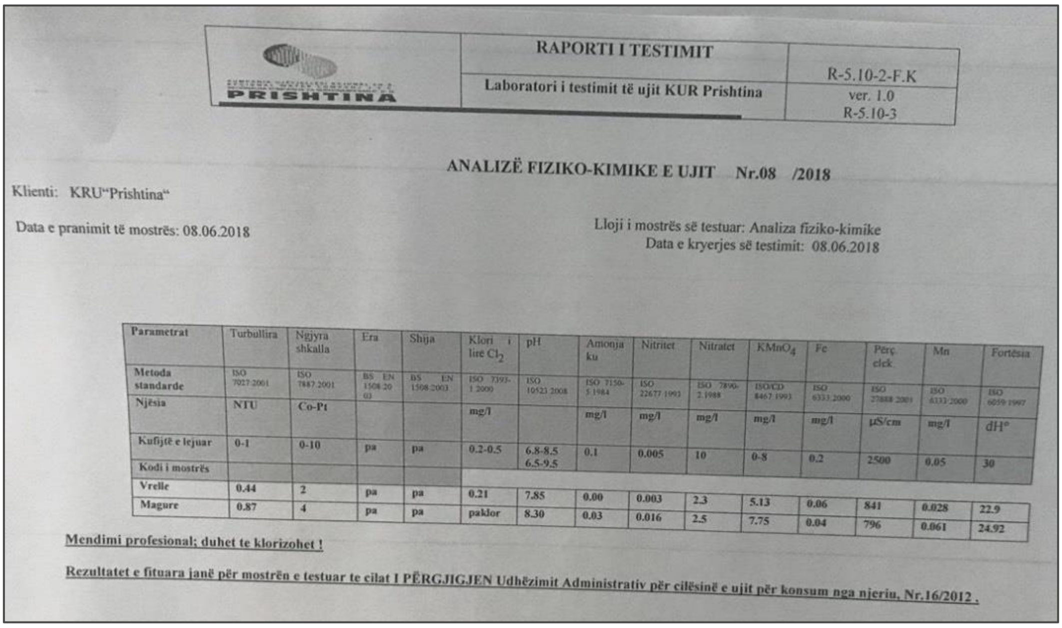
According to the mine manager an estimated 2.5 Mm³ of water are presently accumulated in the underground adits and shafts. Most of that is reported to be groundwater but some surface water also reached the underground mine via the openings for the ventilation of the galleries. The water level is reported to be 17 m below the elevation of the surface and presently stable. The possible rate of replenishment occurring once pumping of water starts is unknown and there is no information about whether or not water inflow into the mine ever was an issue during operation.

In June 2018 the regional water supply company 'KRU' Pristina commissioned a local laboratory to analyse selected physico-chemical parameters of that 'mine-water' and of the drinking water supplied from the above storage facility to the afore-mentioned communities. The analysis comprised ammonia, nitrite, nitrate, potassium permanganate, iron, electrical conductivity, manganese and hardness.

The results of this analysis (Figure 13-10) are presented in the following figure (the row Magure at the bottom shows the results for water from the mine pit; the row Vrelle indicates the results for potable water to supply some neighbouring villages). As can be seen from those data the water sample from the mine is alkaline (pH 8.3), has a relatively high turbidity and contains elevated levels of potassium permanganate (KMnO4) that are very close to the relevant limit value of 8mg/l. In its pure form KMnO4 is toxic and according to the Safety Data Sheet the following acute (short-term) health effects may occur immediately or shortly after exposure:

- Contact can severely irritate and burn the skin and eyes with possible eye damage;
- Breathing potassium permanganate can irritate the lungs causing coughing and / or shortness of breath.

KMnO4 is also an oxidant which can irritate the mucous membranes of fish. Overall, however, the laboratory that made the analysis confirmed that both water samples are in line with the requirements of the Administrative Instruction No. 16/2012 'On the Quality of Water for Human Consumption' but would require chlorination.



PRISHTINA

RAPORTI I TESTIMIT

Laboratori i testimit të ujit KUR Prishtina

R-5.10-2-F.K
ver. 1.0
R-5.10-3

ANALIZË FIZIKO-KIMIKE E UJIT Nr.08 /2018

Klienti: KRU"Prishtina"

Data e pranimit të mostrës: 08.06.2018

Lloji i mostrës së testuar: Analiza fiziko-kimike
Data e kryerjes së testimit: 08.06.2018

Parametrat	Turbullira	Ngjyra shkalla	Era	Shija	Klori i lire Cl_2	pH	Amonjaku	Nitritet	Nitratet	$KMnO_4$	Fe	Përç. elek	Mn	Fortësia
Metoda standarde	ISO 7027:2001	ISO 7887:2001	BS EN 1508:2003	BS EN 1508:2003	ISO 7393-1:2000	ISO 10523:2008	ISO 7150-5:1984	ISO 22677:1993	ISO 7890-2:1988	ISO/CD 8467:1993	ISO 6333:2000	ISO 27888:2001	ISO 6333:2000	ISO 6059:1997
Njësia	NTU	Co-Pt			mg/l		mg/l	mg/l	mg/l	mg/l	mg/l	µS/cm	mg/l	dH°
Kufijtë e lejuar	0-1	0-10	pa	pa	0.2-0.5	6.8-8.5 6.5-9.5	0.1	0.005	10	0-8	0.2	2500	0.05	30
Kodi i mostrës														
Vrelle	0.44	2	pa	pa	0.21	7.85	0.00	0.003	2.3	5.13	0.06	841	0.028	22.9
Magure	0.87	4	pa	pa	paklor	8.30	0.03	0.016	2.5	7.75	0.04	796	0.061	24.92

Mendimi profesional; duhet te klorizohet !

Rezultatet e fituara janë për mostrën e testuar te cilat I PËRGJIGJEN Udhëzimit Administrativ për cilësinë e ujit për konsum nga njeriu, Nr.16/2012 .

Figure 13-10 Results of physico-chemical analysis of water from the underground mine (Magura), 06/ 2018

13.1.6 Biological Environment

As the site visit was only short and undertaken in spring, when vegetation was hardly developed - thus only very general statements can be made with regard to the biological environment.

Much of the area of the mine, especially in the hilly eastern parts, is open grasslands. Due to the low level of disturbance, topography and soil conditions these areas are likely to feature relatively diverse plant communities. Typical ruderal plant communities are developed on disturbed lands – e.g. where mining waste was disposed during the earlier operations, around abandoned buildings or along some man-made slopes. Woody vegetation is generally scarce in the area. Only a few small willows were noted along the afore-mentioned nameless stream originating from the hills in the east of the mine area. At some locations with mining waste and abandoned equipment small shrubs have come up through natural succession, mainly consisting of localized stands of blackberry.

Among the avifauna raptors are likely to use the mine area as a feeding habitat due to the presently low level of disturbance and the assumed presence of small mammals (mainly rodents) and reptiles (e.g. lizards and snakes) throughout the site. Other common species of birds noted during the site visit were sparrows, several species of doves, skylark (Alauda arvensis) and the common Stonechat (Saxicola torquata).

In the small-scale wetlands that are locally developed around the already mentioned creek, amphibians were noted to be present.

13.2 Key Environmental Aspects of the Project

13.2.1 Introduction

In principle, several categories of possible environmental impacts will need to be considered and assessed for their significance and appropriate mitigation and environmental management arrangements defined so as to ensure that the planned activities will meet the legal requirements. Both mine rehabilitation / construction and operational impacts are to be addressed in the EIA process and in the Environmental and Social Management Plan

(ESMP) which will determine the type and scope of environmental and social mitigation measures to be implemented in designing and operating the project. These impacts include but may not be limited to

- Air pollution (dust);
- Noise pollution;
- Surface- / groundwater pollution (incl. used chemicals, solids in the water and aerosols);
- Radioactivity;
- Waste; and
- Use of oils, fuels and fats.

On the social / socio-economic side important aspects to be considered are

- Occupational Health & Safety;
- Community impacts; and
- Employment aspects.

The following figure (Figure 13-11) shows a preliminary flow chart of the future processing plant. All main plant components are marked with numbers. These numbers are used in the following section to explain the various types of environmental impacts and their respective sources in the processing plant operations

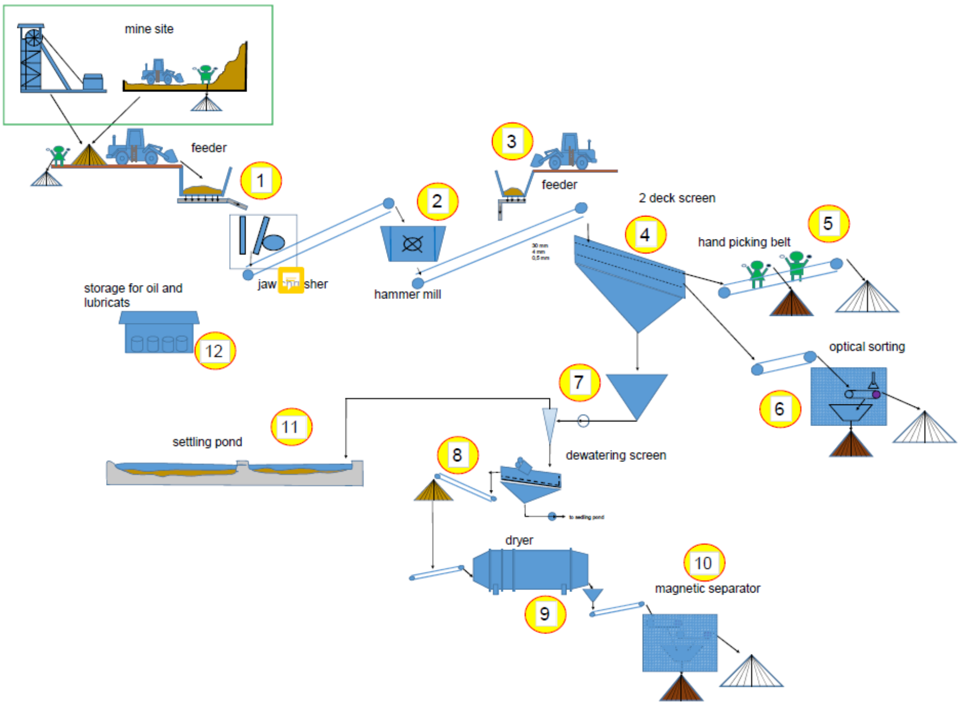


Figure 13-11 Conceptual flow chart of key elements in the future processing plant

13.2.2 Mine Operation – Likely Environmental Impacts

13.2.2.1 Dust Pollution

During mining operations dust is primarily generated during the dry processing where typical sources of dust are primary crushing, dry milling and dry screening. In addition, the possible drying and storage after a wet treatment as well as conveyor belts and transfer points must be included in the impact assessment. Further to this, external dumps are often a source of dust.

The feeder (1, 3) and jaw crusher (1) cannot be properly covered with dust protection devices, therefore proper personal protective equipment (PPE) for dust protection will be required to effectively protect the health and safety of workers at the site.

Modern hammer mills (2) are equipped with a central dust removing system, however, PPE will definitely be required to mitigate OHS risks for workers. Modern dry screens (4) have a possibility for central dust reduction but PPE will be needed too. Both the dryer (9) the magnetic separator (10) have a central dust protection system. All storage areas and conveyor belts for dry products represent sources of dust development. The existing rotary kiln plant and the vertical kiln are already equipped with dust protection equipment thus no major dust emissions are to be expected from these sources.

Another important aspect that may need to be considered in the context of possible OHS risks is that individual types of dust may be toxic, such as asbestos, quartz, arsenic, silicate etc. In such case the choice of the appropriate protective measures would depend on the respective type and concentration.

To assess the significance dust emissions during operations country-specific laws will apply – e.g. the law No. 03/L-160 (2010) On Air Protection From Pollution.

13.2.2.2 Noise Pollution Impacts

Noise will occur during both rehabilitation / construction as well as during the operational stage of the mine.

In the context of mine rehabilitation construction noise will temporarily occur. During that phase noise will mainly originate from the demolition of buildings and structures and from the use of machinery used for the removal of waste and its subsequent transport to the defined destination.

During mine operations the key source of elevated noise levels will be blasting. Tunnel blasting will probably take place a daily basis and production blasts will regularly occur several times per week. Underground blasting will cause vibration and low frequency noise. Noise from machinery operated underground will not be transmitted to surface.

As for the surface operations the hot spots of the suggested processing plant are the jaw crusher (1), and hammer mill (2).

Noise generated by other surface equipment such as air compressors, ventilation fans and mine hoists will occur continuously. Here, standard industrial noise levels are to be expected. Sound proofing of the compressors is feasible if required to protect workers or neighbouring communities. The main ventilation fan could be sited below surface if necessary. As a rule, machines used at the site must have noise reports / test records in accordance with European and local regulations. These surveys can often be very extensive and vary from country to country, facility to facility and site to site.

Mine traffic, such as staff vehicles, buses and trucks will cause standard levels of road noise. If the need occurs speed controls could be implemented within the mine area and along the access roads to the mine. Dense strips of shrubs could be planted between the source of such noise i.e. along the main traffic routes and sensitive receptors (e.g. local communities). In this context the prevailing wind directions are to be taken into consideration to optimize the effects of any such measures.

The operation of processing plants is often associated with significant levels of noise emissions. To define the impact of noise emissions different methods of measurement can be used and country-specific regulations are to be applied.

13.2.3 Impacts on Water Resources

When planning and operating processing plants, utmost attention must be given to water. Here, the applicable regulations are usually described in great detail and are subject to regular review.

Once operational, water will have to be continuously pumped out of the mine. Treatment and monitoring will be needed to ensure that the receiving surface stream will not be adversely affected. The current state of the art for the design of the treatment plants is to plan closed water cycles in which only water losses (from products and – potentially – evaporation) must be compensated to maintain the water circuit. Salination may require larger volumes of process water to be occasionally removed for treatment.

In addition to the salt content of the water, its pH, exposure to chemicals, organic pollution, etc., the max. content of solids needs to be considered. The solids often only dye the wastewater, but this has potential to cause uncertainty among the local residents.

Most of the processing plants use flocculants to thicken the fine solids during the treatment of process water. These flocculants are usually long-chain hydrocarbons, approximately < 50 microns. The consumption is approximately 50 to 150 g/t of solids. Any downstream centrifuges or filter presses may require the use of flocculation aids (FHM) up to approximately 300 g/t. Here, the safety data sheets (SDS) must provide information about possible environmental risks. Currently no flocculants are foreseen in the flowchart, but in future thickening and/or dewatering equipment may be needed.

The feed point of water to the plant is the screen (4). All water coming from the process is stored in a settling pond. Process water for the water circuit will come from the overflow or will be fed by water from the settling pond or from water accumulation in the underground mine.

13.2.3.1 Radioactive Pollution

Radioactive contamination may be caused by the use of measuring devices with radioactive sources (such as density meters) or radioactive substances in the ore. This is not just about uranium, but also about radioactive minerals in ores (e.g. monazite).

There is no known risk of radioactive pollution in the Goleshi processing plants, however, radioactive safety should be checked in any case.

13.2.3.2 Use and Storage of Hazardous Materials

Oils, fuels and fats are used in treatment processes in environmentally relevant quantities and will therefore require due attention and appropriate environmental management arrangements at the site. As will be described in chapter 10 about 2,380 l of fuel will be consumed in the underground the mine alone on a daily basis. Fuel will be taken underground in 210 L steel barrels and stored in specially constructed fuel bays. Other processes such as local transport and mine equipment at surface will consume additional quantities of fuel which will be centrally stored at the fuel depot. In general, country-specific guidelines and guidelines for the storage and use of oil, fuel and disposal of residues do exist.

In the processing plant operation and maintenance of mechanical equipment will require the use of oil and / or lubricants. These substances will need to be handled and stored in accordance with the provisions of the relevant SDS and in line with advice provided in the operational manuals.

The main blasting agent used in the underground mine will be ammonium nitrate mixed with (up to 6 %) fuel oil. This material will be stored on surface in secure and specially designed storage magazines. The daily requirements will be taken underground in 25 kg bags. The explosives are packed in so called cartridges (sausage type of packing) for easy handling and charging. These will be loaded into the pneumatic loader at the work face and charged into the blastholes.

As for the ROM material, no critical environmental issues are to be expected. This material is inert and non-acid generating. There will also be some waste rock hoisted, again inert.

13.2.3.3 Storage of Waste from Treatment Processes

At the operational stage some waste rock will be produced underground from the mine tunnels. Quantities are unknown at this moment. Some waste rock will be used underground for backfilling of mining voids, and the remainder will be hoisted to surface and stored in engineered mine waste dumps. No acid producing elements, such as iron pyrites, were noted during the visit, and therefore acid drainage is assumed to be unlikely in this context.

However, as could be seen again from the recent events in Brazil, the storage of waste from treatment processes requires utmost attention. After processing most of the mined minerals (often 90% or more) need to be stored as tailings in settling ponds. In the case of Goleshi approximately 40 to 50% of the raw materials coming to the processing plant will be tailings. The quantities are unknown at this moment.

In general, 2 types of tailings can be distinguished:

- **Fine tailings** mainly below 0.075 mm, storage in the settling pond (hydrocyclone overflow (7)); and
- **Coarse tailings** from the handpicking belt (4), from optical sorting (5) and from the magnetic separator (10).

Drainage water from the settling ponds will require continued monitoring due to its pH, salt and mineral content and solid concentration. Depending on the properties on that drainage water treatment may be required prior to discharging such water into the receiving water body.

For dams on mountain ponds, expert opinions and static calculations for dam safety will need to be considered to ensure safe operations. As far as possible it should be avoided to place tailings and settling dams containing large quantities of water and solids at high elevations and / or at flanks of mountains above structures and village due to high risk in case of a dam failure.

13.2.3.4 Other Types of Waste

In terms of quantity the main type of waste generated as a result of mining operations will be waste rock from underground mining. These materials will be stockpiled onto dumps or may be suitable as crushed rock and sold as construction material. Ultramafic waste rock was also used and sold in former production phases as crushed rock for construction and road filling material.

Further to this, limited volumes of waste will be generated at the workshop in connection with the servicing of vehicles and machinery.

Finally, domestic waste may be generated on a permanent at the site offices and potentially from a canteen or alike for the supply of mine staff – if any.

To address the above and any other type of waste generated by mine operations an analysis of the likely types and quantities of waste should be undertaken at the stage of the EIA. Depending on the findings of this analysis the preparation of a Waste Management Plan is likely to be required prior to the start of mining operations. The availability and continued updating of such plan will ensure that waste generated by mining operations can be effectively minimized at source and be managed in compliance with the applicable legislation and standards.

13.3 Cumulative Environmental Impacts

Cumulative impacts from the combined effects of two active neighbouring mines are to be considered in assessing the possible impacts of the project on potential sensitive receptors. This specifically applies to the local communities who may be exposed to increased nuisance from noise, dust and traffic-related impacts. In addition, impacts on surface water resources may need to be taken into account. The biological environment of the area could also be affected, especially due to continued land losses that may occur though the combined effects of mine waste disposal– if any – and open pit mining at the neighbouring Ferronikeli site.

13.4 Health and Safety Aspects

In addition to purely environmental risks mining operations will inevitably entail specific occupational health and safety (OHS) risks as well as risks for the health and safety of local communities.

With regard to OHS aspects mine environments are especially challenging because they can degrade fairly rapidly, and they change as mining progresses. Dust and noise are inherently associated with rock breaking, and in underground mines, air and light must be supplied artificially. Blasting, as well as mining itself, releases harmful gases into the underground environment. Ergonomic hazards are common in mining as miners usually handle heavy equipment and do physically hard work, often in cramped conditions. In some instances, ergonomic hazards, which are associated with poor engineering design, contribute to increased H&S safety risks. To properly manage these risks the precautionary principle and established industry standards will apply. Setting up a H&S management system is a standard approach in this context. The key elements of such system would – as a minimum – include:

- A health and safety policy;
- Risk management arrangements;
- Training and competence;
- Information control; and
- System evaluation.

Major hazard management plans could be established to address such issues as

- Slope stability;
- Surface transport;
- Underground transport;
- Strata failure;
- Inrush;
- Explosives;
- Airborne dust;
- Other potential emergencies.

According to ICMM specific national standards on OHS exist for the mining sector and these are based on international standards. Further international guidance on OHS is provided in IFC's 'EHS Guidelines for Mining' (2007)[2]. Following the 2012 update of IFC's policy and Performance Standards on Environmental and Social Sustainability, it was decided to also

[2] Available at: https://www.ifc.org/wps/wcm/connect/595149ed-8bef-4241-8d7c-50e91d8e459d/Final%2B-%2BMining.pdf?MOD=AJPERES&CVID=jqezAit&id=1323153264157g

update the 2007 EHS Guidelines. It is noted, however, that for the mining sector no update is available at this moment (see link in the Annex).

A management structure would have to be set up to define responsibilities and functions of individuals within the H&S Management System as well as communication and information channels. Site inductions, training and compliance monitoring with the agreed of H&S arrangements would need to be foreseen.

Further aspects to be addressed in this context include but may not be limited to:

- Inspection programs;
- Information and communication arrangements;
- Supervision arrangements;
- Safety arrangements for blasting;
- Monitoring arrangements;
- Electrical engineering management plans;
- Mechanical engineering management plan;
- Withdrawal conditions / emergency response;
- Ventilation arrangements.

13.5 Institutional Aspects

The Ministry of Environment and Spatial Planning (MESP) is responsible to coordinate activities in the field of environmental protection with the objective to promote the coherent development of environmental protection policies in the Republic of Kosovo. The mission of the MESP is to protect and improve the environment as a valuable asset for the people of Kosovo and to protect the environment from the harmful effects of pollution. Specific departments of the MESP share the various tasks as defined in the law on environmental protection and other related legal acts.

The MESP has 8 departments and numerous divisions operating under the various departments. Considering the possible reactivation of Goleshi mine the key department responsible for issuing the Environmental Consent (EC) required prior to starting operations and monitoring compliance of activities with the necessary Integrated Environmental Permit is the Department for Environmental Protection, namely through the following divisions:

- Division for Protection from Industrial Pollution;
- Division for Wastes and Chemicals; and
- Division for Nature Protection.

The MESP's Department of Water will also need to be involved in the process e.g. to obtain the necessary water permit for discharges into surface water bodies under the law on water – both during site preparation (pumping of mine water for discharge into a surface stream) and during the operational stage (routine pumping of water from the underground mine).

The Independent Commission of Mines and Minerals (ICMM) is responsible for licensing mining activities, for issuing special permits and for monitoring mining activities under the law No. 03/L – 163 on Mines and Minerals (as amended).

13.6 Key Environmental Legislation Applicable to the Project

Generally, comprehensive country-specific legislation and standards usually exist in the mine sector and must always be observed in the relevant processes. In addition, international standards that are universal and recognized in most countries will apply. The latter specifically includes the characterization of chemicals, risk substances, ores and minerals with so-called safety data sheets (SDS, previously known as MSDS).

Information about the national environmental legislation and the processes to be followed for obtaining the necessary environmental permits is provided on the website of the Ministry of Environment and Spatial Planning (MESP) in Albanian, Serbian and English language (https://mmph.rks-gov.net/en-us/Legislation).

Key environmental legislation to be considered in developing the project and operating the mine includes the following:

- Law No. 03/L-025 2009 – “On Environmental Protection” (10 August 2011);
- Law No. 03/L-214 2010 – “On Environmental Impact Assessment” (10 August 2011);
- Law No. 03/L-043 2009 – “On Integrated Prevention Pollution Control” (10 August 2011);
- Law No. 04/L147 – “On Waters of Kosovo” (19 March 2013);
- Law No. 03/L-160 2010 – “On Air Protection from Pollution” (25 February 2010);
- Law No. 04/L-060 2012 – “On Waste” (24 September 2012);
- Law No. 02/L-102 2007 – “On Noise Protection” (10 August 2011);
- Law No. 04/L-197 2014 – “On Chemicals” (03 October 2014).

As regards OHS in the mining sector the key piece of the national legislation to be considered is law No. 05/L – 062 on safety at work in mining activities (10 March 2016). This law sets out the general principles for the prevention of risks at work, for the protection of worker’s health in the mining sector, obligations of the employer, rights and obligations of the workers and persons responsible for work safety, occupational health and for setting the necessary standards for safety at work in mining activities.

13.7 Environmental Impact Assessment Requirements and Procedures

Need to undertake an Environmental Impact Assessment[3]

According to the provisions of Art. 29 of the **law on environmental protection** an EIA shall be undertaken for any planned projects including changes of the technology, reconstruction and extension of facilities which have potential to result in major environmental pollution or could constitute a risk to human health.

Art. 29 of the law also specifies the types of projects for which EIA shall be undertaken, including, among others, industry, mining, energy water management as well as projects affecting protected natural resources or protected environmental or cultural values.

The EIA shall be an integral part of the technical project documentation. According to the provisions of the law no project shall commence without having conducted an EIA in accordance with the procedure stipulated in the legislation.

It is noted that decommissioning / mine rehabilitation also need to be addressed in the EIA report. Actually, mine rehabilitation is one of the conditions of any mining license issued by the ICMM.

Activities which have potential to cause pollution of the air, water and / or land require the developer to obtain an Environmental Consent (EC) from the MESP prior to the start of construction or following changes to facilities or their reconstruction. The details of the requirements are provided in the law on environmental impact assessment (EIA), No.03/L-214[4]. This law and the related Administrative Instructions fully transpose the EU Directive On the Assessment of the Effects of Certain Public and Private Projects on the Environment[5].

[3] Note: During the investigations in Kosovo the Consultant has not seen any EIA report for the Goleshi mine nor did he receive any documentation although requested. The Consultant thus does not know whether or not any EIA has been previously undertaken and when this may have been.

[4] This law was adopted by the Assembly of the Republic of Kosovo on 23rd September 2010.

[5] Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment

The Directive 2011/92/EU was amended by the Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 with the aim to correct identified and persisting shortcomings, to reflect on-going environmental and socio-economic priorities and challenges, as well as to align the EIA Directive with the evolution of the legal and technical context. A Concept Document for improving and aligning Kosovar EIA legislation to the EU acquis was initiated by the MESP. However, no further information was obtained on this issue.

13.8 Summary Description of the Current EIA Procedure in Kosovo

Activities which have potential to cause negative environmental impacts need to obtain an Environmental Consent (EC) prior to the start of construction, changes or reconstruction of existing facilities in accordance with the provisions of the law on environmental impact assessment, No.03/L-214 (2009).

For these cases the law sets conditions to improve the protection of the environment, to control pollution at source, to promote the sustainable management of natural resources, and to create a stable equilibrium between human activities and socio-economic development on the one hand and the natural capital and the natural regeneration capacity of the environment on the other side.

According to Chapter III of the law No.03/L-214 ‘On Environmental Impact Assessment’, the legal entities or public authorities planning to develop a project with potential to cause negative impact on the environment, shall inform the MESP to formally initiate the Environmental Impact Assessment (EIA) procedure.

According to Article 10 of the law, the EIA procedure includes three phases:

(1) Selection (screening);
(2) Scoping; and
(3) Review of EIA Report.

The screening[6] and scoping procedures are defined in Chapter III of the law. Projects listed in Annex I of the law shall be subject to the EIA procedure. Projects listed in Annex II shall be selected based on its review, case by case according to criteria set out in Annex III of the law.

Article 11 of the law on EIA provides that the applicant shall submit the application for starting the EIA procedure to the MESP together with required documentation to obtain the MESP’s Environmental Consent (EC). Based on the application and information presented together with the application, the MESP shall inform the applicant in writing whether an EIA Report is required or not within 10 days from the date of the receiving the request.

The EIA Report is the core document of the EIA process, which requires approval from the MESP. If an EIA report is not required, the relevant municipality may initiate the procedure for issuing a Municipal Environmental Permit. Within 8 days from the date of the notification of the decision the applicant may appeal the decision of the MESP.

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of the effects of certain public and private projects on the environment, OJ L 26, 28.1.2012, pp.1-21. Directive 2011/92/EU is a codification of the Council Directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment, amended by Directive 1997/11/EC, Directive 2003/35/EC and Directive 2009/31/EC and was recently amended by the Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014, OJ L 124, 25.4.2014, pp. 1-18.

[6] Law on Environmental Impact Assessment, Article 2, par. 1, item n. 8 and n. 10: “[..] 1.8. Screening - the process for determining whether an EIA will be required for certain projects or not [..]1.10. Scoping - the process of identifying the minimum information to be required in the EIA report on the likely significant environmental impacts of a proposed project based on information about the project, and on the site and its surroundings”

As provided in Article 17 of the law the MESP reviews the EIA Report based on the following criteria:

- The adequacy of project description;
- The adequacy of impact identification and assessment;
- The adequacy of measures for the mitigation of the impacts;
- The adequacy of the proposed monitoring activities; and
- Any other criteria considered as relevant in the particular circumstances.

Upon the review the MESP issues a written Opinion Proposal to the applicant.

Note that according to the applicable national legislation EIAs can only be undertaken by licensed firms who employ a minimum of 3 licensed experts. According to the head of the MESP's Division for Protection from Industrial Pollution, however, the ministry plans to remove this provision during the next review of the legislation as it has not proved to be efficient.

13.8.1 Public Debates in the EIA Process

Article 19 of the law on EIA describes the procedure for the public debate of the main conclusions and recommendations of the EIA report and the MESP's Opinion Proposal. Planning and organization of the public debate is the responsibility of the applicant. The applicant shall prepare a plan for the public debate and send it to the ministry for approval. The ministry decides on the location and the date of the public debate, the mechanisms and times for informing the public, and the locations where the non-technical summary of the EIA report and the ministry's opinion proposal will be displayed. The public debate cannot be held until the applicant has received approval, in writing, from the ministry.

The applicant shall inform the public, through public media, including an announcement in at least one local daily newspaper, about the date, venue and time of the public debate and provide the required documents

The public debate shall be held within 20 to 30 days after the applicant, the environmental authorities and the public concerned have been informed.

The applicant and at least one person involved in drafting the EIA report shall participate in the public debate. More details about procedural requirements are provided in the AI No. 16/2015 (see below).

According to Article 20 of the law the MESP shall review the remarks and opinions obtained from the public within 10 days from the date of the public debate. Depending on the feedback obtained during the public debate the MESP may request the applicant to change or amend the EIA report. In case the applicant fails to comply with this request the MESP shall suspend the review procedure. The EC shall be issued in writing and within a period of 60 days from the receipt of the EIA report, not including the duration designated to the changes and amendments that may have to be undertaken by the applicant.

13.8.2 Issuance of the Environmental Consent (EC)

Article 21 of the law on EIA describes the procedure and conditions for the issuance of the rejection of the EC which would usually take another 10 days from the presentation of the MESP's EC. It is the responsibility of the MESP to also make the documentation accessible to the applicant, concerned public and parties.

As specified in Article 22 the applicant can appeal the MESP's decision within a period of 30 days.

According to Article 23 of the law the decision on the EC may be suspended if the applicant does not obtain a licence or an approval for implementing the project within 2 years of receiving the EC.

The applicant is responsible to fully implement the mitigation measures provided in the EIA report and to meet the conditions specified in the EC of the MESP. The MESP is responsible to monitor compliance and may repeal the EC in case the applicant fails to comply with the measures provided in the EIA report and the relevant conditions of approval.

The AI No. 16/2015[7] (Art. 9) summarises the procedure as follows:

- After receiving the EIA report the ministry will inform the applicant by email to plan and organise a public debate of the EIA report based on the provisions Art.20 of law No. 03/2014 on EIA. Within 30 days of receiving this decision the applicant shall inform the ministry by email about the proposed date and the venue where the public debate shall be held;
- The ministry prepares the notice for the public debate and confirms the applicant's notification for the public debate regarding the EIA report for the proposed project;
- The applicant's announcement on the public debate of the EIA report must be published in a local daily newspaper within a period of 20-30 days prior to the public debate taking place. In addition, the applicant's notice for the public debate should also be placed on the notice board of the municipal assembly in which the project will be implemented;
- The applicant must inform the ministry within 30 days of the notification receipt from the MESP;
- Should the applicant fail to respond to the ministry's decision on a public debate within 30 days the ministry will suspend the review procedure;
- Following the public debate, the ministry will review all remarks and comments obtained and take these into consideration in preparing its decision on the EIA report.

13.9 Environmental Permitting Requirements for Mine Reactivation

13.9.1 General Aspects

As explained above the reactivation of Goleshi mine will require a full EIA to be undertaken by the developer in line with the applicable legislation to obtain the necessary EC from the MESP.

After having received MESP's EC and prior to starting the actual mining operations the developer will also need to obtain an 'Integrated Environmental Permit' (IEP). This IEP is needed to ensure that mining operations will be in line with the provisions of the EU 'Industrial Emissions Directive' 2010/75/EU on Integrated Pollution Prevention and Control.

13.9.2 The Environmental Consent

The EC is a written decision issued by the MESP in compliance with the law on EIA, as a precondition to start project implementation.

The decision on the EC will be taken based on the results of public consultations and the information compiled during the EIA process. The proposal for the decision on the EC is prepared by the responsible body of the ministry within 70 days from the receipt of the EIA report. Within 10 days from the presentation of the proposal, the ministry decides on whether

[7] AI No. 16/ 2015 (MESP) ,On Information, Public Participation and Interested Parties in the Proceedings of Environmental Impact Assessment

to grant or to refuse the EC and conveys this decision to the applicant and to the concerned municipality.

Following this decision, the ministry informs the public of the decision by local advertisement and makes a statement available for public inspection containing:

- The content of the decision and any possible foreseen conditions;
- The main reasons and considerations on which the decision was based including, if relevant, information about the participation of the public;
- A description, where necessary, of the main measures to avoid, reduce and, if possible, to offset the major adverse effects of the project; and
- Legal advises for regular means for appeals of the validity of the decision and the procedures.

According to the provisions of Art. 32 of the law on EIA an applicant is obliged to implement the mitigation measures presented in the EIA Report and the conditions specified in the decision on EC. The ministry is responsible to monitor the project for which the decision on the EC has been issued in order to verify whether all relevant measures and conditions specified in the EC have been implemented. In any case where the ministry finds that the measures foreseen in the EIA report and the conditions provided in the decision on EC have not being implemented the decision on the EC can be revoked.

13.9.3 The Integrated Environmental Permit

An Integrated Environmental Permit (IEP) will need to be obtained by the project owner to ensure that the planned operations will be in line with the provisions of the law on integrated prevention pollution control and with the EU regulation ‘Industrial Emissions Directive’ 2010/75/EU ‘On Integrated Pollution Prevention and Control’. The key objective of the IEP is to reduce emissions into air, water and land and to generally ensure the integrated prevention and control of pollution arising from industrial activities.

The categories of industrial activities requiring developers to obtain an IEP are listed in Annex 1 of the law on integrated pollution prevention control. As for mining activities the thresholds provided in Annex 1 of the law are:

- Underground extraction of mineral resources with an extraction capacity exceeding one hundred thousand (100,000) tonnes per annum;
- Open-cast extraction of mineral resources on a site exceeding twenty-five (25) hectares.

The procedure for the application for an Integrated Environmental Permit is described in Article 4 of the law No. 03/L-043 2009 – ‘On Integrated Prevention Pollution Control’. According to the provisions of this law the application to the competent authority (MESP) for a permit shall be in writing and contain:

- The name, address and telephone number of the applicant, and, if different, any address to which correspondence relating to the application should be sent;
- The address of the site of the installation;
- A map or plan showing the site and the location of the installation on that site;
- The name of any municipality in whose territory the site is located;
- A description of the installation and the activities listed in Annex 1 of the law to be carried out in the installation, and any other directly associated activities to be carried out on the same site as the installation which has a technical connection with those listed activities, and which could have an effect on emissions and pollution;
- A report on the conditions of the site of the installation. This report shall, in particular, identify any substance on, in or under the land which may be a risk to human health and the environment;

- Process flow diagrams of the production processes intended to be used;
- The materials, including water, and the energy to be used in or generated by the installation;
- The nature, quantity and resource of emission and wastes from the proposed facility on the environment including the identification and description of any possible effects important for human health and the environment;
- The proposed technology and other techniques for preventing or, where this is not possible, for reducing emissions and wastes from the installation for the environment and human health;
- The proposed measures and methods to be taken to monitor the emissions and wastes from the installation;
- A description of the measures to be taken for the prevention, reuse, recovery, recycling and safe disposal of waste generated by the operation of the installation;
- A description of any proposed additional measures to be taken to comply with the general requirements set out in Article 6 of the law;
- A brief description of the main alternatives in production methods and techniques, if any, studied by the applicant;
- Any additional information which the applicant wishes to be taken into account by the Ministry in considering the application of this law;
- Where an installation is subject to an EIA under the law on environmental protection, all relevant information obtained and the conclusions of the environmental impact assessment;
- Permits or licenses issued to the installation by republican authorities;
- A non-technical summary of the information in the application.

The application shall be accompanied by the appropriate fee as defined based on the sub-legal act issued by the ministry. The applicant shall send to the ministry the signed original application for a permit and nine copies of the application.

It is noted that most of the information required for the IEP-application will be available from the ESIA report.

The IEP is issued by the MESP based on the provisions of the law on integrated pollution prevention control (law No. 03/ L043 of 2009) and is valid for a period of 10 years. According to the MESP (Director of the Division on Industrial Pollution Control) the planned reactivation of the Goleshi mine will also require a water permit. Energy efficiency and climate change aspects are further environmental aspects to be addressed by the applicant.

13.9.4 Environmental Requirements Under the Law on Mines and Minerals

The law on mines and minerals (No. 03/L – 163, 2010) Article 23 (Criteria for Issuance) specifies that the ICMM shall issue an exploration license for a concerned mineral resource and license area if – among other things - the applicant's proposed exploration program is based on best practices of exploration, mining and environmental protection;

In Article 31 (Applications) the law further provides that the application for a mining license under this law be accompanied by

- The environmental consent issued by the MESP and any approvals of other public authorities that may be required under the law of Kosovo (No. 1.6); and
- A mine closure plan and a rehabilitation program prepared in each case by suitably qualified and experienced experts, including the cost estimate for the implementation of such plan (No. 1.9).

13.9.5 Further Procedural Aspects

Following consultations with the director of MESP's Division for the Prevention of Industrial Pollution advised that for the EIA a 'Scoping Study' should be conducted to identify the relevant environmental and social issues at an early stage of the EIA process, thereby informing the ToR for the conduct of the EIA study (scope and depth of environmental investigations to be undertaken). A meaningful, transparent public consultation process is considered to be very important for a successful EIA process. In this regard the MESP recommends envisaging a formal public hearing to be undertaken locally rather than consulting stakeholders individually - even though such approach would not be mandatory.

The key stakeholders to be involved in the necessary public consultation process include

- The Ministry of Economic Development;
- The Ministry of Environment and Spatial Planning;
- The Agency for Privatization;
- The Municipality of Lipjan;
- Environmental NGOs.

A list of (39) registered environmental NGOs is available from the MESP. Considering the type, location and scale of the project only few of may ultimately be interested in participating in the EIA process.

13.9.6 Management Aspects

As for the operational stage it is recommended to consider the establishment of an Environmental Management System, e.g. based on guidance provided by IFC (see references in the Annex). Typical elements of such ESMS are: (i) policy; (ii) identification of risks and impacts; (iii) management programs; (iv) organizational capacity and competency; (v) emergency preparedness and response; (vi) stakeholder engagement; and (vii) monitoring and review.

In addition, management should consider hiring at least one EHS expert – possibly more - to work at the site full time. More details on these aspects would need to be elaborated at the stage of the EIA.

13.9.7 Conclusions and Recommendations

13.9.7.1 General

To start the EIA process a comprehensive scoping study should be undertaken. Scoping will define the study area for the EIA and identify the key issues to be detailed in the EIA process – including any cumulative impacts that may result from the operation of the Ferronikeli mine immediately next to Goleshi. Proper scoping and stakeholder consultations will also confirm the type and scope of field data that may need to be established to support the subsequent EIA study and design of the project.

13.9.7.2 Need for Additional Studies

An inventory and assessment of the various types of wastes and their quantities is recommended to prepare a concept for re-use, re-cycling and disposal in line with the national policies and applicable legislation. A targeted study of contaminated sites is also recommended for selected locations – e.g. around the fuel depot and storage areas of chemicals etc. – to assess the significance of the problem and to prepare a decontamination concept as required.

As for the water accumulated in the mine pit further tests would have to be undertaken to decide on how to manage its discharge into the environment. In this regard it is recommended to confirm the relevant parameters, the numbers of samples to be taken and the sampling methods with the responsible departments in the MESP. At a first glance the data provided by the water analysis of 2018 do not conflict with the discharge limits for 'wastewater' into a natural water body as provided in the Ministerial Instruction No. 30 of 2014 'On 'Manners, Parameters and Limit Values of Wastewater Discharge into Public Sewers and in the Water Body'. However, more water sampling will be required – and may be also from different depths of the underground mine. The actual sampling programme should be defined at the scoping stage and following consultations with the competent authorities. Further to this clarification is needed whether the water from the mine pit would be considered as 'wastewater' or whether any other standards may be applicable for its discharge.

With regard to the biological environment and in the context of future tailings disposal in the wider mine area an assessment / mapping of possible sensitive areas is recommended to protect such areas from destruction.

13.9.7.3 Alternatives

In case that treatment is required prior to discharge of the mine water into local surface waters and depending on the results of the analysis constructed wetlands should be considered as an interesting on-site option for the treatment of that water rather than foreseeing any sophisticated technology.

A summary of the above is provided in the following Table 13-1.

Table 13-1 Description of studies and their scopes

STAGE	SCOPE
Scoping study	Identification of the key environmental issues to be addressed in the EIA, incl. cumulative impacts; • Stakeholder consultations • Confirmation of the type and scope of additional (expert / field) studies that may need to be undertaken; • Definition of the study area; • Definition of the ToR for the EIA, including principal alternatives to be studied.
EIA – recommended separate studies to be undertaken to inform the EIA	• Waste inventory and assessment; • Study on contaminated sites; • Biological environment: Identification of possible sensitive areas; • Water testing from the underground mine (samples from different depths are recommended).

13.10 References

Useful International Guidelines and standards that could be used as references for the identification and assessment of impacts and as references for the EMP are provided by IFC:

- **IFC's General Environmental, Health & Safety Guidelines;** https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

IFC's Environmental and Social Performance Standards define IFC clients' responsibilities for managing their environmental and social risks. The German KfW also uses these

Performance Standards and the General EHS Guidelines as a reference in their Environmental Sustainability Guideline (2016).

- **IFC PS1: Assessment and Management of Environmental and Social Risks and Impacts (2012)** https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps1
- **IFC PS 2: Labor and Working Conditions (2012)** https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps2
- **IFC PS3: Resource Efficiency and Pollution Prevention (2012)** https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps3
- **IFC PS 4: Community Health, Safety and Security (2012)** https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps4
- **IFC PS 5: Land Acquisition and Involuntary Resettlement (2012)** https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps5
- **IFC PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources (2012)** https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps6
- **IFC PS 7: Indigenous Peoples (2012)** https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps7
- **IFC PS8 Cultural Heritage (2012)** https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps8
- **IFC EHS Guidelines for Mining Environmental, Health and Safety Guidelines for Mining**[8] https://www.ifc.org/wps/wcm/connect/595149ed-8bef-4241-8d7c-50e91d8e459d/Final%2B-%2BMining.pdf?MOD=AJPERES&CVID=jqezAit&id=1323153264157g

[8] Following the 2012 update of IFC's Policy and Performance Standards on Environmental and Social Sustainability, it has been decided to update the 2007 EHS Guidelines. For the mining sector, however, no update is available as yet.

14 Conceptual Financial / Preliminary Economic Evaluation

All costs, OPEX and CAPEX, have been conceptual / assumed to an accuracy level of + / - 30% as suggest for the level of Scoping Study.

14.1 Capex Cost

All values used in this technical report are Euro €. Table 14-1 shows the conceptual capital investment for each of the identified facilities.

Table 14-1 Capex & Depreciation

	Capex & Depreciation			
		Value	Life (Yrs)	Depr/Annum
Y0	Mine Rehabilitation	€ 4,228,000	5	€ 846,000
Y0	Mine Buildings/Infrastructure-Surface	€ 6,860,000	5	€ 1,372,000
Y0	Mine Equipment List	€ 7,790,000	5	€ 1,558,000
Y0	Washing Plant Equipment List	€ 2,913,000	5	€ 583,000
Y0	Crushing & Screening Equipment List	€ 685,000	5	€ 137,000
Y0	Drying & Screening Equipment	€ 4,629,000	5	€ 926,000
Y0	EPCM 15% of CAPEX	€ 4,066,000	5	€ 813,000
Y-1	Full Feasibility Study (DFS)	€ 3,300,000	5	€ 660,000
Y7	Mine Closure & Rehabilitation	€ 2,200,000	5	€ 440,000
		€ 36,671,000		€ 7,334,000

The Capex for re-activating Goleshi takes into account that the mine has remained in a state of disrepair for a period of 20 years. The underground mine shafts are flooded and most of the mine equipment need to be replaced or upgraded where possible. Some of the major Capex upgrades in the past have not been commissioned and operated, i.e. the vertical kiln and an electrical kiln were under construction and not completed. Both units have never been in operation.

The Capex estimates are based on observations of Mining and processing experts which lead to the following conclusions.

- There is a sufficient exploration target tonnage and grade and sufficient basic, although derelict, infrastructure to make the further mining of the Goleshi deposit technically feasible;
- A considerable amount of rehabilitation work will need to be done, plus the acquisition of new or good second-hand equipment before mining is able to re-start;
- New or good second-hand electrical equipment will be needed to provide safe electrical power to the site;
- Most buildings will need to be rebuilt although the refurbishment of some of the structures may be feasible depending on structural examination.

A full feasibility study (FS) to international standards will be necessary before any final investment decision can be made.

The FS will concentrate on the following:

- The exploration target tonnage and grade must be updated;
- The geotechnical characteristics of the underground workings will be determined;
- The engineering design of the shaft and hoist system;
- The electrical supply and reticulation for the whole site;

- The appropriate mining technology and design;
- The refurbishment and rebuilding of the surface structures;
- Accurate costings and sales data to complete a financial model;
- Detailed technical drawings of all facilities and construction.

A complete FS, together with metallurgical test-work and design is likely to cost up to €3.3 M and would take a minimum of 12 months.

14.2 Capex Observations

All costs of CAPEX have been conceptual / assumed to an accuracy level of + / - 30% as suggested for the level of Scoping Study.

- Total Capex cost includes a contingency provision of 10%;
- Capex includes a full feasibility study to be carried out in Y-1 and rehabilitation in Y6;
- All other capital expenditure occurs in Y0;
- Due to the short life of mine, all capex has been depreciated within 5 years;
- Drying and screening Capex includes €2.5M for the vertical kiln and €0.8M for the Electrical Kiln.

Please see in the Annex attached, the detailed list of capital expenditure as summarised above.

14.3 Run of Mine (ROM) and Life of Mine (LoM)

The mine will operate 2 x 8 hour shifts and will consist of only underground mining. Open pit mining has been considered un-economical to mine. The ROM per day is 1,600 tons at 100 tons per hour (TPH).

Total ROM per annum is 499,200 tpa and results in a LoM of 4.72 years on the reserves of 2,358,585 tons.

14.4 Production

The processing of the ROM occurs in three sections (See Picture 1).

- Pre crushing and dry screening at mine site;
- Wash Material, pass thru drum dryer to dry material before magnetic separation;
- Crushing and screening to get the final products before kilns.

The final processing occurs in the rotary, vertical and electrical kilns resulting in a daily output of approximately 330 tons amounting to an annual production volume of approximately 104,000 tons. The three kilns produce three products as follows; see Table 14-2.

Table 14-2 Production, sales & royalty

Product	Tons/Annum	Price/Ton	Total Sales	Royalty
Sintered 92 - 96% MgO	49,437	1,170	57,841,000	2,314,000
Caustic 80 - 85% MgO	49,437	300	14,831,000	593,000
99% MgO	5,204	1,944	10,116,000	405,000
Total Volume	**104,077**	**795**	**82,788,000**	**3,312,000**

14.5 Sales and Royalties

The product sales prices have a high impact on the financial viability of the Goleshi project and requires further study and confirmation. We have found high variability on prices per ton of (Magnesites) MgO and would recommend and robust analysis of the price per ton of product specific to the Goleshi mine production. Royalty of 4% has been included in the financials.

14.6 Operating Cost

The operating costs and resulting costs per ton are shown in Table 14-3 below.

Table 14-3 Operating costs

SUMMARY - GOLESHI ANNUAL PROFIT AND LOSS	Total €	Total €	Avg Per Ton €	Avg Per Ton €	
SALES REVENUE		€ 82,788,000		€ 795.45	
ROYALTY @ 4%	€ 3,312,000		€ 31.82		7.1%
DIRECT COST OF PRODUCTION	€ 16,723,000		€ 160.68		35.6%
ELECTRICITY COST	€ 1,533,000		€ 14.73		3.3%
FUEL COST	€ 13,154,000		€ 126.39		28.0%
MAINTAINANCE COST	€ 620,000		€ 5.96		1.3%
LABOUR COST	€ 3,020,000		€ 29.02		6.4%
INSURANCE	€ 542,000		€ 5.21		1.2%
CSR COST	€ 120,000		€ 1.15		0.3%
OTHER OPR COSTS	€ 570,000		€ 5.48		1.2%
DEPRECIATION	€ 7,334,000		€ 70.47		15.6%
TOTAL COST		€ 46,928,000		€ 450.90	100.0%
NET PROFIT BEFORE TAX		€ 35,860,000		€ 344.55	
LESS: CORP TAX @ 15%		€ 5,379,000		€ 51.68	
PROFIT AFTER TAX		€ 30,481,000		€ 292.87	

The key cost drivers making up 79.3% of the total production cost are:

- 35.6% -Direct cost of production which is the cost of underground mining;
- 28.0% -Fuel cost 97% of which is made up of gas for the rotary and vertical kiln;
- 15.6% -Depreciation, which is accelerated to 5 years based on the short LoM.

Overview over all 3 suggested sections of processing plant

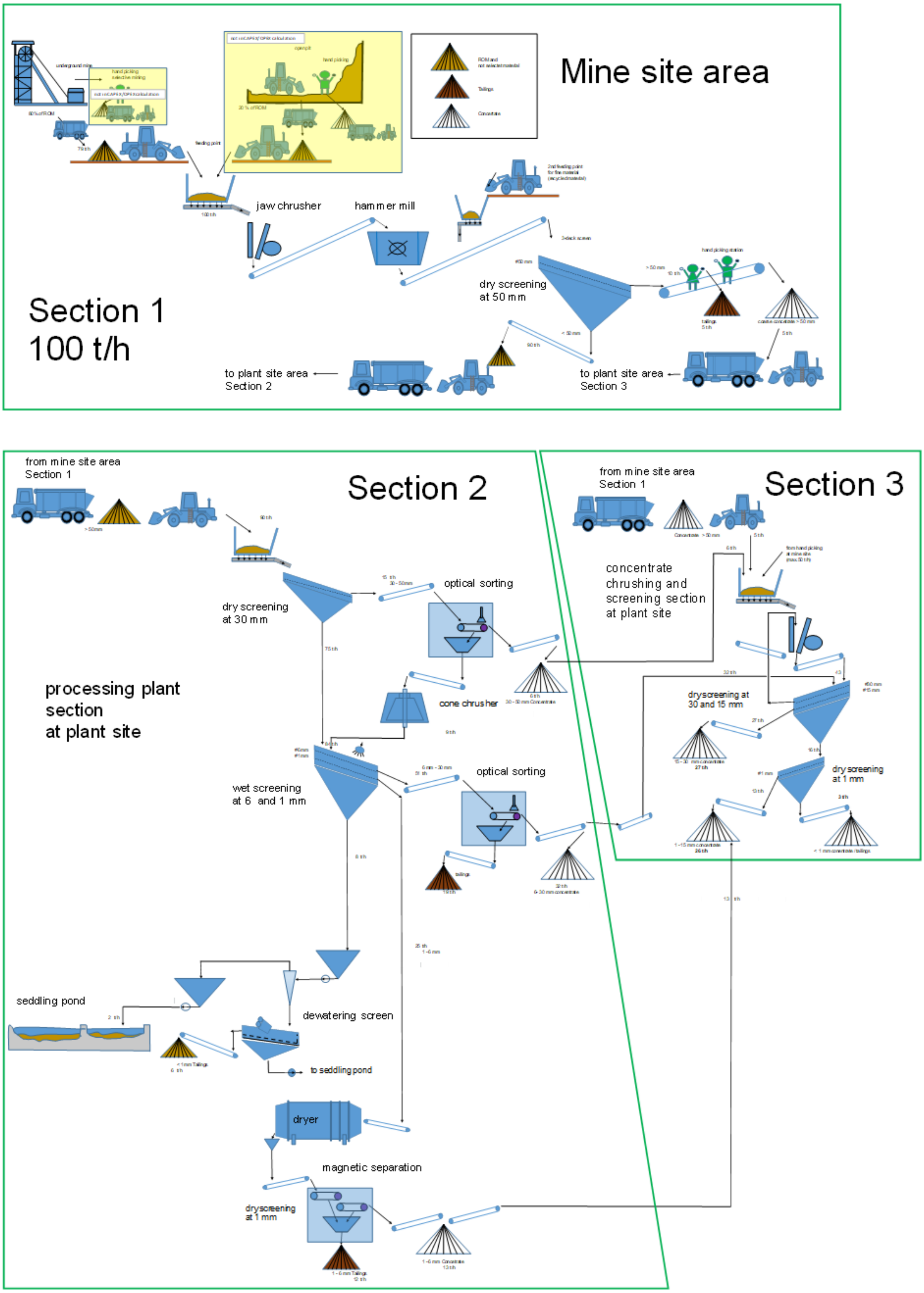

Figure 14-1 Production flow sheet

14.7 Preliminary Economic Analysis

We prepared an economic cash flow and financial analysis model based on inputs from mining and processing schedules as well as capital and operating cost estimates including royalties for the base case at a price of €795/t of Magnesite MgO of all 3 products combined as weighted average price. The model was prepared from information based on a site visit and by mining and processing experts who pieced together already available historical data with revisions based on their recommended operation model. Data particularly on the kilns and their fuel consumption needs further analysis due to the specialised nature of these kilns as well as the fact only the rotary kiln has been in active production. Underground shafts were flooded and prevented physical visits. All inputs are consolidated annually in this report.

The resulting preliminary / conceptual cashflow indicates a very healthy return of 94% on IRR (Table 14-4) with a payback of less than 1 year. The NPV is at Euro 110,100,000 at the perceived cost of capital of 7%.

Table 14-4 Financial highlights

IRR	94%				
NPV	110,100,000	@	7.00%	Percieved Cost of Capital	
PAYBACK PERIOD	0.9	YEARS			
INVESTMENT	35,500,000				
LIFE OF MINE	4.72	YEARS			

Table 14-5 shows a more detailed breakdown of the financial forecast and expected (conceptual) cashflow.

Table 14-5 Financial forecast and cashflow

GOLESHI MINE BUSINESS DEVELOPMENT PROJECT

EC TERRA geology·exploration·mining

FINANCIAL FORECAST & CASHFLOW

ACTIVITY	Y-1	Y0	Y1	Y2	Y3	Y4	Y5	Y6	TOTAL
Period ending	31/12/2020	31/12/2021	31/12/2022	31/12/2023	31/12/2024	31/12/2025	31/12/2026	31/12/2027	
Volume Run of Mine	-	-	499,200	499,200	499,200	499,200	499,200	-	2,496,000
Volume Produced (Tons)	-	-	104,077	104,077	104,077	104,077	104,077	-	520,387
Volume Sold (Tons)	-	-	104,077	104,077	104,077	104,077	104,077	-	520,387
CAPEX									
Mine Rehabilitation		4,228,000	-	-	-	-	-	-	4,228,000
Mine Buildings/Infrastructure-Surface		6,860,000	-	-	-	-	-	-	6,860,000
Mine Equipment List		7,790,000	-	-	-	-	-	-	7,790,000
Washing Plant Equipment List		2,913,000	-	-	-	-	-	-	2,913,000
Crushing & Screening Equipment List		685,000	-	-	-	-	-	-	685,000
Drying & Screening Equipment		4,629,000	-	-	-	-	-	-	4,629,000
EPCM 15% of CAPEX		4,066,000	-	-	-	-	-	-	4,066,000
Full Feasibility Study (DFS) Yr -1	3,300,000	-	-	-	-	-	-	-	3,300,000
Mine Closure & Rehabilitation		-	-	-	-	-	-	2,200,000	2,200,000
Total Investment Cost	3,300,000	31,171,000	-	-	-	-	-	2,200,000	36,671,000
SALES OF AGGREGATES									
Sintered 92 - 96% MgO	-	-	57,841,000	57,841,000	57,841,000	57,841,000	57,841,000	-	289,205,000
Caustic 85 - 85% MgO	-	-	14,831,000	14,831,000	14,831,000	14,831,000	14,831,000	-	74,155,000
99% MgO	-	-	10,116,000	10,116,000	10,116,000	10,116,000	10,116,000	-	50,580,000
Less: Vat	-	-	-	-	-	-	-	-	-
Less: Royalty	-	-	(3,312,000)	(3,312,000)	(3,312,000)	(3,312,000)	(3,312,000)	-	(16,560,000)
Total Revenue	-	-	79,476,000	79,476,000	79,476,000	79,476,000	79,476,000	-	397,380,000
OPERATIONS									
MINING									
Fuel	-	-	265,000	265,000	265,000	265,000	265,000	-	1,325,000
Electricity	-	-	55,000	55,000	55,000	55,000	55,000	-	275,000
Labour	-	-	1,546,000	1,546,000	1,546,000	1,546,000	1,546,000	-	7,730,000
Maintenance	-	-	102,000	102,000	102,000	102,000	102,000	-	510,000
Direct Cost	-	-	16,723,000	16,723,000	16,723,000	16,723,000	16,723,000	-	83,615,000
Direct Cost - Mining	-	-	18,691,000	18,691,000	18,691,000	18,691,000	18,691,000	-	93,455,000
PROCESSING									
Fuel	-	-	12,889,000	12,889,000	12,889,000	12,889,000	12,889,000	-	64,445,000
Electricity	-	-	1,479,000	1,479,000	1,479,000	1,479,000	1,479,000	-	7,395,000
Labour	-	-	671,000	671,000	671,000	671,000	671,000	-	3,355,000
Maintenance	-	-	518,000	518,000	518,000	518,000	518,000	-	2,590,000
Direct Cost - Plant	-	-	15,557,000	15,557,000	15,557,000	15,557,000	15,557,000	-	77,785,000
Gross Profit /(Loss)	-	-	45,228,000	45,228,000	45,228,000	45,228,000	45,228,000	-	226,140,000
ADMIN									
Salaries		401,000	803,000	803,000	803,000	803,000	803,000	-	4,416,000
Depreciation		-	7,334,200	7,334,200	7,334,200	7,334,200	7,334,200	-	36,671,000
CSR Costs		60,000	120,000	120,000	120,000	120,000	120,000	-	660,000
Other Operation Costs		285,000	570,000	570,000	570,000	570,000	570,000	-	3,135,000
Insurance		271,000	542,000	542,000	542,000	542,000	542,000	-	2,981,000
Total Admin Cost	-	1,017,000	9,369,200	9,369,200	9,369,200	9,369,200	9,369,200	-	47,863,000
									-
Net Profit / (Loss) before Tax	-	(1,017,000)	35,858,800	35,858,800	35,858,800	35,858,800	35,858,800	-	178,277,000
Corprate Tax	-	-	(5,379,000)	(5,379,000)	(5,379,000)	(5,379,000)	(5,379,000)	-	(26,895,000)
Dividend	-	-	-	-	-	-	-	-	-
Profit After Tax & Dividend	-	(1,017,000)	30,479,800	30,479,800	30,479,800	30,479,800	30,479,800	-	151,382,000
Add back Non Cash Items	-	-	7,334,200	7,334,200	7,334,200	7,334,200	7,334,200	-	36,671,000
Cashflow from Operational Activities	-	(1,017,000)	37,814,000	37,814,000	37,814,000	37,814,000	37,814,000	-	188,053,000
Cashflow from Investment Activities	(3,300,000)	(31,171,000)	-	-	-	-	-	(2,200,000)	(36,671,000)
Net Cashflow	(3,300,000)	(32,188,000)	37,814,000	37,814,000	37,814,000	37,814,000	37,814,000	(2,200,000)	151,382,000
Cumulative Cashflow	(3,300,000)	(35,488,000)	2,326,000	40,140,000	77,954,000	115,768,000	153,582,000	151,382,000	151,382,000
IRR	94%								
NPV	110,100,000	@	7.00%	Percieved Cost of Capital					
PAYBACK PERIOD	0.9	YEARS							
INVESTMENT	35,500,000								
LIFE OF MINE	4.72	YEARS							

15 Conclusions and Recommendations

15.1 Conclusions

Based the findings on the quality and range of products produced, it would be possible to work out the price for the products. This is a part of the proposed feasibility study.

Given the relatively short LoM of approximately 5 years, securing a European customer for the entire production would give Goleshi an edge on shipping costs over alternate sources of supply. For the maximum benefit the customer should be located in the range of a 1000km max rail distance.

The possibility of locking into an offtake contract for gas, may also be attractive to offset potential fuel cost risk.

The mine shafts should be dewatered to enable proper inspection to confirm the cost estimates for underground mining.

Professional presentation of current findings and targeting of potential customers / investors by way of taking part in major mining exhibitions would be a way forward to take Goleshi to the market.

15.2 SWOT Analysis

Below SWOT analysis (Table 15-1) describes the strengths, weaknesses, opportunities and threats of the Goleshi projects.

Table 15-1 SWOT analysis of the Goleshi project

Strengths	Weakness
• Existing mine and experienced staff; • Strong preliminary IRR, NPV, PBP; • Historic data base; • MgO market currently strong; • Good infrastructure; • Willingness of Government to privatise the mine; • Clear and revised mining law; • Euro based economy.	• Equipment in bad conditions; • Mine flooded; • Mining Licence for Magnesite expired and needs an application for extension; • Existing data need to be verified and quantity of data increased; • Requires a detailed FS before investment; • Requires EIA and EBS; • Railway not in operation.
Opportunities	**Threats**
• Expand exploration target tonnage; • Additional MgO resources available close by; • Relatively fast start by using; handpicking methods; • Expand LoM; • additional product such a crushed rock from dunite resource; • Good quality product for Europe.	• World market price for MgO; • Short LoM – sensitive for MgO price; • Magnitude of investment; • Terms of privatization; • Quality of historic data on resources and grade of MgO; • Renewal of mining licence required; • No historic EIA and EBS.

The Goleshi mine does have a good potential for additional MgO resources; however, due to missing digital data and no existing 3D models, the existing information firstly needs to be converted into a digital database and detailed digital models of the mine must be build. This will help to identify areas for further exploration and also will identify the quality of the historic data when being confirmed through further exploration.

The magnitude of investment is currently only based on assumptions and weak technical information. A detailed FS will establish accurate estimations of CAPEX and OPEX and the finance model can be revised based on the new data.

The world market price of MgO does have a very strong influence on the financial key figures such as IRR, NPV and payback period due to the relatively short LoM of just over 4 years.

While the mine is rehabilitated existing stockpile of MgO products and also raw material could be handpicked and sold which would generate a first cash flow though small. As soon as the underground facilities and the crushing and screening plant are activated magnesite can be mined and again high-quality raw material could be handpicked and sold even before any of the kiln is reactivated.

15.3 Summary of the Financial Project Risks

A detailed examination of the actions associated with each of the risks and opportunities identified suggests that there are six common themes prevailing, as are described below: MgO price, market in Europe, potential of securing a fixed order, oil prices, competition from China.

- The sales prices for the three products produced by the Goleshi mine impacts heavily on the conceptual cashflow. It is vital to find out the correct price per ton which can be obtained. The location of the customer will impact on shipping cost;
- The costs are impacted heavily by fuel namely gas;
- Due to the short LoM of approximately 5 years, heavy fluctuation in either of the above, (price and fuel cost) would impact adversely on the financial results of the project;
- Impact on Capex due to the possible collapse of existing underground shafts;
- Ability to secure investment of €36M to make the project a reality.

15.4 Recommendations

Inros Lackner recommends that the Government of Kosovo takes the project into the Feasibility Study (FS) phase to international standards (NI43-101, JORC SEMREC) to obtain accurate data particularly in areas identified to expose the project to high risk and thereby improve the cost and economic accuracy for the project. The FS could be either financed by the Government of Kosovo, seeking also financing of the FS through foreign aid of donor countries; or an investor is found through marketing the mine, who will finance the full FS and have the first right of purchasing the entire project in case the FS shows positive economic results similar to the ones of this study.

Meanwhile, marketing the mine to potential investors could be carried out in parallel.

16 Market Analysis and Marketing

16.1 Definition, Specifications and Classification of Magnesite, Applications of Magnesite, Market Segment by Regions

Magnesium, a key industrial metal, that can be recovered from a range of different host materials, with magnesite being just one key source of magnesium compounds.

16.1.1 Key Characteristics

Characteristics	Magnesium
Order #	12
Atomic Weight	24.305
Density	1.74 g/cm³
Melting Point	650°C
Boiling Point	1380°C

Magnesium is the 8th most abundant element in the earth crust with approximately 2.1 weight %. In nature Magnesium cannot be found in elementary form.

The density of Magnesium is relatively low with 1.74 g/cm³ i.e. compared to Alumina with 2.7 g/cm³.

It is a very important light metal which is commonly used in the light construction industry.

Typical use of Magnesium is:

- Automobile Industry;
- Communication Technology;
- Construction;
- Aeronautics and Space Industry;
- Steel Industry;
- Paint;
- Fertilizer;
- And additive for major part of chemical industry.

Currently used Magnesium raw materials are:

Carbonates

Dolomite	$CaMg(CO_3)_2$	30.4 % MgO

Salts

Carnallite	$KMgCl_3 \times 6H_2O$	38.3 % MgO
Mg-rich Solutions	$MgCl_2$, $MgSO_4$	approx. 0.1 – 0.8 % Mg

Dolomites have 85 % of the global production.

The worldwide resources of MgO are basically "unlimited".

Magnesium is considered to be a critical raw material (CRM). CRMs are elements and raw materials which are economically and strategically important for the European economy but have a high-risk associated with their supply. Used in environmental technologies, consumer electronics, health, steel-making, defence, space exploration, and aviation, these materials are not only ‘critical’ for key industry sectors and future applications, but also for the sustainable functioning of the European economy.

1. **They have a significant economic importance for key sectors in the European economy**, such as consumer electronics, environmental technologies, automotive, aerospace, defence, health and steel.
2. **They have a high-supply risk** due to the very-high import dependence and high level of concentration of set critical raw materials in particular countries.
3. **There is a lack of (viable) substitutes,** due to the very unique and reliable properties of these materials for existing, as well as future applications.

16.2 Overall Market Analysis, Capacity Analysis (Company Segment), Sales Analysis (Company Segment)

The top 10 countries for MgO Mining are (2017):

China

China’s production is accounting for approximately 80 % of the global output (source 2019 DERA). The country’ production decreased slightly in 2017 compared to the production of 18.6 Mt in 2016.

Development in the Chinese MgO production:

- increasing interference of state in local productions and companies;
- trying to consolidate the Mg market;
- more control of surplus in production – trying to decrease production;
- stricter and more controlled environmental laws and current sanctioning in environmental inspections of companies.

Turkey

Turkey produced 2.7 Mt in 2017 and has got a long history of magnesite mining both for export and for use at domestic refractories.

Russia

In 2017 Russia’s output stayed at 1.3 Mt. Currently the country is developing further open-pit minable resources for the future.

Brazil

Mine production: 1.2 Mt in 2017

Brazil’s magnesite production increased by 100,000 MT in 2017. The country’s Magnesita Refratarios says it holds one of the largest magnesites, dolomite and talcum reserves in the world.

Austria

Austria saw a slight increase in magnesite mining in 2017, putting out 730,000 MT compared to 710,000 MT in 2016. Austrian magnesite producer Styromag operates five mines in the country; it produces roughly 120,000 tons of material per year.

The major Magnesium producers are listed below (source: GlobalData platform).

Table 16-1 Major magnesium producers in Austria

Mine Name	Mine Owner	Operator	ROM Production - 2018 (MMT)
Breitenau Mine	RHI Magnesita N.V. (100%)	Veitsch-Radex GmbH & Co OG	0.246
Eichberg Mine	RHI Magnesita N.V. (100%)	Veitsch-Radex GmbH & Co OG	0.011
Am Burgl Mine	RHI Magnesita N.V. (100%)	Veitsch-Radex GmbH & Co OG	0.011
Millstaetter Alpe Mine	RHI Magnesita N.V. (100%)	Veitsch-Radex GmbH & Co OG	0.011
Angerer Mine	Styromagnesit Steirische Magnesitindustrie GmbH (100%)	Styromagnesit Steirische Magnesitindustrie GmbH	0.031
Kaintaleck Mine	Styromagnesit Steirische Magnesitindustrie GmbH (100%)	Styromagnesit Steirische Magnesitindustrie GmbH	0.053
Wieser Mine	Styromagnesit Steirische Magnesitindustrie GmbH (100%)	Styromagnesit Steirische Magnesitindustrie GmbH	0.011
Hohentauern Mine	Styromagnesit Steirische Magnesitindustrie GmbH (100%)	Styromagnesit Steirische Magnesitindustrie GmbH	0.016
Wald Mine	Styromagnesit Steirische Magnesitindustrie GmbH (100%)	Styromagnesit Steirische Magnesitindustrie GmbH	0.03
Veitsch Mine	Cemex SAB de CV (100%)	CEMEX Austria, AG.	0.011
Olivine Rock Mine	Schotter- Und Betonwerk Karl Schwarzl Betriebsgesellschaft M B H (100%)	Pronat Steinbruch Preg Gmbh	0.015
Radenthein Mine	RHI Magnesita N.V. (100%)	Veitsch-Radex GmbH & Co OG	0.045
Hochfilzen Mine	RHI Magnesita N.V. (100%)	Veitsch-Radex GmbH & Co OG	0.045

Slovakia

Slovakia produced 570,000 MT of magnesite in 2017. Slovakian producer SLOVMAG is majority owned by Russia’s Magnezit Group. It specializes in mining magnesite ore and producing refractory products from sintered magnesia.

Slovenske Magnezitove Zavody is the largest magnesite producer.

Australia

Australia recorded a slight increase in magnesite-mining output in 2017 — its production rose to 450,000 MT from 425,000 MT the previous year. Queensland Magnesium, which is responsible for the bulk of Australia's magnesite production, was acquired by global industrial minerals group Sibelco in April 2012.

Greece

Greece produced 400,000 MT of magnesite in 2017, the same as the year before. The country is home to one of the top magnesia producers in the world, Grecian Magnesite, which has facilities in Spain, Turkey and the Netherlands.

Spain

Spain's magnesite output decreased in 2017, coming in at 310,000 MT compared with 300,000 MT in 2016. Spain's Magnesitas Navarras is a leading European magnesia producer; currently the company holds the Antzeri and Sorianas magnesite-mining projects.

North Korea

Mine production: 300,000 Mt.

Figure 16-1 New developments of magnesite mining projects in Europe and Russia

Kosovo (future)

With an anticipated production of 105,000 t MgO products, Kosovo becomes an important producer in the *DACH* Region (Germany, Austria, Switzerland) and can be compared to the current producers in Austria (see above Table 16-1).

The Goleshi project does not have any material contracts relating to development, including mining, concentrating, smelting, refining, transportation, handling, sales and hedging, or forward sales contracts or arrangements. Due to the nature of a PEA and the extended permitting and construction times the Project is likely to face, the consultant cannot advise on what material contracts will be signed in the future. However, there is a very substantial potential of off-takers within the D A CH Region who could become interested in a steady supply of magnesium products from Kosovo due to the vicinity and good infrastructure of Kosovo towards the EU market.

16.2.1 Current Sales Prices Analysis Based on Price Monitoring Report DERA July 2019

Based on the price monitoring of the Deutsche Rohstoff AG (DERA) from July 2019 the average prices of MgO products between Mai 2018 and April 2019 have been considered for this study. See also Figure 16-2 and Figure 16-3 and Figure 16-4 below (English version of tables below not available).

CAUSTIC magnesite (vertical kiln)

MAGNESIT *) Calcined, agricultural, cif Europe	
Änderung zum Vormonat:	0 €/t / 0 %
Durchschnitt Mai 2018 - Apr 2019	300,00 €/t
Durchschnitt 2014 - 2018	285,53 €/t
Änderung Mai 2018 - Apr 2019 gegenüber 2014 - 2018	5,1 %

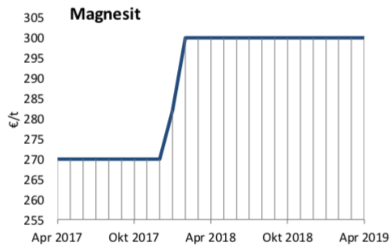

Figure 16-2 Price of caustic magnesite

Sintered (dead-burned) magnesite (rotary kiln)

MAGNESIT *) dead burned, 97,5 % MgO, lump, China, fob	
Änderung zum Vormonat:	-45,00 US$/t / -4,39 %
Durchschnitt Mai 2018 - Apr 2019	1.170,73 US$/t
Durchschnitt 2014 - 2018	575,31 US$/t
Änderung Mai 2018 - Apr 2019 gegenüber 2014 - 2018	103,5 %

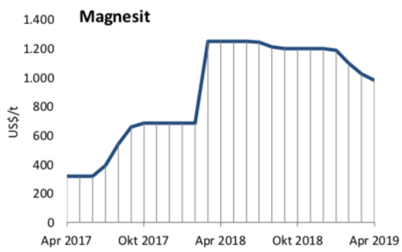

Figure 16-3 Price of sinter magnesite (dead-burned)

Fused magnesite (electrical kiln)

MAGNESIT *) Fused, 98 % MgO, lump, China, fob	
Änderung zum Vormonat:	-90,00 US$/t / -4,86 %
Durchschnitt Mai 2018 - Apr 2019	1.944,58 US$/t
Durchschnitt 2014 - 2018	1.193,65 US$/t
Änderung Mai 2018 - Apr 2019 gegenüber 2014 - 2018	62,9 %

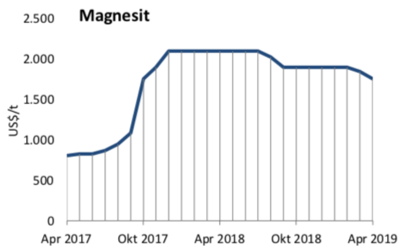

Figure 16-4 Price of fused magnesite

The monthly updated price monitor of the DERA is available under following link: https://www.deutsche-rohstoffagentur.de/DERA/DE/Rohstoffinformationen/Rohstoffpreise/Preismonitor/preismonitor_node.html

16.3 Regional Market Analysis

Kosovo does have a positive potential for more Mg resources as per the map of Mg occurrences below. Some of the resources are currently not defined and would require further geological investigation. Figure 16-5 show MgO occurrences in Kosovo and describes the potential exploration tonnage targets, that can be expected in those areas. Note, those tonnages have not been reviewed by the author nor have those areas been visited.

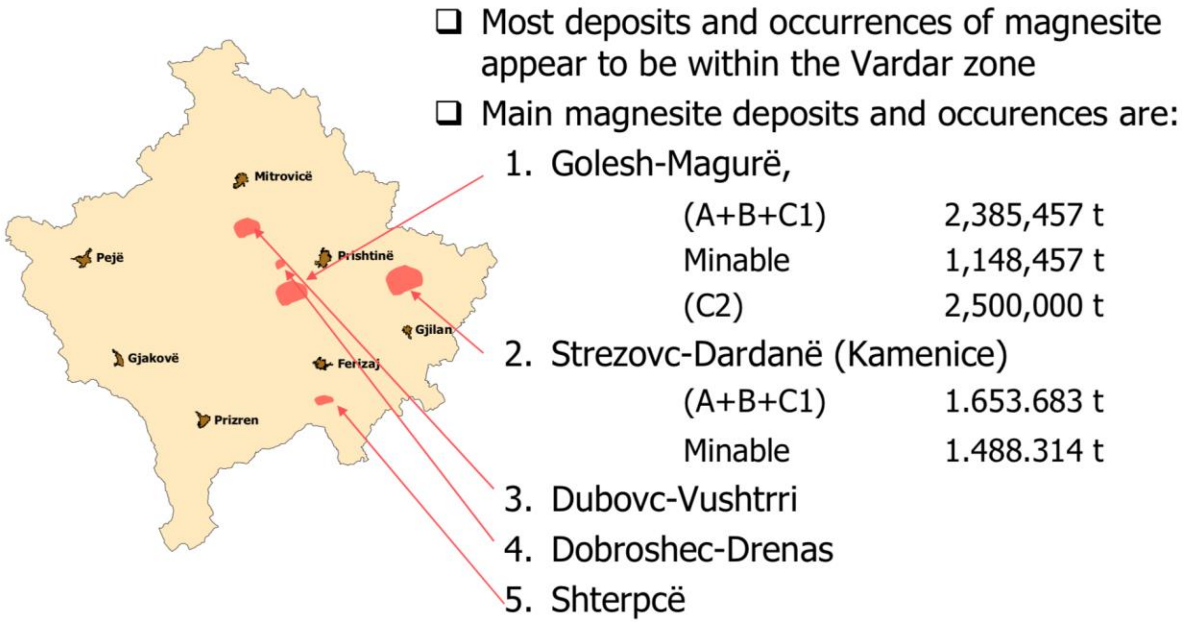

Figure 16-5 Magnesite occurrences in Kosovo

Source: ICMM Dr. Z. Elezaj (2008)

With further known resources at the Strezovc-Dardane Project at Kamenica (Figure 16-5), the Goleshi could become a centre of MgO production with the potential to increase the capacities of the existing facilities.

Kosovo does have a well-known mining history and the engineering knowledge of state-of-the-art technology. The current government supports new investments in the mining industry with

- ZERO taxes on exports;
- Personal income tax is at 10 %;
- ZERO VAT on exports;
- Corporate income tax 20 %;
- Free access to the EU market;
- Easy and quick business registration procedures;
- New mining legislation.

16.4 Magnesite Research Findings and Conclusion

Below SWOT analysis (Figure 16-6) summaries the potential of the current Magnesium market.

Strengths	Weaknesses
- Lightness/Abundance - Castability/ Recyclability - Easy integration of parts - High affinity with sulphur - Essential alloying element for AL - Bio-absorbable	- Corrosion - Oxidability/Flammability - China Supply - CO_2 Footprint (Pidgeon process) - Price/costs - No contact with national government/industry representative
Opportunities	**Threats**
- New vehicle concepts/New applications (urban mobility) - New Alloys/High Purity Alloys - Al alloys containing Mg in the automotive industry - Space applications/3C devices - Green electrolytical process - Circular economy	- Supply risk/Price volatility - New Al alloys/HSS alloys - CO_2 footprint - Single sourcing (sheets) - Anti Dumping regulations - Technical stagnation - Restrictions

Figure 16-6 SWOT analysis of the material magnesite

The strength of Magnesite is that Magnesium is a key industrial metal, that can be recovered from a range of different host materials, with magnesite being just one key source of magnesium compounds. Magnesium is used in a wide range of industries such as light construction, in food and agricultural industry, as well in fire and heat resistant brick industry.

New opportunities will raise from changes in the energy sector, moving towards renewable energy such as wind energy which requires light but durable materials. Also, the change in the automobile industry to more electrical vehicles demands magnesium as a component for steel / aluminium alloys.

However, with China's production accounting for approximately 80 % of the global output there is strong competition in the world market and a significant risk with regards to price volatility.

Additionally, there remain concerns of the CO2 footprint of MgO production which requires vast amount of energy, which is in the case of Kosovo generated from lignite sources and / or gas.

It is not expected that technology will stagnate to a large extend, however, there is a potential threat that the development of new technology slows down when the world market comes under pressure in times of a recession.

Following conclusions can be given based on the current developments in the global market for strategic / critical raw materials:

- Concentration of production in China remains high during the next 10 years;
- Surplus capacities will be reduced;
- Global sanctions of trading between countries will impact the market;
- The global demand of MgO will increase due to development of new technologies such as battery technology, e-mobility;
- There's no shortage of MgO in the market even if the demand climbs by 7-10 % by 2025;
- There will be no potential substitute for MgO in the near future.

16.5 Marketing the Mine

Goleshi, particularly with its short life of mine (LoM) would need to identify customers / end users in Europe to remain competitive with other players worldwide. Showcasing the products at mining exhibitions and events will provide the opportunity to take itself closer to potential customers as well as investors. A display of the most relevant key characteristics of the Goleshi project will help to attract investors from a wide range of audience. This could be private investors with a strong mining background in base and industrial metals, investment funds who do have active operations, but also companies who do have other Magnesite production elsewhere and would like to expand their business to Europe.

A short list of some of the mining exhibitions where potential investors can be directly approached and where the Goleshi project can be presented to a wide audience are listed below;

- Mines and Money, London 25th - 27th November 2019;
- PDAC Toronto 2020;
- Meggener Rohstofftage (Raw Material Conference) Sep 2020 Germany;
- **International Conference on Mining, Material, and Metallurgical Engineering (MMME'20)** August 2020 Prague, Czech Republic;
- EuroMine Expo 2020 June Sweden;
- 6th International Symposium on Sustainable Minerals Sustainable Minerals 2020 June UK.

The Government of Kosovo through ICMM and PAK could also decide to promote the project in a public tender and invite interested investors to the bidding process. The tender process provides a very transparent and efficient way of choosing the right mining expert group investing in the project and pushing it to success. Attracting international bidders can increase competition and ensure that the most competent, relevant contractors are in the race for every project. To overcome the complexity of a tender process, the government could provide a central resource that includes regulatory guides and lists of the documentation required to build in their country. National agencies responsible for tendering could also offer additional information as well as encourage sharing of best practices among local and decentralized procurement agencies.

One aspect that must be mentioned with regards to a public tender. The government of Kosovo will have to provide a professional data room in which all relevant data relating to the project are archived and easily accessible for any bidder. It might even require digitalizing all or the most relevant parts of the project to provide better view and structure. In case of Goleshi this could take months to establish the data room due to the fact that most reports and data are in Albanian and / or Serbian language which requires a lengthy process of translation and resources.

Additionally, a public tender process is a very bureaucratic process and can take long times before results of the tender are published and a winner is declared.

In any case, however PAK and the government of Kosovo decides with regards to marketing the Goleshi project, it is of utmost importance that the Goleshi management together with PAK creates a professional data room, holding all relevant existing data on the project.

A quality data room is key to any successful mining asset divestment or project farm-out. Potential buyers or partners make their decision whether to place an offer based on the information made available to them. It also influences their offer size and quality. A highly professional data room can raise the value of a project significantly.

Therefore, it is important to prepare an easy-to-navigate and buyer-friendly data room. In the next paragraph we provide tips on how to prepare the content and structure of a data room for a mining asset divestment or project farm-out.
A physical data room these days is often combined with a Virtual Data Room (VDR). Both, physical DR and VDR require following structure of files:

- Administration;
- Finance;
- Production;
- Processing;
- Mining;
- Geology;
- Drilling and Assays;
- Permitting;
- Legal agreements;
- Royalty agreements;
- Environmental;
- Social;
- Asset register;
- Conceptual studies;
- Maps;
- Others.

The most efficient way is to sort files and reports from oldest to youngest information by years. All data, reports and files must be labelled with a unique file number and relevant supporting documents for such file must have the same number extension.
At least all younger / newer reports / files must be translated into English.

General comments for a data room:

- Well-structured and organized;
- Reflection of the asset quality;
- Easy navigation;
- As pdf for protection. No doc or ppt format, no excel;
- Phase the data release;
- Host and monitor the data room;
- Sign confidentiality agreement prior to granting access;
- First opportunity for investor to assess the quality of data;
- Comprehensive list of all data available.

A poorly organised data room, with missing information, unreadable photocopied reports and incomplete drilling and assay information or resource data and engineering models reflects badly on the Seller’s ability to operate a mine or their level of understanding of the whole operation. Data rooms where information is deliberately withheld only delay the process and end up wasting both the seller’s and buyer’s time and resources.

With above, the author strongly recommends to setup a data room of the Goleshi project right away and start also producing a VDR so that any interested investor or buyer can directly access the most relevant data for the project.

16.6 Additional Potential of the Goleshi Project

The Goleshi Project does have a few additional positive aspects that could potentially increase the economics of the projects. Below list describes some conceptual ideas that need to be further discussed in the feasibility study:

- Increase throughput of kilns by installing newer, latest or additional technology;
- Purchase raw materials from other Mg projects in Kosovo and therefore increase production.

The Goleshi mine could further include Magnesite from the Strezovc mine in Kosovo and could add its raw materials to the new production lines.

Additionally, the Goleshi mine has produced and sold crushed dunite rock for construction during the operational periods and even after the production of MgO was stopped. The Goleshi mountain region hosts a large potential of dunite rock which can be used as a by-product and sold to the local construction market. During production of MgO dunite rock is collected as waste rock and could be stored on an interim stockpile for further processing of crushed rock. Again, this will have to be evaluated in detail during the feasibility study. Below summarizes this point:

- Add production of crushed rock from dunite through an open pit mining operation; sell crushed rock for construction industry.

Either the new crushing and screening process line will be used for magnesite and dunite or a second crushing and screening line can be built to process also dunite rock as crushed rock for the construction industry.

During the generation of dunite rock from surface, material from outcropping, small magnesite veins can be collected and selective mined, either manually by hand or through small, suitable size mining equipment.

- Selective mining of magnesite veins at surface during dunite-crushed rock operation.

Another aspect that will have to be analysed during the feasibility study is the possibility of adding value to the project by upgrading the products of the kilns further to high end products.

- Upgrade products by adding further value adding facilities.

The upgrade towards value addition can be expensive and requires details studies as well as marketing studies to establish the viability of such process.

Note, at this stage the consultant cannot recommend processing any other minerals than magnesite and dunite at the Goleshi facilities. The current installations have limited capacity and are specifically designed for MgO processing only. Other ore types than Mg ore have not been processed at Goleshi before and the flow charts of MgO processing differ substantially from flow charts treating i.e. sulphide minerals or even other oxides. Therefore, other ore types have not been considered at this stage.

During the recommended feasibility study, it is worthwhile investigating the possibility of extending the processing lines. Therefore, it will be required to collect bulk materials and additional information from other mining *operations or projects / resources within Kosovo and develop further processing flow charts.*

The current stage of the Goleshi project only allows the processing of Magnesium ore and would require a significant extension if further Mg ores are purchased from other projects. The PEA is designed for full capacity and the finance model does not assume any spare capacities.

16.7 Investment Environment Kosovo

The economic development of the country has steadily progressed since the declaration of independence in 2008.

In comparison to other European countries, however, there is still a need to catch up. After purchasing power parity, GDP in 2016 reached only 27% of the EU average.

Below Figure 16-7 SWOT analysis of Kosovo (source GTAI March 2017) shows the opportunities, but also the threats, for investors when starting business in Kosovo.

PAK and ICMM have addressed their willingness in assisting new investors establishing their business in Kosovo and will be therefore also the first address for any investor with regards to interest in the Goleshi project.

Strengths	**Weakness**
• Vicinity to EU-Market; • Euro based economy; • Large diaspora of Kosovar support the economy with significant transfer of funds; • Positive availability of energy sources such as lignite and hydro power.	• Small size of the national market; • Insufficient infrastructure; • Difficult political environment; • Manufacturing industry with a low presence.
Opportunities	**Threats**
• In long term growing option to be integrated in the EU; • Stabilisation and Association Agreement with the EU; • Significant financial assistance from bilateral and international donors; • Numerous development projects in the transport, energy and environment sectors.	• Clear trade deficit; • Energy supply not secured in the long term; • Serbia-Kosovo subject still an issue; • Persistent unemployment.

Figure 16-7 SWOT analysis Kosovo

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Competent Person's Statement

Pursuant to the requirements of Clause 8 of the 2012 JORC code (written consent statement)

Competent Person's Report

JORC 2012 Scoping Study Report and Exploration Tonnage Target Estimation for the **Business Development of the Goleshi Mine Projec**t, Kosovo, 30th Nov 2019.

Released by Inros Lackner and ECTerra consortium.

I, the following,

EurGeol Christian Masurenko Dipl. Geo.,

- Confirm that I am the Competent Person for the report and am responsible for all sections and am accepting responsibility.
- I have read and understood the requirements of the 2012 edition of the Australasian Code for the reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 Edition).
- I am a Competent Person as defined by the JORC Code 2012 Edition, having five years' experience that is relevant to the style of mineralisation and type of deposits described in the Report, and / or to the activity to which we accept responsibility.
- I have reviewed the report to which this Consent Statement applies.
- I am a consultant working for ECTerra PTY LTD.

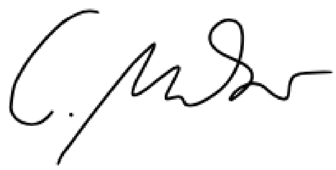
And have been engaged by:
Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
To prepare documentation for: Goleshi Magnesite Mine Project on which the report is based, for the period ending the Effective Date of 30.11.2019.

I have disclosed to the reporting company the full nature of the relationship between ourselves and the Company, including any issue that could be perceived by investors as a conflict of interest.

I verify that the report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Mineral Resources, Exploration Targets and Exploration Results.

Competent Persons Consent

I consent to the release of the Report; JORC 2012 Scoping Study Report and Exploration Tonnage Target Estimation for the Business Development of the Goleshi Mine Project, Kosovo, 30th Nov 2019 and this Consent Statement by the Project Leader of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

Person	Responsibility	Affiliation	Date	Signature
Christian Masurenko	Lead Author and Competent Person	Member of the European Federation of Geology; Membership # 641	30.11.2019	

Competent Person's Statement

Pursuant to the requirements of Clause 8 of the 2012 JORC code (written consent statement)

Competent Person's Report

Business Development of the Goleshi Mine, Kosovo dated 30th Nov 2019

Released by **ECTerra and Inros Lackner**

I, the following,

Julian Bennett, FIMMM, CEng

- Confirm that I am the Competent Person for the mining sections of the report and am accepting responsibility for this section.
- I have read and understood the requirements of the 2012 edition of the Australasian Code for the reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 Edition).
- I am a Competent Persons as defined by the JORC Code 2012 Edition, having five years' experience that is relevant to the style of mineralisation and type of deposits described in the Report, and / or to the activity to which we accept responsibility.
- I have reviewed the report to which this Consent Statement applies.
- I am a consultant working for Addison Mining Services.

And have been engaged by; Inros Lackner

To prepare documentation for the mining section of the report.

I have disclosed to the reporting company the full nature of the relationship between myself and the Company, including any issue that could be perceived by investors as a conflict of interest.

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to the mining operations proposed for the Goleshi Mine.

Competent Persons Consent

I consent to the release of the Report; Business Development of the Goleshi Mine, dated 30th Nov 2019 and this Consent Statement by 29th Nov 2019.

Person	Responsibility	Affiliation	Date	Signature
Julian Bennett	Mining operations	Chartered Engineer (UK); Fellow of the Institute of Materials, Minerals and Mining (UK)	30.11.2019	

Received Documents

Prefeasibility Study “Selected Industrial Mineral Sources of Kosovo” by GIZ and DURTEC (no date)

Brief Information on the activity of the IMING Group Pristina

Business Plan MIM Golesh Period 2009-2014

Current Geological Reserves Of Raw Magnesite Ore in MIM”GOLESH”-I with short explanation

Conceptual Development Program Magnesite Goleshi 2000

Surface Drilling Program 2009

Economic-Finance Plan Goleshi 2013

Information for the Ministry of Mines 2006

Investment Program for the Period April – December 2010

Investment Program 2009

List of buyers of Magnesite

Investment Plan

Technical Plan Magnesium Mining Goleshi 2013

Geological map and cross cut section

Mining and Magnesium Industry Goleshi 2012

Operational Plan Goleshi 2008

Rehabilitation and environmental protection project Goleshi (no date)

Mining Licence Certificate 2012

Various reports in Albanian language as per below list: see also below screengrabs of files received through digital file transfer

- Chemical analysis of samples
- Drill hole logs and locations
- Maps and cross sections of veins and adits
- Laboratory tests
- Surface maps
- Cross cuts and sections of veins

Note, due to a limited schedule for the project most of the files / reports / documents have been received in Albanian language. Where necessary those documents were partly translated for better understanding of the information received.

- FileDownload
  - Brief information on the activity...lming group mgo - Prishtinë.pdf
  - Brief information on the activity of the lming group.pdf
  - Business plan.pdf
  - Career guidelines.pdf
  - Conceptual development program.pdf
  - Drilling in surface molds.pdf
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  - 0205-A Reported on the outbre...cal spinal cord at the goles.pdf
  - 0206-A Chemical analysis.pdf
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