

ANNUAL
NEWSLETTER
2018

**MINING
INDUSTRY
IN BULGARIA**



**BULGARIAN
CHAMBER OF MINING
AND GEOLOGY**

3 FROM THE CHAIRMAN

4 THE MINERAL-RAW MATERIALS INDUSTRY IN 2017

14 SAFETY AND HEALTH

20 PROTECTION OF THE ENVIRONMENT

30 HUMAN RESOURCES

38 CORPORATE SOCIAL RESPONSIBILITY

46 BMGK - EVENTS AND INITIATIVES

54 INDUSTRY AWARDS

58 ANNIVERSARIES

60 MANAGEMENT OF BCMG

62 MEMBERS OF BCMG

MISSION

Protecting the interests of the Members of BCMG in accordance with the principals of market economy, sustainable development and ethical standards.

VISION

BCMG is striving for long term development in its capacity of the national branch organization representative of employers with significant contribution for the improvement of the business conditions in the sector, as well as for the social-economic prosperity for the country.



The year which elapsed, was full of important events for our industry. In May this year we conducted the most important and major initiative for the sector– The European Mining Business Forum– which was included in the Calendar of the Bulgarian Presidency of the Council of the European Union. It brought together hundreds of representatives of the branch, of the institutions responsible for it, of employers' and branch organizations, industries from the value chain, experts, and researchers. Our main objective was to put this branch of strategic importance for Europe in the focus of the Presidency. The program of the Forum included discussions on the most important topics of the agenda of mining and geology, such as legislation, investment opportunities, dependencies and outlook in the area of energy and industries of the value chain, prospects in the energy sector. Special attention was paid to the intelligent mining industry, developing at steadily growing rates, where the use of new digital technologies is becoming increasingly widespread. Of particular importance for the development of Mining Industry 4.0 are the innovations, which are closely connected with the quality of education.

At the same time we hosted two more events of great importance. The first one was the conference of the European Mineral Resources Confederation (EUMICON) held in Sofia, being part of a series of discussions in different European capital cities, seeking solutions for ensuring access to and loyal trading in raw materials for the 'Made in Europe' industry. BCMG participated actively in the discussions with experts from all stakeholders in Bulgaria. We also welcomed our European colleagues from EUROMIN, who came to Sofia to attend the General Assembly of their organization.

I do hope that these events of key importance will draw the attention of the responsible institutions and of the public to our sector and will give a strong impetus to its further development. The Bulgarian min-

ing industry has successes to show. With the production amounting to BGN 2.7 billion in 2017, the industry steadily contributes almost 4 % to the gross domestic product. The enterprises from the sector show a very high productivity and a very big share of the added value in the total value they produce, as compared to most other sectors of the economy. This is largely due to the implementation of innovative projects in the sector. In this Bulletin we shall present to you the achievements of the industry in this area.

As a branch organization, the Bulgarian Chamber of Mining and Geology shall continue working in the future for promotion and development of this sector through constructive dialogue in developing the policies and legislation for the sector. We shall continue rendering support to our members' efforts aimed at creating sustainable businesses and contributing to the prosperity of the regions and to the competitiveness of the Bulgarian economy.

I am making use of this opportunity to extend my gratitude to all members of the Bulgarian Chamber of Mining and Geology, whose active work has contributed to the successes scored in the branch. I thank our partners who supported our efforts for achievement of the ambitious objectives we have set ourselves.

I wish, to all of you, health, successes and inspiration in the work you perform, having connected your life path with the heavy and responsible profession of the minors.

I wish you pleasant reading!

Prof. Dr.Sc. Eng. Nikolay Valkanov
Chairman of the Bulgarian Chamber of Mining and Geology



MINERALS AND RAW MATERIALS INDUSTRY IN BULGARIA IN 2017

INTERNATIONAL ECONOMIC ENVIRONMENT

The growth of the global economy in 2017 was accelerated to 3.7% in real terms (3.2% in 2016).¹ A more significant growth was observed in the developed economies, including USA, the Eurozone, Japan and Canada. The economic activity in UK showed a slowdown. The economies with newly emerging markets and the ones of the developing countries showed some recovery – examples were Russia and Brazil, where the previous year had seen a decline, as well as China, which had retained a stable growth rate. The growth rate in the Eurozone was increased to 2.4% (1.8% for 2016), thanks to the positive contribution of private consumption, investment in fixed capital and to a smaller extend – the positive balance of net exports.

Global inflation showed insignificant increase to 2.1% at the end of 2017. In the developed countries it increased to 1.6% (against 1.1% at the end of 2016), and in the developing countries it grew to 3.3% (3.2% in December 2016). In the Eurozone inflation rose to 1.4% on y/y basis at the end of 2017 (1.1% in December 2016 r.), where the basic inflation (excluding food, energy products, alcoholic beverages and tobacco) remained at the level of 0.9%.

On a global scale, the **industrial production** came to 3.5% in 2017, which was a significant increase compared to 2016 (1.8%).² A higher growth rate compared to the previous year was marked in both developing and developed economies. Only in countries in Africa and the Near East the industrial production growth was slowed down. The rate

of growth of the volume of the global trade in goods and services has also increased, coming to 4.7% in 2017 (2.5% in 2016), which was due to the very high rate of growth of trade in both developed economies and in the ones with newly emerging markets and the developing countries.

The main raw materials prices (excluding food) at the international markets were increased compared to 2016, both in US dollars and in Euro, due to the observed shrinking of the global oversupply. The Brent oil price was increased in 2017 on average annual basis, both in US dollars (by 23.5%) and in Euro (by 21.0%). The most important factors for this increase were the agreed extension to the end of 2018 of the term of the deal between OPEC and other countries – major oil producers, as well as the increased demand for oil. In addition, the escalation of oil prices was also influenced by certain temporary factors, such as the interruption of the oil extraction in US following the hurricanes and the breakdowns at pipelines in the Northern Sea and Libya.

The index of the changes in the **prices of metals** in US dollars, has increased by 20.7% compared to 2016 (by 18.1% in Euro) under the influence of increased demand connected with the global growth of industrial production and the weaker supply due to the measures undertaken by China for reduction of air pollution in the country. The price of copper showed the highest rise of metal prices in 2017, mainly due to the temporary disruption of the production process in mines of key importance for the extraction of copper ore.

MACROECONOMIC SITUATION

In Bulgaria the **economic growth** in 2017 was 3.6%, compared to 3.9% in 2016. Private consumption contributed mostly to the growth, while the contribution of the net exports was negative. An important factor for the high level of consumption in real terms was the increase of the disposable income of households in the conditions of rising employment rate and salaries and decreasing unemployment. The negative contribution of the net exports of goods and services was due to the higher growth rate of imports (by 7.2%), caused by the significant increase of domestic demand. The exports in real terms grew by 4.0%.

Investments in fixed capital increased by 3.8% in real terms, which was wholly due to private investments, while government investments continued decreasing.

The annual inflation was 1.8% in December 2017 (-0.5% in December 2016) under the impact of external and domestic factors – rising of international prices of oil and basic raw materials, increase of the import prices of foods, increase of the administratively determined prices of certain goods and services and of the excise duty of tobacco products.

The total gross added value (GAV) of the economy has accelerated the rate of growth up to 3.7% in real terms in 2017 (3.4% for 2016). Growth of added value was observed in almost all sectors, where the service sector and industry contributed respectively by 2.8% and 1.0%. As for the industrial sector, construction was the branch in which the growth of added value was stronger, coming to 5.9% in real terms. The increase in industry was by 3.0%, thus preserving its higher contribution to the growth of the gross added value.

RAW MATERIALS AND CONCESSIONS

The Minerals industry is a branch of strategic importance for Bulgaria's economy. It lies in the basis of all other industries and is an important factor for the economic stability and energy independence of the country.

Bulgaria has a leading position in the European extraction of mineral resources, ranking third in copper extraction, fourth in gold extraction and fifth in lignite. The main raw materials extracted in Bulgaria are lignite, lead and zinc, copper and polymetallic ores, gypsum, limestone, bentonite, kaolin, quartz sands, refractory clays, marble.

The fields of underground minerals (excluding Mining waste) established by 1 May 2018 were 448 as follows:

- metallic minerals - 163
- non-metallic minerals - industrial minerals – 84
- oil and natural gas - 1
- solid fuels - 23
- construction materials - 140
- rock-lining materials: 37
-

The valid permits for prospecting and exploration are 96, of which:

- for metallic minerals – 32

for non-metallic minerals - industrial minerals – 16

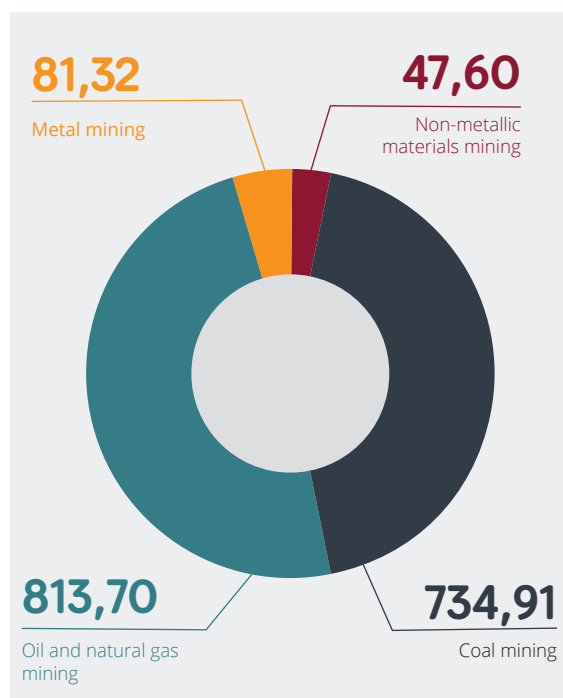
- for oil and natural gas – 13
- for solid fuels – 2
- for construction materials – 12
- for rock-lining materials – 21
- for mining waste – 2

The existing concessions for extraction of minerals are a total of 31 of which:

- for metallic minerals – 19
- for non-metallic minerals - industrial minerals – 74
- for oil and natural gas – 18
- for solid fuels – 17
- for construction materials – 332
- for rock-lining materials – 70
- for mining waste – 1

About 80% of the mining activities in the country are conducted through open pit mining.

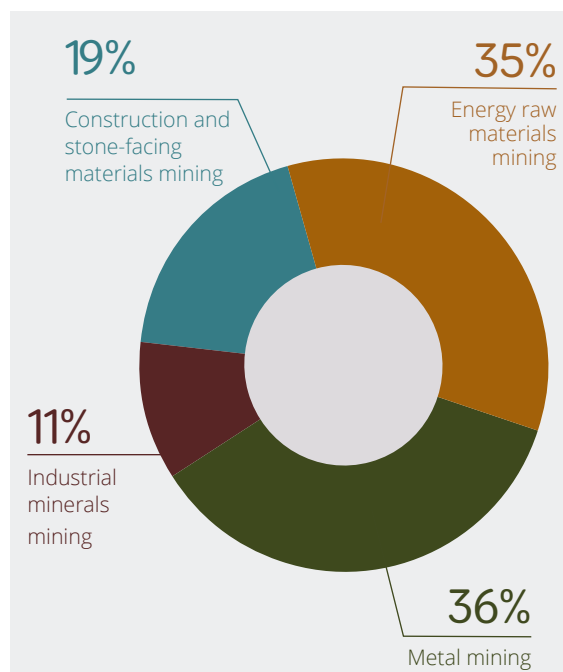
The total area of mineral fields in Bulgaria is 1677,53 thous. decars, which is approximately 1,5% of the territory of the country. The mineral fields distribution is as follows:



Total area of mineral fields in Bulgaria, thous. decars

Source:
The Ministry of Energy

The breaking down of the concession revenues by sub-sectors, shows that the metallic minerals have contributed the biggest share of 36%, followed by coal mining with a contribution of 35%.



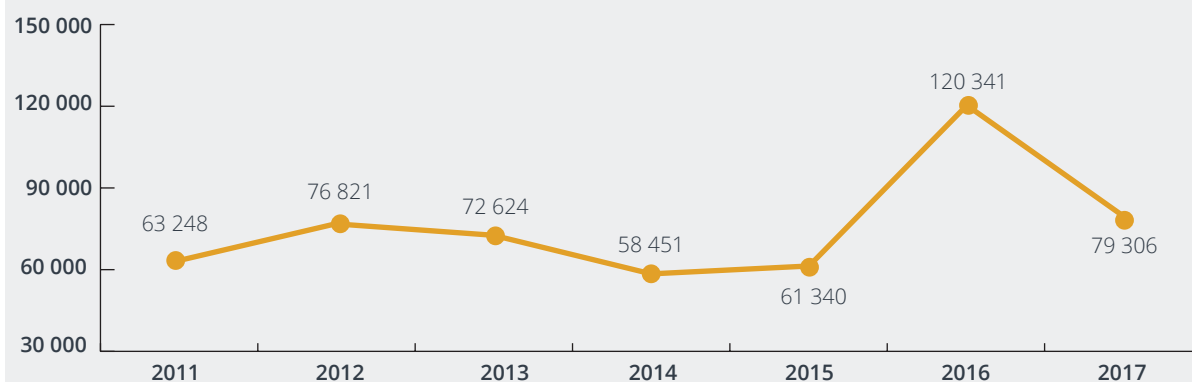
Distribution of concession revenues

Source:
The Ministry of Energy

The amount of revenues from concession in 2017 was BGN 79 305 637. This was the highest reported amount for the recent years, except for FY 2016, when the amount was considerably higher due to clearing of overdue payments in the Energy sector for previous years.

Revenues from concessions, thous. leva

Source:
The Ministry of Energy



PRODUCTION

The total production of minerals in Bulgaria in 2017 amounted to 108,69 million tons, which was an increase by 11% (i.e. by 11 million tons) compared to the previous year.

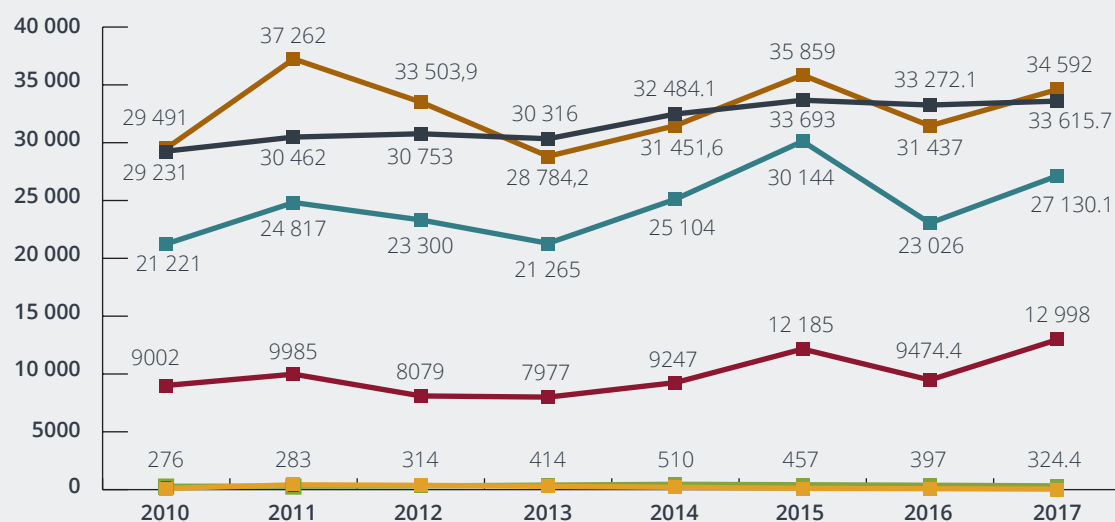
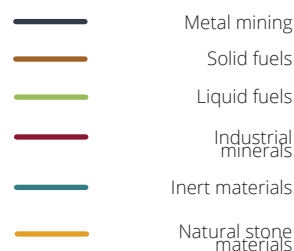
Almost all branches have shown an increase of extraction. Most significant has been the increase in sub-sector extraction of industrial minerals, which, following a downturn in 2016, is now reaching a growth of almost 37%. There is also a significant increase in the extraction of inert and construc-

tion materials – 18%. Coal-mining is also growing, showing an increase by 10% as compared to the previous year. Ore-mining has shown almost no change, with a growth of only 1%.

The sub-sector extraction of liquid fuels has shown a decline for third year in a row, which compared to 2016 has dropped down by 65%. A drop down by 18% is also observed in sub-sector extraction of rock-lining materials, which has also shown a tendency of decline since 2014.

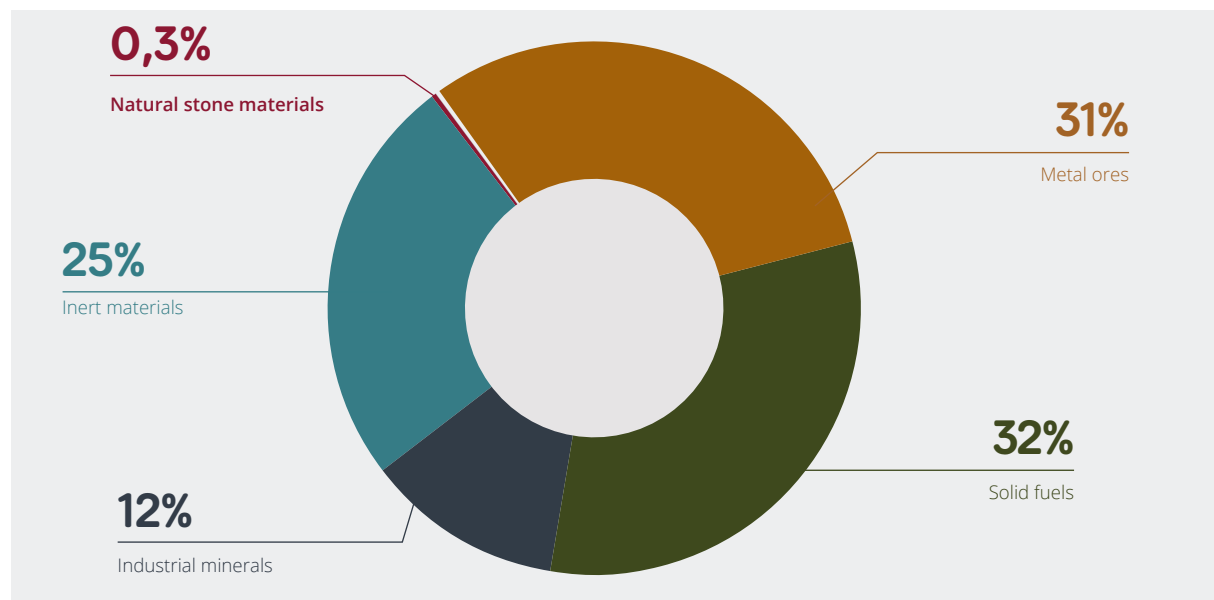
Total production, 000 t

Source:
The Ministry of Energy



The distribution of the production of minerals in the period 2010 - 2017 has shown stable trends: the solid fuels and metallic minerals have the highest shares, respective-

ly 32% and 31%, then followed by the production of inert materials with 25% and industrial minerals with c 12%. The rock-lining materials have an insignificant share of – 0,3%.



Distribution of output in 2017

Source: The Ministry of Energy

The total value of the production of the enterprises from the mining industry in 2017 is reported to have shown a growth of 9%, in the amount of BGN 2 719,935 million. In cash indicators there has been an increase in

all sub-sectors, the best one being in the extraction of non-metallic minerals and raw materials – by 16%. The ore-mining has shown the lowest growth rate of 5%.

NACE.BG 2008 code	Economic activities	2017* BGN '000
B	Mining Industry	2 719 935
05	Coal mining	808 454
07	Metals mining	1 438 594
08	Non-metallic materials mining	390 773
09	Ancillary activities in mining	82 114

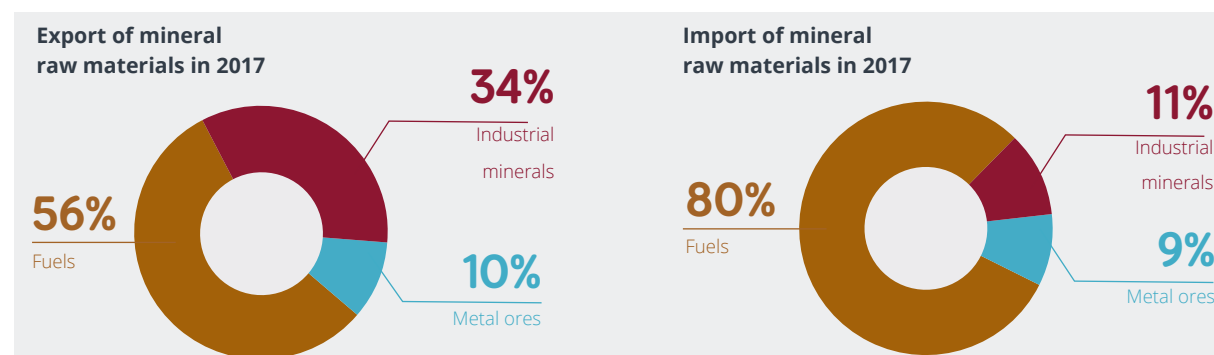
Source: National Statistic Institute
* Preliminary reconciled data

FOREIGN TRADE

Data for 2017 show that the products of the mineral industry account for BGN 5.5 billion of the total export, which is 11%, a very high share compared to the other industries. The import of mineral raw materials however still has a significant preponderance, given that in 2017 it amounted to BGN 12 billion.

In 2017 the export of mineral resources in-kind decreased by 15% compared to the previous year.

The biggest share belonged to fuels – 56% of all, followed by industrial minerals with 34% and last were the



Import / Export of mineral raw materials in 2017

Source: The Ministry of Economy

metallic minerals with 10%. The imported raw materials increased by 10% in 2017. The share of fuels prevailed in it – 80% of all imports.

The industrial minerals accounted for 11%, and metallic minerals – for 9%.

What should be noted is that the industrial minerals are the only group of minerals, in which the exports exceed the imports (by 11%).

In value terms however, the exports in 2017 showed an increase by 17%, while the imports increased by 45%.

Code	Product description	Import, 2017 г.		Export, 2017 г.	
		EUR'000	Тона	EUR'000	Тона
25	Industrial minerals, including	106 605	2 384 214	105 521	1 726 364
2507	Kaolin	24 860	215 288	4 630	47 636
2522	Quicklime	1 012	16 884	189	2 478
2523	Cement	33 075	919 268	18 664	348 058
2529	Feldspar	988	15 858	5 587	176 334
2530	Vermiculite, perlite and chlorites, unexpanded	1 334	7 666	1 739	6 514
25**	Other, not elsewhere specified or included	45 336	1 209 250	74 712	1 145 343
26	Metal minerals, including	494 000	688 143	1 716 445	1 411 602
2603	Copper ores and concentrates	176 552	316 491	1 462 812	1 098 904
2607	Lead ores and concentrates	21 012	13 628	93 785	67 010
2608	Zinc ores and concentrates	9 791	9 600	104 734	117 427
2616	Silver ores and concentrates	267 078	12 384	37 130	7 935
26**	Other, not elsewhere specified or included	19 567	336 041	17 984	120 326
27	Mineral fuels, including	2 148 164	3 872 945	4 282 394	12 815 096
2701	Anthracite	2 768	28 156	87 005	923 482
2702	Lignite, whether or not pulverised, but not agglomerated	940	22 301	57	786
2703	Peat	101	79	1 236	9 016
2709	Natural gas condensates	495	1 023	2 326 448	6 861 276
2711	Natural gas	11 267	23 460	696 890	2 551 711
27**	Other, not elsewhere specified or included	2 132 593	3 797 926	1 170 758	2 468 825
71	Precious	65 046	3 616	33 769	733
Total		2 813 816	6 948 918	6 138 129	15 953 795

Source:
The Ministry of Economy

The ratio of exports to imports shows a serious unused potential of the branch to contribute to the balance of payments of the country.

To this we have to add the raising of the competitiveness of

the industries, following in the value chain, e.g. the copper ores and concentrates exported from Bulgaria are twice cheaper than the imports. In such cases an appropriate approach and common actions for raising the competitiveness of the entire Bulgarian economy should be sought.

NEW PROJECTS

ADA TEPE – THE FIRST NEW MINE IN 40 YEARS



The implementation of a mining project requires a lot of time - from the first exploration steps to the launch of the actual mining operation. In addition to the huge risks involved, the mining business is becoming increasingly accountable to local communities and the environment.

DPM's management believes that the only way to achieve success is by presenting company plans openly, maintaining stakeholder dialogue and taking good recommendations into account. Hence DPM's approach is based on dialogue, accountability and transparency.

The company's investment in Krumovgrad stirs unceasing excitement, being the first greenfield mining project in Bulgaria in 40 years. Thanks to the commitment of the entire team and the strive to address all local concerns, the project managed to win the support of local residents and regional stakeholders. After certain amendments, the new mining and processing facility is already in its construction stage, and the mining and processing of auriferous ores shall be beneficial for all.

Location

The Ada Tepe prospect is located approximately 3 km southwest from Krumovgrad and 1 km west from the Krumovitsa River. Since 2016, the Company has been building its gold mining and processing facility on 85 hectares.

The project was given the green light after nearly 12 years of work with the local community, NGOs and public institutions. Substantial changes were made to the initial design, which demonstrated DPM's willingness to hear local community concerns. This led to a change in public attitudes and subsequently all required permits were issued. The last required construction permit was issued in the second half of 2016, marking the beginning of the actual construction works of the Ada Tepe mine.

Ore mining and processing

Ada Tepe will be an open-pit mine and the overburden material shall be stockpiled in an area designated to provide material for the closure and rehabilitation phase. No explosives magazine will be constructed and operated on the site.

Explosives, to be supplied by a specialized company, shall be safely delivered from the explosives manufacturing plant to the Ada Tepe minesite by a designated MMU vehicle (mobile manufacturing unit). All rock material without economic gold and silver values and therefore classified as waste will be hauled to a newly designed Integrated Mine Waste Facility (IMWF), which will store both dewatered process tailings and waste rock from mining.

Sprinklers and water trucks will be used to control and reduce dust emissions from mining activities at the open pit mine and on haulage roads between the mine and the ROM pad and stockpiles. A protective green belt will be maintained around roads and operational areas.

The planned annual throughput of the process plant is 840,000 tons of ore with 85,700 gold ounces for a period of 8 years. The first batch of gold-silver concentrate, which is the end product, is scheduled for production by end 2018.

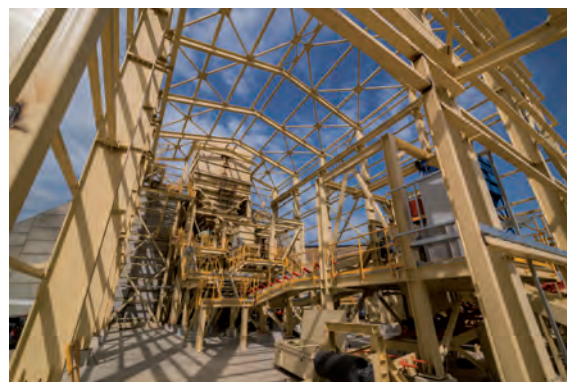
The planned life of mine is approx. 15 years, covering all project stages: construction, operation, closure and rehabilitation.

Gold Mining

Ada Tepe will be an open-pit mining operation. The mining method will be a conventional open cut drill, blast, load and haul operation. The ore will be extracted by suitable machinery, transported and stockpiled

Ore Processing

Ore processing will include crushing, grinding and flotation. The ore will be fed to a jaw crusher before passing through a three-stage grinding circuit. The grinding is wet and no dust emissions are expected. The ground ore will be fed to flotation reactors to recover and concentrate the payable metals from the ore. Ore processing (flotation) is not a chemical process, i.e. it does not change the chemical composition of the ore, and the gold and silver particles remain the same as in the rock.



Dewatering and Mine Waste Storage

The final concentrate will be dewatered and packaged for shipment to a smelter for further processing. Process water will be recycled and reused in a closed circuit.

The mine waste to be generated in the process will be waste rock (removed to access the ore body) and flotation waste (tailings), to be disposed in an Integrated Waste Management Facility (IMWF), which is the first facility of such type to be built in Bulgaria. It has been recognized as the best available technique with multiple environmental benefits, as follows:

- The designated mine waste storage area is almost two times smaller than conventional TMFs and waste stockpiles;
- Related risk is substantially lower than that with conventional TMFs, which contain large volumes of water;
- Efficient water use and low evaporation loss, as a result of the tailings dewatering process;
- Reduced likelihood of spills during the tailings delivery process;
- Mine closure and rehabilitation shall be possible while the facility is still in operation.

INNOVATIONS AND NEW TECHNOLOGIES IN THE BRANCH

INTRODUCING AN INNOVATIVE PROCESS FOR MAXIMUM DETECTION OF ORE MINERAL PHASES

An innovative technology was introduced in Gorubso Zlatograd AD for maximum detection of the ore mineral phases in the grain-size preparation of the lead and zinc ores and the production of lead and zinc concentrates.

The innovative process is protected by a utility model and it includes a two-stage open-ended crushing cycle with a jaw crusher, double-deck screen, (banana type), a cone crusher and auxiliary equipment.





The new technology guarantees maximum exposure of ore phases by producing 100% fraction <16 mm, 80% <12,5 mm during the crushing process and efficient granulometric preparation.

The introduced innovative process helped in saving production costs – including 22% less electricity consumed during the ore preparation process, and reduced use of milling media (steel balls) and mill cladding materials.

The maximum detection of the ore mineral phases in the granulometric preparation resulted in improving the technological indices, in production of high quality concentrates with increased content of non-ferrous metals and reduction of heavy metals in the final waste.

DIGITAL TRANSFORMATION FOR ELLATZITE OPEN PIT MINE



The business challenges nowadays set the digital transformation as a key to improving processes and achieving better value

Ellatzite-Med AD as a leading mining company in Bulgaria successfully implements and applies modern digital technologies to achieve its production plans.

Optical network connectivity of all the buildings and work-sites of the company is already available which guarantees trouble-free work for all the digital services. Ellatzite open

pit ensures continuous data transfer to all the machines in the fleet by available Wi-Fi coverage for all pit working areas.

In the last few years the company puts lots of efforts and resources on automation and currently its specialists can remotely review the technological parameters of every production track by using the centralized Pulse Scada system.

Modern mine management software solutions are an irreplaceable part of the everyday work of Ellatzite-med AD's engineers. Internally created software product for

data exchange ACOM supplies the engineers with a service that provide actual mine data, so they can use current and accurate information as soon as they need it. The developed 3D geological model of the pit along with the MineSight® software are the right tool for accurate mine planning. Pit wall stability control is done by a combined system of robotized total stations Trimble and IBIS laser-interferometric scanners, providing updated analysed mine map every two minutes, 24/7/365.

Since 2015 year Ellatzite-Med AD has a state-of-art technology for fleet management with the implemented Dispatch® system. Its usage gains a 20 percent increase in productivity for all the machines in the fleet. Awareness of the opportunities for further technological process improvements encourages the company to invest in the expansion of the already existing system and in 2016 expanded its scope with a high-precision guidance system for shovels and drills. The new Pro-Vision® system has contributed to accurate job performance of drills by achieving 98% accurate collar

positioning and depth deviation less than 0.75 m. Significant improvement of bench elevation control was obtained with achieving a constant deviation of $\pm 0,25$ m accuracy in level, compared with $\pm 1,44$ m prior Pro-Vision® implementation. Ore quality increases greatly with precise positioning of shovel bucket in the bench, resulting in a better dilution control.

Finally, all the collected production data is available 24 hours a day for all engineer and technical personnel at Ellatzite-Med AD on their PCs and mobile phones, leading to reasoned decisions on manufacturing issues.

The pursuit of Ellatzite-Med AD towards digital mining will continue with the research and implementation of new successful digital technologies to achieve a higher production quality. In addition, the safety of the employees of Ellatzite-Med AD and the concern for environmental protection is and will continue to be of paramount importance in all plans for digital enhancements.

THREE OVERHAULED EXCAVATORS RE-COMMISSIONED FOR DUTY AT MARITSA EAST MINES EAD

Three overhauled ERs710 bucket chain excavators have been recommissioned for duty in the open-pit mines of Maritsa East Mines EAD over the last 8 months. Overhauling the heavy mining equipment is a key task in the Company's Engineering Development Plan which guarantees the supply of coal to the thermal power plants of the Maritsa East Complex. The enduring effects of the completion of these projects include increased operational efficiency, minimized down time, and lower operational and maintenance costs.

In 2017 Maritsa East Mines EAD implemented BGN 60 240 000 worth of projects included in its Investment Program.

The BGN 7 606 900 contract for Overhauling the Electrical Installation and replacing the Control Systems of the ERs 710 Excavators was awarded in December 2016 to Obedinenie Bageri ERs710, a consortium of the following companies: Actemimum BEA Balkan (leading partner), Energoremont Holding and Bulgarska Energetika. The first of the ERs710 excavators (Unit number 165) was re-commissioned on September 15, 2017 in Troyanovo 1. The second ERs710 excavator (unit number 362) was re-commissioned on November 3, 2017 in Troyanovo 3. The overhaul of the third ERs710 excavator (Unit No. 166) deployed at Troyanovo 1 was also completed in time.

A high-output combination of automation components based on a powerful centralized programmable controller and a decentralized periphery of modules integrated in a field communication network of copper and optical cables (ProfiBus, Profinet) was selected for the control systems of the excavators. The turning and



propulsion mechanisms were upgraded with frequency converters. The three-phase induction motors (IM) with low-mounted rotors in combination with frequency converters are becoming ever more widely used in modern adjustable electrical actuation systems in process management applications because they provide unprecedented new opportunities for regulating the operational speeds of the actuated units, the torque, and the start and stop processes. Frequency-converter-based actuators offer reduced energy consumption for more energy-efficient processes and reduced emissions including CO₂. The new electrical systems were installed in renovated and dustproof control rooms to facilitate excavator maintenance. The control cabins were outfitted with comfortable operator panels, new LCD monitors and air conditioning systems.



SAFETY AND HEALTH

OCCUPATIONAL TRAUMATISM

Due to its specificity, the minerals industry is connected with significant risks for the safety and health of the people working there.

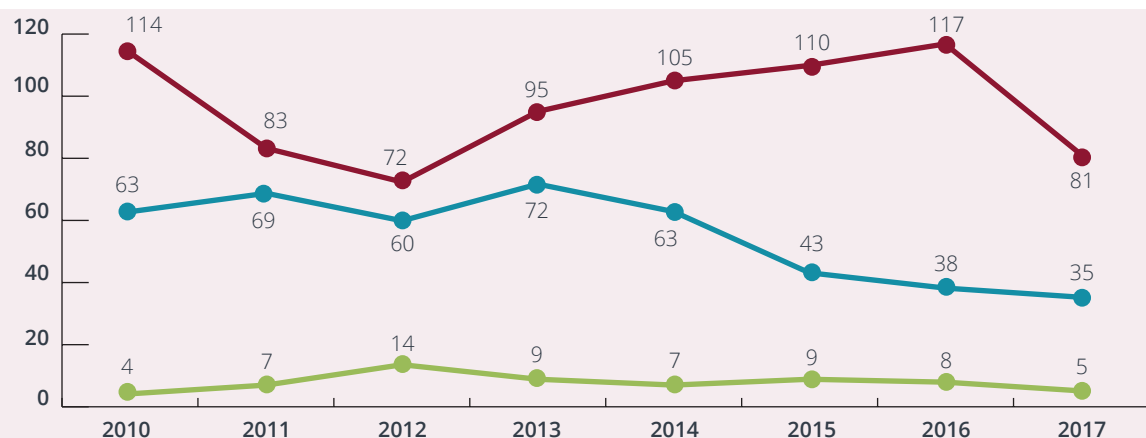
Data of the National Social Security Institute show that the total number of labor accidents in 2017 has marked a significant de-

cline – 126 cases. This is the lowest level seen in the last seven years. Even though ore mining holds the highest share of this indicator (81 cases), it is namely in this sub-branch that the decline of the number of labor accidents has been most significant. Then follows the sub-branch of coal mining with 40 cases and extraction of non-metallic raw materials with 5 registered accidents

Occupational Traumatism

Source:
National Social Security Institute.
* The data for 2017 are operational ones.

Coal mining
Metal mining
Non-metallic mining



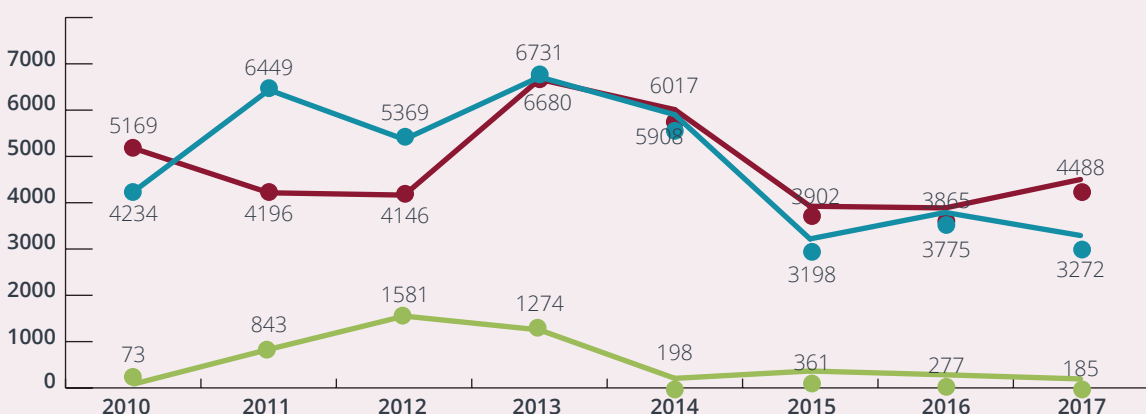
Unfortunately, four lethal cases due to labor accidents were registered in 2017, three of which happened in

coal-mining and one in non-metallic materials sub-branches.

Lost Calendar Days

Source:
National Social Security Institute.
* The data for 2017 are operational ones.

Coal mining
Metal mining
Non-metallic mining



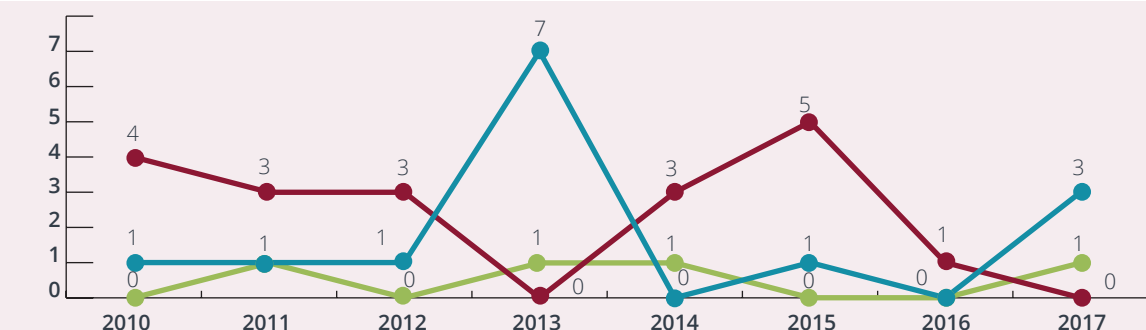
The calendar days lost in the sector in 2017 are also significantly fewer compared to 2016, totally 8501 days.

Since 2013 a stable trend of decrease of this indicator has been observed.

Mortal accidents

Source:
National Social Security Institute.
* The data for 2017 are operational ones.

Coal mining
Metal mining
Non-metallic mining



The traumatism in the branch determines the priority attention which the members of BCMG pay to the issues of safety and health at work. It is necessary to pay attention exclusively to the prevention: by identifying the

causes for traumatism, assessing the risks, and developing measures for reducing traumatism. The companies from the mining industry do pay serious attention to this issue, as evident from the outcome.

ACTIVITY OF BCMG

BCMG being a branch organization, the improvement of the conditions at work in the minerals industry is one of its main objectives.

In 2017 BCMG has worked actively on updating the rule-books for safety at work – Rule-book for the Safety at Work in the Underground Coal Mines – and Rule-book for the Safety at Work in open Pit Mining aiming at a maximum applicability in the branch, taking account of the changing conditions and situation. The project was awarded to Minproekt EAD for implementation in accordance with the terms of reference prepared in advance. The work on the rule books has been finalized in March and they are to be submitted to the state authorities for approval.

The Rule-book for the Mining Rescue Services has to be updated as well, and this is going to be one of the priorities of BCMG in the area of safety at work for the next year.

As a result of a last year ruling of the Supreme Administrative Court, two rule-books, important for the branch, have been dropped out – the one for the Mining Rescue and Gas-Rescue Services and the Rule-book on safety at work with explosives.

A representative of BCMG participated in the meeting of the International Labor Organization (ILO) in Geneva, held in October 2017, with the aim to develop and adopt an International Code of Good Practices under the Law on Safe Conditions of Work in open pit mining. The Code was used in the work for development of the rule-books for IAS. It has been translated in Bulgarian language and is available for all stakeholders.

BCMG gets information through the monthly bulletins on the global practice in the area of health and safety at work.

GOOD PRACTICES IN THE INDUSTRY

Taking care of the safety of workers in the mining industry is a priority for a number of companies. This means investing in most modern technologies, observing very strict procedures and training of the staff. As

a result, among the members of BCMG there are already companies with zero traumatism for several years now. (Asarel-Medet AD, Dundee Precious Metals Chelopech EAD, Kaolin EAD, Imerys Minerals AD, etc.).

HEALTH AND SAFETY ARE PRIORITY NUMBER ONE FOR IMERYS



In 2018
Imerys
Minerals
Bulgaria AD
reached

1 000 000
hours
without
accidents

Imerys Minerals Bulgaria AD is a company with long-standing traditions in the extraction and processing of non-metallic minerals. As a leader in this activity the Company has been certified and performs its activities in compliance with implemented Integrated System of Quality Management, protection of environment and ensuring of healthy and safe conditions at work in conformity with the international standards ISO 9001:2015, ISO 14001:2015 и BS OHSAS 18001:2007.

The Integrated System covers the whole work process and it allows the requirements for healthy and safe conditions at work to be observed in every activity at any time. The Instructions and Rules for Safety at Work are applications to the respective procedures and work guidelines from the Integrated System. They are thus subject to permanent control, periodical audit and on-going assessment of the possibility for upgrading. Ensuring healthy and safe conditions for the employees is a

A safety promise declared by the management:

'I shall never ignore me or my colleagues safety for the sake of production, quality, lower costs!'

task which permanently stands in the focus of attention of the senior management and of the specialized department of SHW. The engagements of the employees of the Company go beyond the obligation just to observe the rules and procedures. Everybody is personally responsible to be proactive in identifying and reporting of unsafe conditions, to guarantee that corrective actions are taken before any injury takes place. The workers themselves have to give ideas on how safety is to be improved, and they must play an active role in the implementation of such ideas.

At Imerys Minerals Bulgaria AD they regularly and consistently learn and introduce the good practices of healthy and safe conditions at work, introduced and applied at the corporate level in the whole international Imerys group. Such are: Serous 7 (seven activities and operations, assessed as the most risky ones), Take 5 (the five steps for safety, introduced at every work place), a corporate Committee for the conditions of work, manager visits on the issues of safety, a safety barometer, International Day for Safety at Work, Quit Smoking Campaign, etc.

The representatives of the senior management guarantee that no business decisions are made at the expense of health and safety. They provide personal example, certify the introduction of the systems of Imerys by organiz-

ing regular discussions with the employees when visiting the sites and by ensuring the necessary resources.

The company is proud with the fact that for more than 20 years now they have not had any lethal cases or invalidating labor accidents, and in the last year they have not had even registered incidents with injuries.

70% of the annual investment programs of Imerys Minerals Bulgaria AD were earmarked for the implementation of programs for stable improvement of safety and health conditions and BGN 150 thousand were invested in the last five years for this purpose. Apart from these investments, the Company has allocated every year the funds necessary for high quality work clothing and personal protective means, for provision of food for free, for prophylactic medical examinations and for maintaining medicine chests, for fire protection, insurance of staff and other activities.

Imerys Minerals Bulgaria AD will continue learning and applying new practices in the future as well in order to ensure a highest standard of healthy and safe conditions at work. The management of the Company shall continue working as actively, systematically and consistently for this cause, relying on the constructive cooperation of all employees.

PROFRAM FOR ENSUING OCCUPATIONAL SAFETY AND HEALTH AT ASSAREL

In 2017, Assarel-Medet JSC invested funds at the total amount of 2, 635, 000 BGN under the annually developed priority corporate Program for Ensuring Occupational Safety and Health.

In 2017, the implementation of the annual initiatives and mesures for improving the occupatuonal safety and health continued in the main production workshops Assarel Mine and Assarel Concentrator Plant. The delivery, installation and commissioning of elevators to the work places of difficult access (Coarse Ore Sotckpile and Intermediary Ore Bunkers) can be mentioned among the performed activities in the area of occupatuonal safety and health the following. Study, design and construction of energy efficient heating systems and providing heat energy for production needs and creating a better environment.



In 2017, the measures related to improving workers and employees health through enhancing their nutrition culture in order to prevent the carcinogenic risk due to nutrition factors continued to be applied with the implementation of the large-scale project related to the canteens in the company.

A system for social cooperation with the workers to provide occupational safety and health conditions has been established and is efficiently functioning in the company. The projects and measures in this area are initiated and are reviewed on a regular basis by the Occupational Committee and the expert technical and economic councils.

In 2017, the main focus in the work of the Occupational Safety and Health department was the readiness to act in case of emergencies and accidents. Efficient fire precaution prophylactic was performed as trainings were regularly simulated under the approved emergency plans for preventing severe accidents and emergencies on the territory of the company.

Like before, additional health insurance was provided to all workers and employees, including arrangement and carrying our medical checkups and assistance in case out-patient and hospital medical aid is needed. Annual prophylactic medical checkups for all workers and employees and the traditional company campaigns were organized and carried out on the territory of the company. The implementation of a working program for prophylactics of the most common diseases found out during the medical checkups.



The occupational safety and health rules for the various types of jobs and work places were updated as attachments to the rule books of the operators and the technologies from the integrated management system. Rules for safe operation are promptly established for the newly introduced machines and materials.

As a result from the systematic policy to provide occupational safety and health, the company reports zero trauma rate and lack of occupational diseases for a sixth year in a row. This is due not only to the strict control on observing the occupational safety and health conditions but also to the conducted annual training sessions for all staff levels and the application of the best practices in the area of occupational safety and health.

HEALTH AND SAFETY IN ELLATZITE-MED

A Health and Safety Procedure, which is an obligation and responsibility of all employees performing activities on the territory of the company, has been implemented and operates in Ellatzite-Med AD. Through instruction and/or training workers are familiarized with the safety requirements, the ways of preventing work accidents and minimizing the occupational illnesses risk when working with machines and equipment and in work environment. The company is certified according to the environmental and safety standards ISO 14001 and BS OHSAS 18001.

The company provides workers with the necessary Personal Protective Equipment (PPE), work clothes and free food, the determination of which is based on the professional risk assessment. The Health and Safety at Work responsible persons perform control and if necessary sanction offenders provided the PPE and work clothes are not used.

Collective protection modern means, such as ventilation and dust removal installations, soundproofed rooms, safety barriers, facilities, etc., are applied. Persons in charge of high-risk facilities are appointed, as inspectors in an accredited control body under BSS EN ISO/IEC17020:2012, in accordance with this type of equipment regulatory requirements.

Workplaces identification and risk assessment are continuously performed, in order to guarantee the employees' safety on the Ellatzite-Med territory. The aim is to control and minimize risks. Production technology, working processes, technic, equipment, premises and material used, operating instructions, influence of outsiders having workplace access, possible abnormal and exceptional risk situations, all are taken into account in risk assessment. Each machine, tool, device, etc. is assessed for risks

that it may cause or may affect it, and each has a technical maintenance file.

The hazard identification is performed by direct monitoring and control of the working processes. Continuous control of the working environment factors, such as lighting, noise, microclimate, chemical agents, vibrations, physical load, electromagnetic fields, electrical safety, ventilation installations, etc. is carried out.

The Health and Safety Procedure objective is continuous improvement of health and safety at work by applying good practices, controlling work environment factors and production process, risk assessment, PPE correct usage, analysis and improvements for preventing work accidents and occupational diseases

A key element of the company's policy is the use of up-to-date equipment, implementation of new technologies, staff training and strict compliance with technological requirements and safety instructions.



TRAINING FOR HEALTH AND SAFETY AT THE WORK IN HOLCIM

Holcim Karierni Materiali AD continued its practice of conducting training events on Health and Safety at work in 2017. The training on the main elements of safety (FPEs) is conducted in the form of 'Training of Trainers'. Representatives of Health and Safety at Work Department were trained as trainers in advance, at a regional training event abroad (for the region of Europe). After that, local trainers were nominated and trained to train the whole staff on these topics.

Other forms of training were also conducted in this area, such as 'Safety as a Personal Choice', interactive training events on HSW, the objective being to influence the way of thinking and to change the behavior of the trainees concerning safety at work. Training was targeted both to managers at the medium level of the hierarchy (heads of production workshops and department heads), and to the workers. The module for managers was for 2 days, and the module for workers was 1 day. In accordance with the methodology applied by the training organization, the training of



all medium-level managers was conducted first. And after that the 1-day training events for all remaining workers on the same topic were conducted on a stage-by-stage basis.

Training events with demonstrations of 'Provision of first aid' and 'Working at height' were also conducted with most of the administrative and production staff.

GEOSTROY IS IMPLEMENTING A CONTRACT UNDER OP HUMAN RESOURCES DEVELOPMENT 2014-2020



On 1 September 2017, Geostroy AD started the implementation of a project under Contract No. BG-05M9OP001-1.008-2017-C01 - Modernization of Working Conditions and Labour Organization in Geostroy AD.

The project is being performed with the financial support of the Operational Programme Human Resources Development 2014-2020, which is co-financed by the European Social Fund and the state budget of the Republic of Bulgaria. The primary goal and specific objectives of the project are focused on improving the occupational safety, working conditions, motivation and efficiency of the employees in Geostroy AD. The primary goal of the

project is consistent with all EU initiatives and the Operational Programme aiming to promote a new type of management approach and paying special attention to the personnel in the company.

The expected results are related to improving workplace health and safety for all employees in the company, minimizing the potential risks, facilitating the operation of work processes and reducing difficulties arising among employees from different age groups, improving the psychological climate and motivation at work. Measures are being taken to provide better physical and psychological comfort to people with disabilities working for the company.



PRESERVING THE ENVIRONMENT

ENVIRONMENTAL PROTECTION AND RECLAMATION COSTS

The environmental preservation and reclamation costs across the mining industry have remained relatively steady over the past several years. This includes the acquisition costs of long-term tangible assets and long-term intangible assets intended to be used for

environmental preservation purposes as well as the maintenance costs for such long-term tangible assets, the activities aimed at preserving and reclaiming the environment as well as the relevant administrative costs. In 2016 these costs amounted to a total of BGN 35.4 million CHART

Environmental preservation and reclamation costs, thous. BGN

Source:
The Bulgarian National
Statistical Institute .

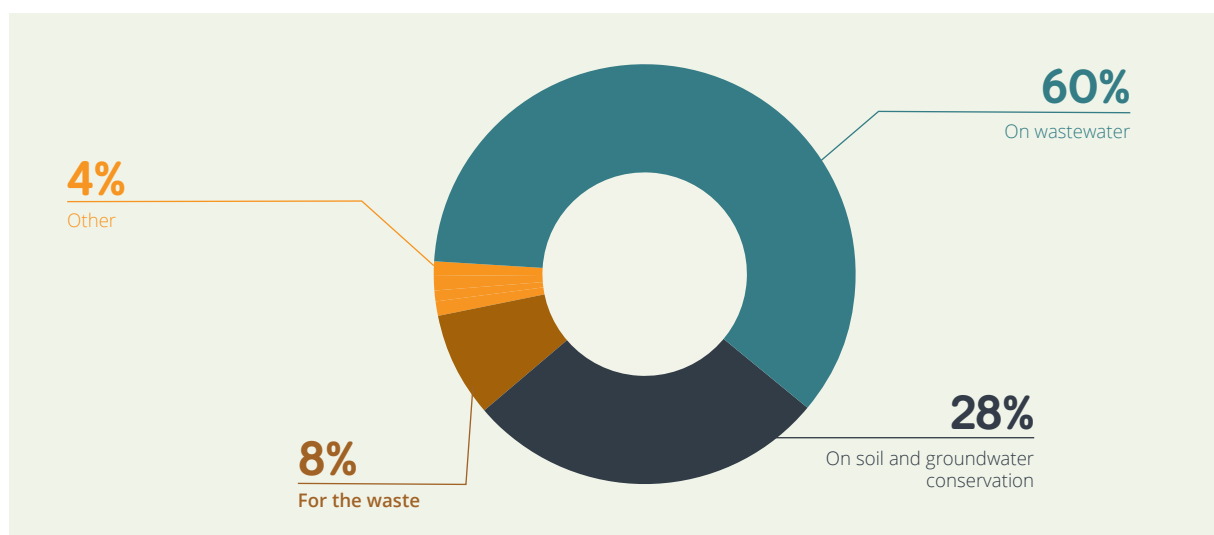


During the last five years the largest share in the structure of the mining industry's environmental preservation costs belongs to process water treatment (60 %). This is followed by soil and ground water preservation costs at 28 %. Waste

management costs come in third at 7.5 %. The remaining costs for activities such as waste removal, clean air, noise pollution reduction, forestry, etc. have a negligible share in the cost structure. CHART

Structure of environmental protection costs

Source:
The Bulgarian National
Statistical Institute
(average for the 2010 - 2016 period)



ACTIVITY OF BCMG

BCMG incentivizes companies to preserve the environment through various tools such as the Standard for Sustainable Growth of the Mineral Resource Mining Industry and the annual environmental awards presented to companies with no sanctions imposed on them for violations of environmental laws, as well through participation in different environmental projects. During the accounting period BCMG, represented by its Environmental Panel of Experts, worked actively to find solutions to important issues related to the applicable environmental legislation and its proposed amendments.

Experts from the Chamber took part in the discussions and approval of the National Priority Framework for Ac-

tivities Related to Natura 2000 in Bulgaria and the mapping of the habitats of protected species under Natura 2000. BCMG came out with its own position with regard to the materials and the draft resolutions by the Oversight Committee for Operational Program Environment 2014 – 2020. The chamber provided a series of consultations and supported the Ministry of Energy in its efforts to clarify and defend Bulgaria's position and assisted the European Commission's Work Group tasked with drafting a normative document on Inspecting Mining Waste Facilities (pursuant to the requirements of Council Directive 2006/21EC);

BCMG formulated and submitted to the Bulgarian Min-

istry of the Environment and Waters a proposal for decreasing the administrative and regulatory burden on the business by introducing a series of measures and changes such as:

- Introducing effective procedures for Tacit Agreement on all procedures under the Environmental Protection Act (300C), the Waste Management Act (3YO), the Biodiversity Act (35P), the Waters Act (3B), etc.
- Decreasing the administrative burden and creating favorable conditions for implementing investment intention projects categorized as “Major Projects”; to define the term “development consent” which should be issued at a very early stage and should include a comprehensive set of requirements and prescriptions the adherence to which should be confirmed before the next stage of procedures is embarked upon (imposing new restrictions and creating the possibility terminating the implementation).
- Bringing Ordinance H-4 of 14. 09. 2012 on characterizing surface water types in compliance with the environmental conditions specific to Bulgaria

and water quality standards for specific pollutants in terms of average annual values (AAV) and maximum permissible values (MPV).

- Relating to the Biodiversity Act – repealing the Ordinance on the Terms and conditions for assessing plans, programs, projects, and investment proposals in terms of their compatibility with the goals and objectives for preserving protected areas – Article 2, Par. 2 Plans, Programs, Projects, and Investment Proposals Outside the Scope of Par. 1
- Relating to and further to Par. 2, Item 2, g) of the Environmental Protection Act and the Ordinance on Environmental Impact Assessment – to provide a definition for the term “deep drilling”.

During the entire accounting period BCMG exchanged information and discussed hot topics with the Environmental Committee at Euromines. Its experts participated actively in the work of the European organization in the field.

BCMG also participated in the deliberations of the Temporary Committee on Uranium Pollution of Drinking Water with the Bulgarian Parliament.

GOOD PRACTICES IN THE INDUSTRY

Preserving the environment is one of the foremost priorities for mineral resource mining companies. One of the fundamental principles underpinning their environmental policies is the obligation to comply with all applicable legal requirements imposed by Bulgarian environmental law.

In 2016 the awards for no sanctions and violations of environmental laws went to Asarel – Medet AD, Kaolin EAD, and Imeris Minerals Bulgaria AD.

In line with the principles of sustainable growth, leading mining companies showed that following the letter of the law is only the first step in their journey toward social responsibility.

The drive to improve constantly and to achieve perfection in their processes and planning, and ultimately – performance, position a number of companies from this industry among the leaders in preventive environmental protection.

HOW DUNDEE PRECIOUS RAMPED UP PRODUCTION AND CUT DOWN ITS ENVIRONMENTAL FOOTPRINT

Mining is indisputably one of man's first activities that we know of today. Perhaps this is the reason why we often forget that mining has been subjected to serious transformations not only from a technological viewpoint but also in terms of related community and environmental commitments. This holds true both internationally and locally.

Though often underrated, mine production upgrade and expansion investments have a direct positive impact on the health and safety of mining personnel, adjacent lo-

cal communities and environmental media. Dundee Precious Metals Chelopech EAD is one such example.

After 2003, the Company has gradually expanded and upgraded its production by investing over BGN 100 million in projects to modernize throughput and ensure specific environmental protection measures. In 2004 ore throughput was 500 000 tons. Twelve years later, the Company accomplished a mining and processing rate of 2.2 Mtpa. Parallel to production ramp-up, DPM Chelopech managed to reduce significantly its consumption of water, cement, diesel fuel and electricity.

Post-2009, infrastructure and equipment upgrade projects in the u/g mine and Process Plant resulted in maximum efficiency in production process management, improvement of workplace parameters and environmental benefits.

Soil protection

Soils in the Srednogorie region are an example of environmental media which has been affected by local mining and metallurgical operations for over a decade. Since 2004, Dundee Precious Metals EAD has conducted dedicated initiatives to rehabilitate the lands affected by mining operations, in order to restore them, as much as possible, to their original natural state. The Company has been running a special program for the rehabilitation of lands disturbed by historical mining, including surface caves, abandoned derelict facilities and old waste rock dumps. By 2017, it managed to rehabilitate 22.3 hectares of land. The Company also planted and now grows over 160 000 trees and shrubs. Green areas onsite Company premises are a pleasant view for both employees and visitors.

Cultivated green areas close to the Zlatitsa train station give the place an aesthetic look. The green vegetation buffer zone set up near the village of Chavdar and the newly planted forest area, devastated by fire in the past, bring further added value.

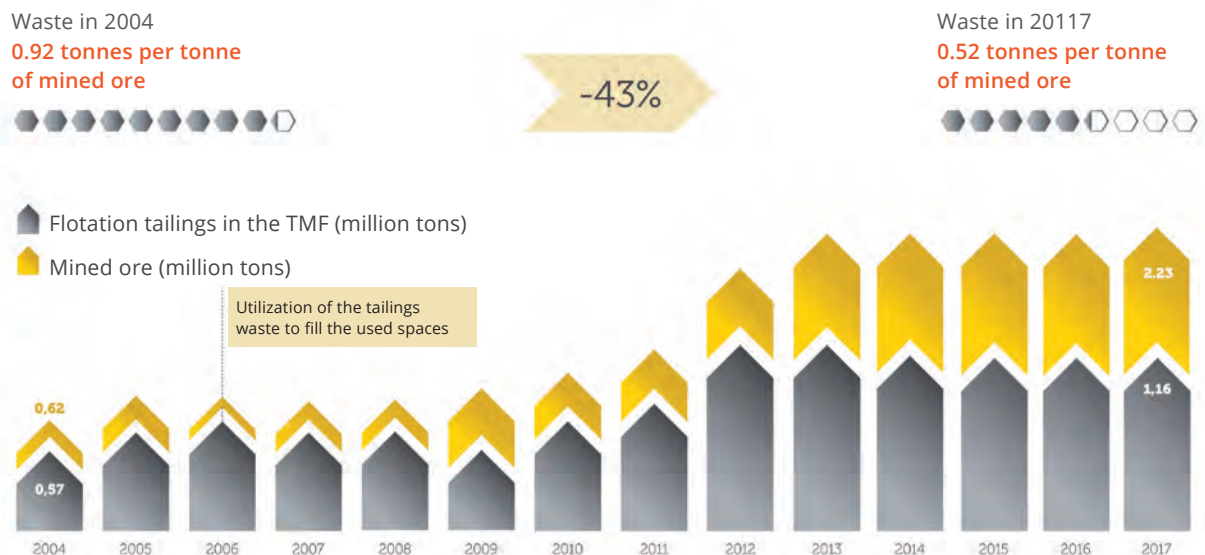
Overcoming the effects of past mining operations is only one consideration addressed by Dundee Precious Metals Chelopech EAD. The Company plans to conduct soil rehabilitation works once the mine is decommissioned and implement a project for the reclamation of disturbed land where the Chelopech TMF is now located.

Cutting down on mine waste

In 2005, the sub-level caving mining method, which had been applied for more than 40 years in the Chelopech Mine, was replaced by the so-called Long Hole Stoping with Fill (LHSF) method. That proven and costly method ensures ground stability. By utilizing all generated waste rock for backfilling purposes, it reduces the relative volume of tailings reporting to the TMF. The Company has managed to reduce flotation tailings in the TMF by 43% per ton of mined ore in the period 2004-2017.

Reduction in the amount of mined waste per tonne of extracted ore by 43%

Utilization of all sterile rock masses and much of the tailings waste to fill the used spaces in the mine



Using Cement as a Binding Agent in the Fill

Mine rock (waste rock from mining) and flotation process tailings are used as stope backfill material in the underground mine. Cement is added to the tailings to ensure

compressive strength and stability of the backfilled stope. Data shows that the use of cement in the backfill material has dropped by over 60% per ton of mined ore for the 2009 - 2017 period as a result of production process upgrades.

Reduction of the amount of cement to fill the used areas in the mine by nearly 60% reduction per tonne of mined ore compared to 2009

Used amount of cement in 2009

43 tons of a thousand tons of mined ore



Used amount of cement in 2017

17,7 tons of a thousand tons of mined ore

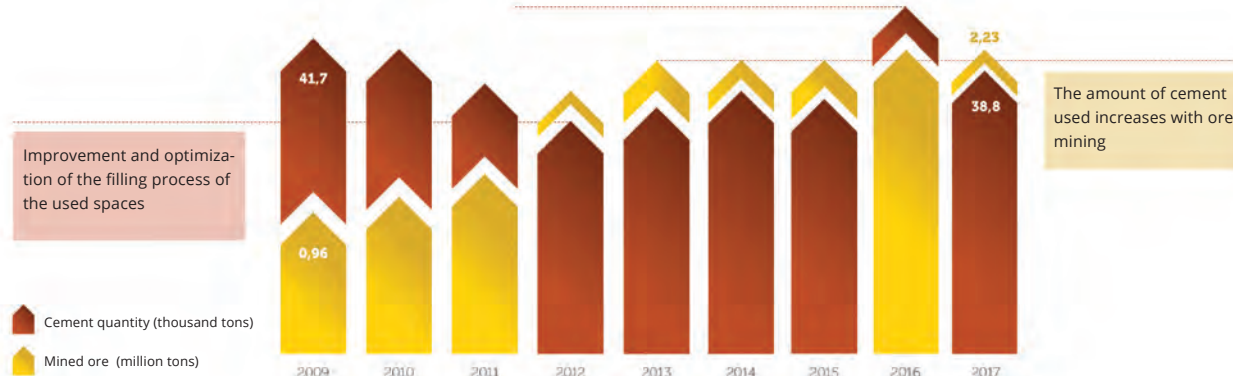


-60%

Increased consumption is due to more filling chambers in the pit

Improvement and optimization of the filling process of the used spaces

The amount of cement used increases with ore mining



The Long Hole Stoping with Fill method is a recommended best available technique.

Climate protection

In its environmental protection policy, DPM Chelopech recognizes the importance of climate protection and reducing greenhouse gas emissions. By using renewable

energy sources and upgrading buildings' energy efficiency, as well as cutting down on cement and diesel fuel consumption, DPM Chelopech was successful in managing its carbon footprint.

The Company set itself a target of 20% lower carbon emission levels by the year 2020, which it managed to achieve already in 2012, reporting a reduction of 23% compared to the baseline year 2009.

Reducing the carbon footprint per tonne of mined ore by 43% between 2009 and 2017

Carbon emissions in 2009

94.9 kg. per tonne of mined ore



Carbon emissions in 2017

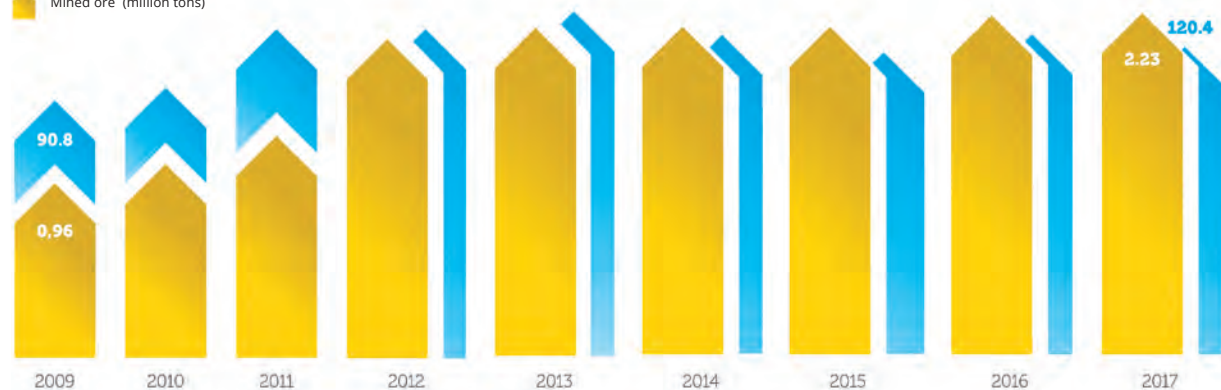
53.9 kg. per tonne of mined ore



-43%

Total carbon emissions (thousand tons CO2)

Mined ore (million tons)



Reduced air and noise pollution

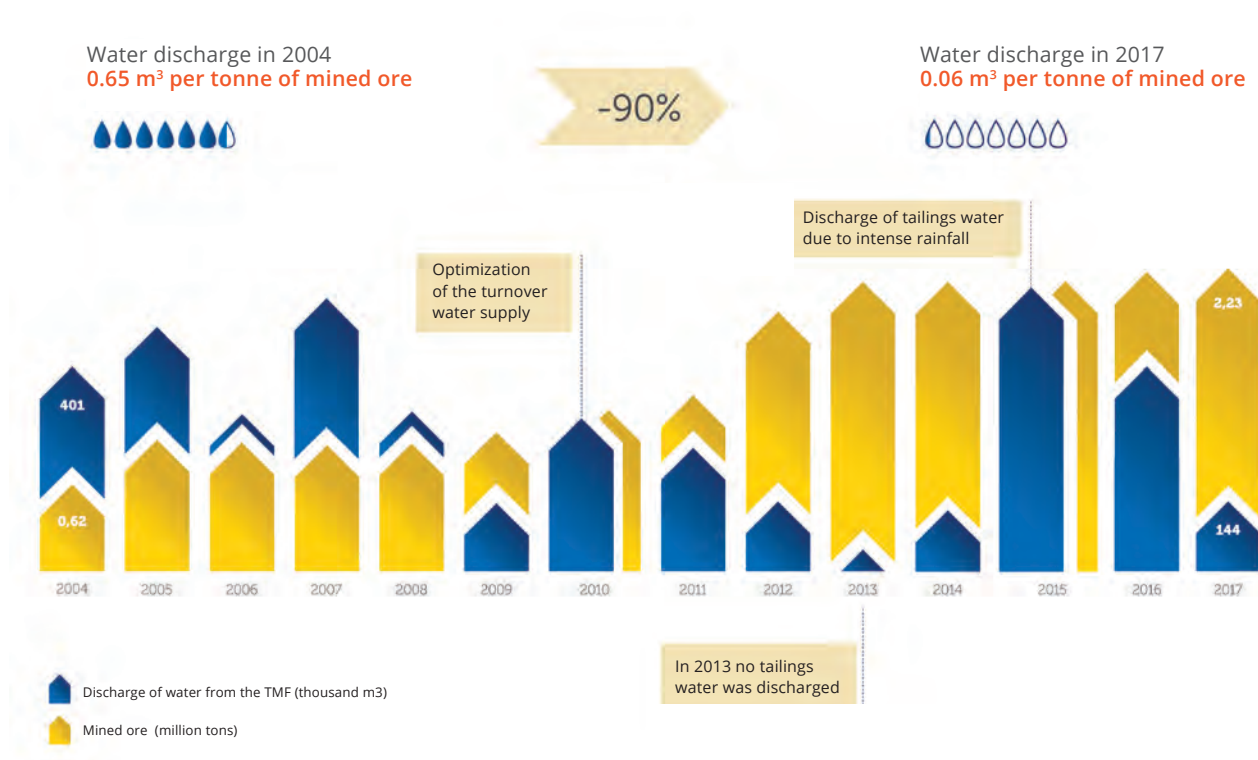
The reconstruction of the ventilation system in the Chelopech underground mine and the commissioning of a new main exhaust fan at Shaft Sever were a feasible investment to improve air quality. In order to protect neighbouring lands and ambient air from exhaust gases, a steel shield was installed in front of the fan. A tailor-made silencer was installed in 2014, which reduced fan noise emissions by 30dBA. The decommissioning of the two surface crusher facilities resulted in an overall reduction of environmental noise levels by approx. 3dBA, which had a positive impact on company employees.

In 2017 the Company initiated the planting of a green belt of buffer vegetation around the minesite, which is a natural extension of all environmental measures for noise reduction and ambient air protection.

Protection of Waters

Water is a resource used for ore mining and processing purposes. Hence, water protection is one of Dundee Precious Metals Chelopech EAD's main environmental commitments. As a result of implemented Chelopech TMF upgrade projects, the Company has managed to reduce the volumes of discharged wastewaters by 90%, measured per ton of mined ore. Fresh water consumption for production needs was reduced by 74%, compared to a triple increase in production, after the Company replaced major equipment in the Process Plant. In March 2018 DPM Chelopech commissioned a domestic effluent wastewater treatment plant.

Discharging tailings water into the environment



ASSAREL-MEDET CONTINUES IMPLEMENTING SUCCESSFULLY NEW ENVIRONMENTAL PROJECTS



Assarel-Medet JSC continues successfully implementing new environmental projects under a developed annual program which confirms the unambiguous standpoint of the company for permanent development and aspiration towards enhancing the environmental safety which undoubtedly is a prerequisite for sustainable development.

In 2017, the projects implemented under the Environmental Protection program amounted to totally 5,338 mln. BGN, including accomplished initiatives from the Environmental Protection and Restoration Program.

Some of the activities on soil protection, rehabilitation and waste management which amount to totally 1,514 mln. BGN, include the following:

- Comprehensive technical and biological rehabilitation of the Leach Dump with involved strengthening initiatives, reconstruction and resizing of its dewatering facilities.
- Completed staged four-fold monitoring in order to identify the correspondence of mining waste from the waste storage facilities: West Dump, East Dump and Lyulyakovitsa Tailings Dam.
- Collected soil material from the West Dump Area and Lyulyakovitsa since it is stored at regulated disposal storages and used for the rehabilitation activities of the company.
- Technical and biological rehabilitation of damaged areas in the industrial site. The project involves rehabilitation of all areas which have been damaged due to construction or the activities associated with it.
- The initiatives and the projects implemented in 2017 for water and air protection as well as the monitoring environmental factors and components amount to 3,616 mln. BGN and the latter encompass the following:

- Maintenance of the hydrotechnical facilities around the East Dump and the Maresh river, Leach Dump, Assarelska river and Panova river.
- Implementation of the task for Repairs of the Mine Water Treatment Plant and Technological Renovation in the Water Treatment Plant Workshop
- Design and construction of hydrotechnical facilities on the industrial site.
- Organization of monitoring on the territory of the Complex Environmental Field.



All legally required fees and charges on issued permits at the amount of 108 thousand BGN have been paid.

In 2017, the scope of activities related to the organization of the Complex Environmental Field was expanded by including large-scale studies on surveying the river loads associated with the Program for Restoring the River Loads in the River Valleys in the Region and Modern Geographic Information System for Interpreting the Results. The ongoing monitoring of the environmental components associated with the requirements of the Complex Permit issued to the company for the activity of the Solvent Extraction and Electrowinning Plant.

ASSAREL-MEDET INVESTS MORE THAN 10 MLN. BGN IN AN INNOVATIVE PROJECT FOR THE LEACH DUMP REHABILITATION



Assarel-Medet JSC has invested more than 80 mln. BGN for environmental projects. The innovation for technical and biological rehabilitation of an operational mining facility, the Leach Dump, stands out among them. Leach copper ores are dumped at this dump aiming to recover copper through microbiological leaching. The innovative process covers the south-eastern part of the mining dump and its unique feature is that it is performed on a still operational mining waste dump. The value of the project is more than 10 million BGN and it is implemented for the first time in the world.

The world's first
reclamation project
mine in operation



Rehabilitation will be performed in several stages. The first of them is alignment and resloping of the ground. A layer of crushed stone and rubble is placed on the prepared areas. A special geotextile cover has been spread upon the areas scheduled for rehabilitation. The end of each strip of it enters into the draining facility. Another 25-centimeter thick layer is laid on the foundation. This layer is covered with special geogrid and materials, manufactured and delivered by leading European companies, which ensure sta-

bility and stop erosion processes. This is the end of the technical rehabilitation and after it the area is prepared for biological rehabilitation which consists in grassing the areas with special grass mixtures the features of which are close to the naturally occurring grass habitats in the region. A decade of the rehabilitated area of the dump in was planted experimentally with lavender in 2015 and in 2017 the first lavender oil was produced from the grown lavender blossom which is more than 100 kg. The actual production of the lavender plants will be known at least after four years which are needed for the plants to grow.

After the landscape structure was restored, the dump is now an attractive green area. The rehabilitation results into limiting the erosion processes.

A drainage system for catching and diverting the waters has been built which will be directed to the technological process for cathode copper production or the treatment facilities of the company. Thus, copper recovery continues from the rock mass through modern and environmentally safe hydrometallurgical facility.



TECHNICAL AND BIOLOGICAL RECLAMATION OF DISTURBED TERRAINS IN ELLATZITE-MED

A number of events have been taking place in the implementation of the Environmental Protection and Recovery Programme on the territory of Ellatzite deposit. One of them is the technical and biological reclamation of the east waste dump in the Mining Complex. So far, about 305 decares of the east waste dump have been technically and biologically reclaimed.

The technical and biological reclamation activities of the downstream face areas from Benkovski 2 tailings pond started in July 2016. Currently, approximately 260 decares have been reclaimed.



CARING FOR THE ENVIRONMENT AND BENKOVSKI-2 TAILINGS DAM STABILITY

The groundwater level control is particularly important for the stability of tailings dams. In the case of Benkovski-2 Tailings Dam, this is achieved by using a built-in piezometric system for real time monitoring. This includes management of the phreatic level resulting from the local hydraulic conductivity through the dam's body, continuous improvement of the monitoring system, as well as data flow analysis. The system is an automatic one and it is calibrated to trigger alarms of different importance, if preliminary set groundwater levels have been reached in any of the piezometric holes. According to the alarm type, corresponding measures could be taken in order to suppress the groundwater level down to safe position. All that secures the facility's stability, while guaranteeing the designed volumes for residue impoundment.

Ellatzite-Med AD continuously applies numerous modern engineering solutions for prevention of any pollution and

simultaneously caring for the environment of the region around Benkovski-2 Tailings Dam. A mud farming field trial has been completed at the Benkovski-2 Tailings Dam, in 2017. It was to prove the efficiency of using a purpose-built machine MudMaster. This machine farms over a certain layer of impounded residue material, destroys the structural bonds between particles and leaves the excess water to drain out towards the decant lake.

Results show that the impounded residue's density increases very fast. At ordinary process conditions, that same density is reached after two-year period of natural consolidation by gravity. Mud farming also increases the residue's shear strength and improves the stability of the Benkovski-2 Tailings Dam. As a result, after the field trial, it was decided the mud farming technology to be implemented into the process cycle of residue impoundment at the Benkovski-2 Tailings Dam.



BIODIVERSITY MANAGEMENT PLAN OF ZLATNA PANEGA CEMENT



2018 saw the successful completion of Zlatna Panega Quarry's 4-year Biodiversity Management Plan based on the Guidelines of the World Business Council for Sustainable Development (WBCSD) and documents by the European Commission. Preserving biodiversity and reclaiming ecosystems impacted by industrial operations is among Zlatna Panega Cement AD's chief priorities. In this sense the Biodiversity Management Plan created in 2014 had as its primary goal the preservation of protected species in the area of the Zlatna Panega Quarry and restoring the natural habitats of these species in the process of land reclamation.

The plan included gathering seeds from local species and planting them in the factory's own nursery to produce plants to be used in the reclamation of areas where mining operations have been discontinued due to resource depletion. This ensures that only species indigenous to this area will be used preventing the proliferation of invasive species in the habitats. Zlatna Panega conducted a research to identify protected plant species growing in the area of Zlatna Panega Quarry. Each representative of those species

found growing in areas scheduled for mining was transplanted in an area that would never be used for mining purposes. Bird species nesting in the area were monitored to determine the impact of the industrial operations in the factory and the quarry on their way of life. A key element of the Plan's implementation was getting company employees and students from the local schools involved in various activities to raise their environmental awareness. The activities included in the Plan helped create a sustainable model for preserving the natural environment of the quarry in the future.



Due to its success in preserving the ecosystems and the biodiversity in the area of the Quarry, Zlatna Panega Cement AD's plan was included as an example in the in the Guidelines for Biodiversity Management Plans by the Initiative for Sustainable Development of the Cement Industry (CSI) with the World Business Council for Sustainable Development. These Guidelines serve as a practical manual for drawing up plans for preserving the biodiversity of the environments in which the companies operate.



HUMAN RESOURCES

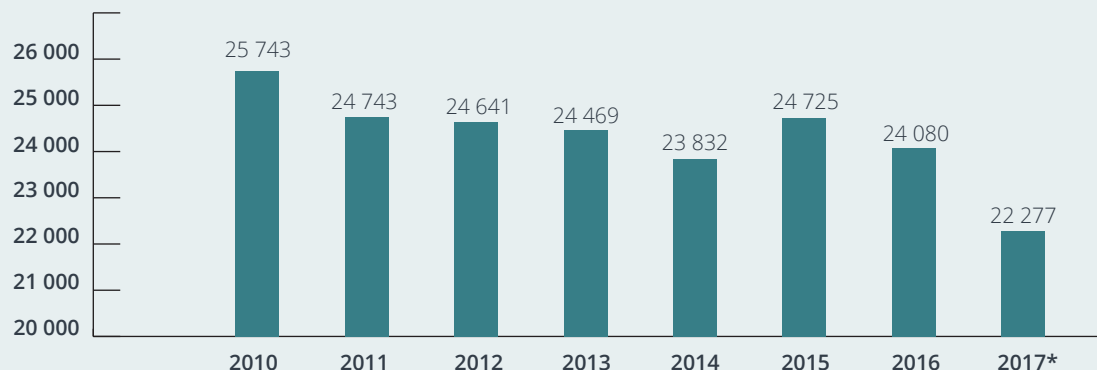
INDUSTRY EMPLOYMENT RATE

The number of jobs provided by the mining industry in 2017 (according to preliminary data by the Bulgarian National Statistical Institute) came to 22 277 which was lower compared to the preceding year and reinforced

the downward trend established over the course of the last several years with the exception of 2015 when a short-lived uptick was registered

Total employed

Source:
The Bulgarian National
Statistical Institute.



Indicator: Average Headcount of employees hired on Permanent Labor Contract. * 2017 numbers are preliminary.

Despite the shrinkage in terms of jobs registered across the sector, the production volume per employee is growing (with the exception of 2013 and 2014 when temporary

dips were registered) and the sector's productivity index is approximately 2.5 times higher than the average for the industrial sector

Produced output per employee, BGN

Source:
The Bulgarian National
Statistical Institute.
* 2017 numbers
are preliminary.

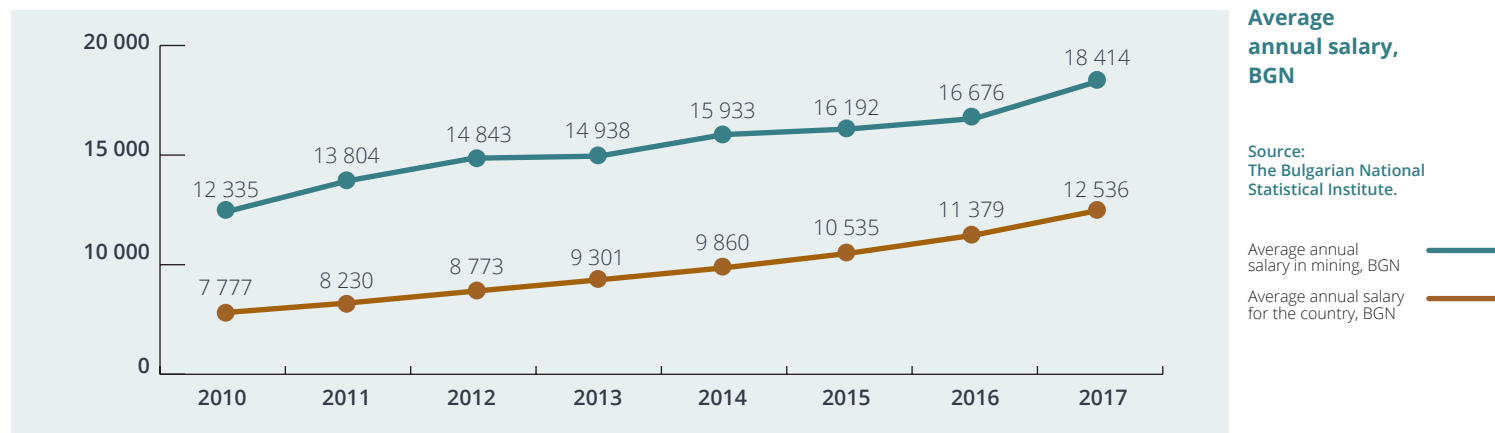


SALARY

The average annual salary of employees working in the mining industry in 2017 came to BGN 18 245 which is 9.5 % more than 2016. In comparison, the average annual salary in Bulgaria was BGN 12 536 which means that workers in this sector earned 45 % more. In terms of gross annual salary, mining is among the top 4 economic activities in Bulgaria.

The highest salaries in the industry were earned by the workers and employees of the companies mining metals while workers and employees mining non-metallic mineral resources earned the lowest salaries.

The industry-wide trend with regard to this indicator is one of steady increase. This means that the workforce of the mining industry is enjoying steady income and considerable job security.



ACTIVITIES OF THE BCMG

The skills of its work force are extremely important for the successful development on a country's economy, its competitive ability, and its capability to create quality jobs. The speed with which technologies penetrate the industry requires employee's competences to be frequently updated and necessitates the creation of new professions, requiring new skillsets, if companies want to be able to keep up.

As an industry association devoted to problems of the business, BCMG strives to keep pace with the dynamics of our time. Over the last several years it directed its efforts toward building and developing active tools for cooperation between educational institutions and the industry. The result of this was the establishment of an Employee Training Model for the mining industry intended to eliminate the shortage of trained professionals by providing quality education to future mining specialists. The Project

was started in 2015 and now more and more of the industry's leading companies are enjoying the benefits of its realization.

In 2017 BCMG became actively involved in MyCompetence Project by the Bulgarian Business Chamber.

MyCompetence is a human-resource information system for data processing and standard information exchange offering tools and other specialized services for assessing the competence of the workforce in Bulgaria.

MyCompetence was created as part of a project entitled Developing and Implementing an Information System for Assessing Work Force Competence by Industry and by Region (ICOK) implemented by the Bulgarian Business Chamber (BCK) in conjunction with KNSB and KT Podkrepa unions with financial support by the European Social Fund.

GOOD INDUSTRY PRACTICES

Responsible mining companies in Bulgaria have, for a long time, been aware of the importance of investing in skills through education and training. The last sev-

eral years saw the implementation of a series of initiatives in this direction and their results have been impressive and quite tangible especially for the local communities.

DUAL TRAINING AT KAOLIN EAD – SOCIAL PARTNERSHIP AND THEN SOME

Launched in 2016, the dual training project of Kaolin EAD has long since exceeded the bounds of corporate HR policy to become a strong lever that generates sustainability and boosts regional growth.

It has become evident that this dual training has the potential to radically change the attitude of young people to vocational training. For them, it is an opportunity to acquire

skills, establish contacts with their future employers and receive a flying start in life. Dual training ensures the retention of more pupils at school, gives hope to parents, and bright prospects and instills a newly-found sense confidence to children.

The establishment of the Kaolin Dual Training Centre in Vetovo is a priority in light of the challenges for company's



In 2017
Kaolin teaches
39 children under
the system for
dual training

future development that lie ahead. The planned upgrade and refurbishment in order to incorporate the latest technologies and equipment create a challenge for the company's workers and employees alike. The gradual replacement of manual labour by automated systems and the availability of cutting-edge equipment requires a new skill set and competences of a higher order. Kaolin EAD cannot afford to expect its needs to be fully met by the educational system and has taken the bold decision to invest directly in schools and modern forms of training.

The first group of 13 pupils enrolled in dual training in September of the school year 201/2017 to take up studies in the area of enrichment of mineral deposits. In order to ensure a high professional standard of tuition, the company invited four of its long-standing employees with a wealth of experience to take on the role of tutors. In 2017, another 26 pupils, split into two classes, joined the dual training programme in the areas of enrichment of mineral resources and operations involving chemical substances. This brings the total of 'Kaolin's children' to 39 and that of their tutors to 9. During

the school year 2018/2019 the third group of pupils will be enrolled to commence their studies in the use of electrical equipment in production — a new study area to be accredited shortly with more than 20 children expected to enrol.

The investment in the upgrade and modernisation of facilities is a major component of the project. By a decision of the Managing Board of Kaolin EAD EUR 454 000 was earmarked for reconstruction and modernisation. The money was used to refurbish and convert the former changing rooms and other previously unused office space. During the period January – August 2017 more than 2 000 m² of classrooms and workshops were fully refurbished, along with utility rooms, the adjacent grounds and pavements. Today, the Kaolin Dual Training Centre in Vetovo has a fitter and turner workshop and a training room equipped with virtual lathes and cutters, other metal-cutting machines, 4 classrooms and a computer room with 13 latest-model computers with all necessary software applications. A training room for electrical equipment and a chemical laboratory will shortly be equipped.

28 “DUAL” STUDENTS ARE TRAINED IN A GENUINE WORKING ENVIRONMENT AT ASSAREL-MEDET

Assarel-Medet JSC is among the most active participants in the pilot project for introducing dual professional education in the municipality of Panagyurishte which also complies with the industrial strategy for preparing staff for the mineral raw material industry. The company has been working on it since 2014 following the initiative of the late Chairperson of the Supervisory Board Assarel-Medet JSC and long-year chairperson of the Bulgarian Chamber of Mining and Geology, prof. Lachezar Tsot-sorkov, PhD. The created at that time industry model for staff preparation was also used.

Twenty-eight students from Grade 11 at the Professional High School in Industrial Technologies, Management and Tourism in Panagyurishte are already being trained in a genuine working environment on the territory of Assarel-Medet JSC from the end of September, 2017.

The high school students are trained in the dual education form in the mining majors: Mining and Construction Mining Technologies, Processing, Manufacturing and Recycling Technologies and Auto Transportation Equipment. They have been assigned to their new work places at the Assarel



Mine, the Concentrator Plant and the Central Repair Facility. The young people are trained in specially equipped classrooms and visit the production sites of the company twice per week – On Tuesday and Wednesday.

Labor contracts have been concluded with the students with regulated payment based on a 7-hour business day twice per week. All of them were given working apparels

and a free travel and food vouchers. In the next 2018/2019 school year, the students will work on the territory of the company three days per week.

Especially trained for the purpose tutors will be responsible for their training who will face the challenge to convey their experience in the respective profession and create working habits of the young people.

“We are happy that we are already part of the Assarel-Medet team and will have the opportunity to acquire some of the details of our future professions in one of the leading Bulgarian companies”, the high school students summarized after their first classes in genuine working environment.

MARITSA EAST PROFESSIONAL TRAINING CENTER – INVESTMENT IN PEOPLE



The Maritsa East Professional Training Center has been working actively for over 16 years in an effort to alleviate the qualified labor shortage beleaguering the mining industry. The professions needed at Maritsa East Mines EAD are highly specific. Because of this and in accordance with its license, the Professional Training Center at Maritsa East conducts professional trainings for second- and third-degree qualification certificates; trainings for professional work permits pursuant to the State educational requirements; intracompany trainings; and seminars. In 2017 alone a total of 2400 people (Maritsa East employees and third parties) graduated the Center's courses. Maritsa East Mines EAD's approved 2018 Training Program which was coordinated with the Ministry of Energy is scheduled to provide training for 2 861 people. In February of 2018 officers of the Professional Qualification Directorate with the Agency for Vocational Education and Training audited the Training Center and its records for the training courses conducted

in 2017. The conclusions of the auditors were highly favorable with no reprimands or recommendations relating to the training records or the availability of training resources.

Maritsa East Professional Training Center has a proven track record of offering high quality professional training achieved through combining modern educational policies with established best practices and traditions. The training environment here stimulates cooperation and collaboration between trainees, instructors and experts. The Center has excellent teaching facilities and knowledgeable staff and that makes for high quality vocational training.

Investing in professional training is investing in the people and the future of Maritsa East Mines EAD, a state-owned company guaranteeing Bulgaria's energy independence.



SUMMER INTERNSHIPS IN ELLATZITE-MED AD – PLENTY OF JOB OPPORTUNITIES FOR YOUNG SPECIALISTS

Taking into consideration the proper professional realization of young people, Ellatzite-Med AD has launched its Summer Internship Programme 2018 for the eighth consecutive year. The programme is intended for young specialists without practical experience in their specialty or undergraduate students who have completed their 3rd, 4th and 5th year of study in technical and economic specialties at various universities. They have the opportunity to do a paid summer internship in a real working environment in the Flotation Complex near the village of Mirkovo and in Ellatzite Mine Complex near the town of Etropole.

The Summer Internship Programme 2018 started on 2 July and will continue until the end of September. This year 19 interns are being trained in the company - 6 of them are getting on-the-job experience in the Mine Complex: in the sections Open-Pit Mining and Drill-and-Blast Operations, in the production units Open Pit, Primary Crushing Unit and in the Geological Department. 13 interns are being trained in the Flotation Complex: in the production units Grinding and Flotation, Secondary and Tertiary Crushing, Tailings Dam and Water Supply, in the Chemical Laboratory, Commercial Department, Department of Administrative and Social Activities, Human Resources Department, as well as in 20th April Trade Complex in the town of Koprivshtitsa.

The summer internship is part of the corporate social responsibility programme and a key element of the company's

effective human resources management policy. To date, more than 200 students of various major specialties have gained practical experience in the internship programmes, whereas 33 of them have already joined the full-time team of Ellatzite-Med AD.

In 2018, Ellatzite-Med AD is also a partner in the framework of a Practitioners Programme under the project BG-05M2OP001-2.006-0001 - Student Practices - Phase 1 funded by Operational Programme Science and Education for Smart Growth (OP SESG).

Four students at 12th grade in the specialties Electrical Engineering and Energetics and Automation of Continuous Productions at the Professional High School of Mechanical and Electrical Engineering in the town of Pirdop are attending practical training in the production units Grinding and Flotation, Secondary and Tertiary Crushing in the Flotation Complex of Ellatzite-Med AD near the village of Mirkovo. Students are trained in the course of 240 astronomic hours under the direct guidance of qualified mentors and in strict compliance with all statutory health and safety requirements. The respective partner school provides a supervising teacher who conducts the training in a real working environment in the company.

Ellatzite-Med AD is carrying out Student Practices for the third time this year. Three practitioners, who attended previous on-the-job trainings, have already become full-time employees of the company.



DPM'S BASIC MECHANICAL MAINTENANCE TRAINING PROGRAM



Investments in training initiatives made by Dundee's subsidiary companies in Bulgaria are among the best examples of corporate social responsibility. Established partnerships with schools, universities and training institutions expand the horizon of knowledge and bring the business and academia closer. The Basic Mechanical Maintenance Training Program conducted in 2017 by Dundee Precious Metals Krumovgrad is a good example of a successful project in this field. The objective of the project was to build capacity and skills, and invest in education in mechanical maintenance. The project was co-implemented by the Company and the Hristo Smirnensky Vocational School of Transport in Krumovgrad. Trainees had the opportunity to attend lectures and hands-on courses to improve their qualifications. Working in a brand new practical training facility, they interacted in a real working environment and acquired valuable experience, which they could draw on immediately after completing the program.

The project was fully funded by the Company and free of charge for trainees, and was seen as a direct contribution to increasing employment in Krumovgrad and the

region. At the same time, it promoted stronger relations between business and education, which is instrumental in human resource training.

School teachers delivered lectures and hands-on training. Commitment from our operations leadership and employees from different departments was essential to the project's success.

Trainees were provided with a variety of learning and skills development opportunities to make them more competitive at the labour market. They are now expected to have potentially more career opportunities, which would, in the long run, promote a better living standard in the Krumovgrad region.

A total of three training courses were successfully conducted in 2017, and a fourth one is scheduled in 2018.

Exclusively positive responses from trainees and the community have been received.

EMPLOYEE EDUCATION AND TRAINING AT HOLCHIM



The company is certified under ISO 9001:2015 and its trainings are planned, organized, and performed in accordance with the rules of its Quality Management System. The trainings performed by the company in 2017 were conducted in compliance with its policy for the education and training of human resources. In accordance with its 2017 Schedule, the company organized and conducted all of the professional trainings which are mandatory according to Bulgarian law. In addition, the company provided trainings in accordance with the international standards (ISO), language trainings, special software trainings and so on.

In accordance with its corporate policies and rules relating to its fair competition and anti-corruption and anti-bribery principles, the company organized electronic trainings dedicated to both topics. Electronic trainings are conducted using Holchim's online portal. Access, registration, and assessment are performed for each individual user account. The trainings were conducted in Bulgarian and encompassed the target audience identified in the particular policies.

The company continued to send its employees on trips abroad to attend international trainings, seminars, and workshops. These events were organized by regional or corporate functions for all countries where divisions of Holchim Group operate. These are attended only by employees who have been nominated by their managers and when the costs for them have been included in the training budget.



Improving one's qualifications is essential for achieving good results. Therefore, the company has scheduled trainings closely related to the work process which are part of bachelor's and master's programs at various colleges and universities as well as professional training to acquire new qualification and skills.

SUMMER INTERNSHIP PROGRAMME 2018 IN GEOSTROY AD



Geostroy AD, one of the leading companies in the Bulgarian construction sector, is providing an opportunity for young people to join its Summer Internship Programme 2018. In March, the company announced the launch of its campaign during the National Career Days 2018 - Good Career, Good Life in Sofia. Students and applicants for the announced job openings visited Geostroy's booth to express their keen interest in the summer internship positions and the prospects of becoming part of Geostroy's team.

The Summer Internship Programme 2018 is part of Geostroy's corporate social responsibility practices. This

year it is intended for undergraduate students who have completed their 3rd, 4th and 5th year of study and will be implemented from July to September 2018. In the course of their paid internship in Geostroy, the approved 8 interns will be able to gain firsthand experience of a wide range of services offered by the company, to participate in a project development and work under the direct supervision of highly qualified mentors. 2 interns will get on-the-job training in Construction Department, 2 trainees - in OHS Department, 3 interns - in Marketing Department, and 1 trainee - in Corporate Security Department. At the end of the programme, after careful review and assessment of the interns' performance, the best ones will receive offers for full-time jobs in Geostroy.



CORPORATE SOCIAL RESPONSIBILITY

The mineral resource industry has made the conscious choice to develop sustainably. The data on the social investments made shows that the Bulgarian mining companies which are members of the Bulgarian Chamber of Mining and Geology (BCMG) know their role for the growth of the national economy and the development of their local communities.

They appreciate their unique expertise and care about the jobs they create and the services they offer. Their socially responsible investment policies improve their environmental and social performance indicators and make them more transparent. The benefits they bring in terms of tracking the effects of their social programs include public recognition, improving their competitive advantage, increasing employee and customer loyalty and, ultimately, a conscious business

risk management. Furthermore, the leading mining companies help or directly create additional businesses different than their main operations to give the local communities an alternative for when mining will be discontinued.

The Bulgarian Chamber of Mining and Geology plays a pivotal role in promoting the concept of corporate responsibility. To support the efforts in the field of social responsibility, in 2009 the BCMG established the Annual Corporate Social Responsibility Award which is presents to one of its members as part of the nationwide celebration of Miner's Day. In 2017 the award went to Dundee Precious Metals Krumovgrad EAD for its project entitled How, as Part of Their Dialogue, the Mining Business and Archaeologists Laid the Foundations of the Modern Discipline of Mining Archaeology".

COMPANIES AND EMPLOYEES TOGETHER FOR COMMUNITY CARE

14 years
Dundee Precious Metals

invests in enrichment of the environment and improvement of the living conditions of local communities



The Company

DPM Chelopech and DPM Krumovgrad, the Bulgarian subsidiaries of the Canadian Dundee Precious Metals mining company, have been running for many years a Donation Program for local community development. The Program supports municipal infrastructure projects that upgrade local living conditions and citizens' well-being, as well as high-impact capacity building and community projects in the municipalities of Chelopech, Chavdar, Zlatitsa and Krumovgrad. Local community development is among the Company's top priorities, since the majority of its employees and their families are local residents. These are also the regions where DPM's subsidiaries conduct their operations.

Investments in public works and improving local living conditions directly benefit the population of Chelopech (1 492 residents), Chavdar (1 215 residents), and the villages of Zlatitsa Municipality: Karlievo, Tsarkvishte and Petrich (703 residents in total), as well as Krumovgrad (17 823 residents). Target groups include local businesses, local government administration, and indirectly visitors of the region.

The Annual Program has been running in Chelopech for more than 14 years now, and in 2014 was launched in Krumovgrad, too. Together with local municipal councils and communities,

each year DPM's subsidiaries fulfill their commitments to improve local living conditions and support sustainable development. Besides care for the region, the program ensures care for Company employees, too, since 90% of them are local residents.

Municipal partnership is a key factor to achieve set targets and support the sustainable development of settlements that are within the regional footprint of DPM's modern mining operations.

DPM's Bulgarian subsidiaries have developed Community Investment Plans with a vision up to 2020, drafted in line with the Company's Community Investment Policy and in collaboration with municipal authorities, taking account of municipal plans, programs and priorities. Thanks to the funds invested by DPM, local municipalities - partners in the Program - are able to implement projects identified by their mayors and municipal councils as priority ones for the respective village/ settlement. Some projects are co-financed by the municipalities with their own funds. Local companies from the respective area are usually engaged as subcontractors. The management of DPM's subsidiaries, their CSR and Communications Departments, along with the Project, Legal and Environmental Departments are also involved in project implementation. Their respective partners are local municipal authorities and administrations.

DPM has invested over \$14 million in projects and activities in the municipalities of Chelopech, Chavdar, Zlatitsa and Krumovgrad. These funds have been allocated to projects in various fields like infrastructure, social and cultural initiatives.

"It is more than satisfying to see that the funding we provide to the municipalities of Chelopech, Chavdar, Zlatitsa and Krumovgrad is used to improve the well-being and living conditions of local community members, who are local residents, voters in these municipalities and our employees. They create the value, which we give back to the municipalities", says Dr. Iliya Garkov, Executive Director of Dundee Precious Metals Chelopech EAD and Dundee Precious Metals Krumovgrad.

Company employees

Led by the example of their Companies and sharing their corporate values, DPM employees in Bulgaria demonstrate an increasing responsibility for the community and the environment. DPM Chelopech and DPM Krumovgrad employees actively participate in charity and volunteer initiatives and events, organized by Dundee Precious Metals, local municipalities or partner organizations. They also look for causes worthy of support and themselves initiate such charity events among their colleagues, bringing further added value to the daily work in both subsidiaries.

In 2007 charity bazaars to support families in need were organized both in Chelopech and Krumovgrad. DPM staff from different departments actively took part in preparing various

things to sell at the bazaars, such as beautiful handmade items, tasty home-cooked food, cakes and baked goodies, etc. People also brought valuable personal belongings and books to sell, or donated money for the causes they wished to support. Over BGN 10 000 were raised during the Christmas market. The Company then doubled this sum. Raised funds were used to support three families in need. DPM's staff and management demonstrated personal engagement and commitment not only by donating raised funds to these families but also by spending time with them and showing attention to their problems. Company employees also took part in various charity events and initiatives organized by the local municipalities in Chelopech and Krumovgrad, supporting a broad range of community causes like prevention of child abandonment, supporting foster care and ensuring specialized care for disadvantaged children and youths on a national level.

Nurturing a donation culture among Company employees, the staff's personal commitment and wish to offer community support, together with the investments made by the Company itself to enhance municipal projects of social significance, all stand for corporate and personal responsibility to the community and the environment.

The Company also helped with the award for the National Festival for Young Performers of Bulgarian patriotic songs "Patriotism" and gave out Christmas gifts for children from municipal kindergartens. The Donation Agreement, which DPM is a party to, also envisages financial support for the traditional festivals held in the villages of Panagyurishte Municipality.

ASSAREL-MEDET REMAINS THE BIGGEST SPONSOR OF MUNICIPALITY PANAGYURIShte



An annex to the traditional sponsorship agreement between Assarel-Medet JSC and Panagyurishte Municipality was signed on February 21, 2018 as its term was extended to 2021. Thus the company remains the biggest sponsor in the municipality.

The Executive Director of the leader in the Bulgarian ore mining, eng. Delcho Nikolov, and the Municipality Mayor, Nikola Belishki, affixed their signatures under the agreement. By extending the agreement term, the stability of the initiatives which will continue to be supported by Assarel-Medet JSC is ensured.

The support for the local sport continues by helping the Association of Sport Clubs in Panagyurishte continues with the amount of 75 thousand BGN for 2018. The ore mining company continues to be general sponsor of the already traditional World Championship in Fireworks of the name Fire, Color and Fantasy for the cup of Panagyurishte. It gains more popularity every year and attracts thousands of tourists from the entire country. The company provides about 50, 000 BGN for its organization. Traditionally, Assarel-Medet JSC provides the needed funding also for the hosting of the Golden Treasure of Panagyurishte in the treasure hall of the Museum of History which returns home every year.

Since 2012, the company annually provides funds for scholarships of local children of outstanding talents under the Zvezden Class sponsorship initiative. The amount of 11, 000 BGN was provided to render support to local talented children and young people in 2018 as well. The prestigious Drinov Scholarship for the education of a distinguished local student is provided by the company and the award for the Rodolyubie National Festival of Bulgarian Patriotic Song will be provided again. More funds have been envisioned for the traditional holidays of all villages from the municipality of Panagyurishte.

12 SCHOOLS PARTICIPATED IN 140 YEARS OF FREEDOM COMPETITION ORGANIZED BY ELLATZITE-MED AND GEOTECHMIN



12 secondary and vocational schools from Sofia region took part in the competition 140 Years of Freedom. My Homeland Heroes and Historic Events organized by Ellatzite-Med AD and Geotechmin OOD. The students were motivated and inspired by representatives of Tradition Regional Clubs in Etropole and Koprivshitsa who gave public lectures on the Bulgarian national liberation struggles at the beginning of the competition in March 2018. As a result, children from Etropole, Mirkovo, Chavdar, Chelopech, Zlatitsa, Pirdop and Koprivshitsa joined the competition with their original drawings, compositions, essays and presentations based on Bulgaria's liberation from the Ottoman yoke and events related to the national liberation struggles. The author-

itative jury, which was composed of renowned experts in the two categories Drawing and Creative Writing, was amazed by the students' talents and their original creative approach. The winners received 32 first prizes, 32 second prizes and the same number of third prizes, while partner schools received teaching aids and educational materials. The school headmasters expressed their gratitude for the opportunity to take part in the competition. Their message to the students was that there are no wars today, but there are schools and the best modern "weapons" are books and the desire for knowledge. The competition has been held for the fourth consecutive year within the framework of the corporate social responsibility programme Culture and National Identity.

THE SILVER TREASURE OF PANAGYURISHTA RETURNED HOME THANKS TO THE SUPPORT OF ASSAREL-MEDET



The Silver Treasure of Panagyurishte from Mramor mound returned home for the first time after 115 years. This was made possible thanks to the financial support of Assarel-Medet JSC. Conservation and restoration of the exhibited items which have not been shown to the public in their entirety so far was performed with the donat-

ed funds. Thanks to the donator, the National Institute of Archeology at the Bulgarian Academy of Science also published a luxury catalogue in which the finds are presented.

The exhibition of the Silver Treasure was arranged in the treasure hall which also hosts the Golden Treasure at the Museum of History in Panagyurishte. It was officially inaugurated on June 5. The director of the museum Assoc. Prof. Atanas Shopov, PhD briefly told the story of the treasure and thanked Assarel-Medet JSC for their support.

"In our hectic present, the instants when we are touched by something magnificent and unique are quite a rare occurrence, Galya Kostova, Management Trustee of Assarel-Medet JSC and Chairperson of Assarel Foundation said in her welcoming address.



"Right now we are enjoying such a moment and I am pleased that the exquisiteness of the ancient craftsmen, the mystics and enigmas of gods and heroes from the antiquity reach us, the people of Panagyurishte. Only a

glass case separates us from something genuinely fabulous which moves us and fills our hearts with joy. A second treasure discovered in Panagyurishte comes home, but this time it is the Silver Treasure. This is another evidence that our hometown has not only been blessed by God but it is also a favorite of history. There is no other place in Bulgaria in which talent, drama and magnificence of all historic eras meet. Therefore, we, the management team of Assarel-Medet JSC did not hesitate at all whether to support the restoration of the exhibited items from this treasure and make them wide known, Galya Kostova said.

The Silver Treasure of Panagyurishte was discovered in Mramor mould in May 1903 and it encompasses more than 70 exhibits of high artiscit value made of gold, silver, bronze, iron and clay.

The Museum of History in Panagyurishte will host it by the end of 2018

MARITSA EAST'S MINING VETERANS CLUB HAS A TWENTY-YEAR TRACK RECORD OF ENSURING CONTINUITY IN PROFESSIONALISM



The quality of the work bearing the Maritsa East brand, professionalism and continuity have been the hallmarks of Bulgaria's largest open-pit mining company for the past 65 years. The energy independence of any country is guaranteed only when it uses its own energy sources with sound management decisions and high-quality teamwork preserving the experience gained by generations of professionals.

The energy found in nature combined with the energy of the people has, for decades, been proving that Maritsa-East's brand of energy has a past, a present, and a future. As part of its corporate social responsibility commitment, Maritsa-East Mines EAD has been providing the Veteran Miners Club founded on January 10, 1997, housing, financial, and organizational support for two decades. The Club which was founded by a committee of established professionals, former managers and employees of the Company, initially resembled the Council of Elders with the Ministry of Energy which was later disbanded. The idea was for Maritsa East Mines EAD to benefit from the experience and practical knowledge of

its veteran miners and use it to grow. The Club's founding Board of Trustees included Chairperson Mr. Stilian Iliev and vice chairpersons Christo Muhtarov, Boris Gotev, Kattia Vasileva and Dimitar Chepishhev who all dedicated their careers and lives to coal mining. Since then, former CEOs, pit managers and middle managers have coordinated the work of the club and taken part in Elders Councils, symposiums and conferences, and have organized visits to company mining sites. Organizing visits to various energy sites in the country is part of the Club's efforts to preserve the connection with the development of Bulgaria's energy sector.

Maritsa East Mines EAD remains open to the idea of working together with local communities and in addition to the building used by the club as its headquarters in Stara Zagora, two years ago the company gave the Club's more than 200 members the opportunity to use and enjoy its facility in Radnevo. In return they help with and organize various charitable initiatives rising funds and collecting donations for the patients of Bulgaria's largest psychiatric facility, Doctor Georgy Kisiov Hospital in Radnevo.

ASSAREL-MEDET JSC DONATED 520 THOUSAND BGN FOR OVERCOMING THE WATER SUPPLY FAILURE IN THE MUNICIPALITY OF PANAGYURISHTE

"For our company, the support to the home town is a cause and I assure you that we will continue the tradition and while Assarel-Medet JSC exists we will support all significant initiatives of Panagyurishte Municipality",

**Mr. Delcho Nikolov,
Chairperson of
the Management Board and
Executive Director
of Assarel-Medet JSC**



Assarel-Medet JSC donated 520 thousand BGN to Panagyurishte Municipality for infrastructural projects in 2017. The funds were utilized for overcoming the severe water supply crises in the autumn of last year. Under emergency conditions

in the period from September 15 to October 10, the company undertook again a voluntary commitment in order to overcome the water supply crisis in the municipality due to obsolete main pipeline as soon as possible. Thus, Assarel-Medet JSC again showed their social responsibly and they responded to the request of the management of Panagyurishte Municipality to render assistance for the replacement of more than 2 km of the damaged pipeline. The company provided pipes, fastening elements, fittings and inert materials for more than 425 thousand BGN for the emergency repairs of the facility which feeds potable water from the Maritza river. Apart from the materials, the company also helped with its specialists and hired at its expense companies in order to perform building and installation works during the repairs which amount to more than 95 thousand BGN.

THE "RECONSTRUCTION OF GREEN AREAS" COMPETITION ORGANIZED BY DUNDEE PRECIOUS METALS

The competition was organized to give enterprising students from the Sofia University of Forestry who are interested in developing and upgrading their skills and knowledge the chance to draft a project design for the reconstruction of green areas onsite Company premises. The end goal was to create a pleasant recreation area for DPM Chelopech employees and visitors. Over 950 Company employees, as well as external contractor staff engaged onsite, plus Company guests and other visitors, were direct project beneficiaries.

The competition was open to third and fourth year students, or MA students in Landscape Architecture. Project implementation itself took about a year. It began in 2017 when a group of university students visited Chelopech to acquaint themselves with the area and discuss all necessary technical parameters. Applicant proposals were then presented a month later at the University of Forestry, Sofia. A total of 36 students organized in 10 working groups took part in the competition. Their project proposals were evaluated by three lecturers from the Sofia University of Forestry, two representatives of the landscaping company, DPM Chelopech subcontractors and two Company employees. Evaluation criteria featured specific performance requirements, such as improvement of the working environment, prevention of air pollution, ensuring harmony with and upgrade of the surrounding landscape, setting up a recreation zone to be used also after the mine's decommissioning.

The youngest team of third year university students won the competition. Their project came first with its ingenuity, alternative and innovative solutions. Its

implementation was completed by end 2017 in Chelopech. Outdoor areas were significantly upgraded, offering a pleasant working environment for Company employees.



The competition gave students the chance to put to practice the theoretical skills and knowledge, acquired during their studies, as well as an actual opportunity to see their professional ideas come to life. The huge interest and commitment shown by both University students and their teachers, as well as DPM's Environment Department employees, came to show that co-operation between business entities and higher education institutions can be beneficial for both sides.

The project provoked tremendous interest among students and surpassed our expectations as to the scale of initiated working groups and number of participants. Students demonstrated enthusiasm and interest to collaborate with our Company in the future as well.

The funds invested in the project totaled BGN 81 358.

THE KIDS OF GEOTECHMIN GROUP'S EMPLOYEES HAD FUN ON THE "MACHINE ISLAND"

The kids of GEOTECHMIN group's employees became adventurers on the 'Machine Island'—a celebration of Children's Day, June 1, organised by Geotrading AD. This was a prize for all the kids who took part in the creative competition. Once again this year, with their drawings, machine models, poems, stories and songs, the children showed their enormous talent and boundless imagination on two topics—'If I Were a Wizard' and 'Machines of the Future'.

To explore the 'Machine Island', the kids were divided into three teams they themselves named: 'GeoTigers', 'The Awesome Machines' and 'The Blues'. For the youngest kids, it was all fun on the trampoline and with the games in the playground made especially for them. The teams had to go through four areas of fun and learning—'Safe at Work', 'Machine Shop', 'Art Helmets' and 'Transformers Disco'. There was fun and dancing at each area and the children learned new things about the machines and work safety rules. The kids had their 'passports' stamped at each area and, with a map of the island, the ultimate goal of each team was to find the treasure chest full of candy. The treasure was well hidden inside the LiuGong 856 front loader, but the children did great and found it like real explorers. The kids were very excited about all the vehicles at Geotrading AD's ProAuto service centre in Sofia. Before the most anticipated part of the celebration—the award ceremony for the winners of the competition—exactly at 12 p.m., the children and their parents stood for a minute of silence to honour the Botev Day and those fallen for the liberation of Bulgaria.



The kids could hardly wait to hear the names of the winners. They were personally chosen by the executive director of Geotrading AD, Mr Ivan Vutov. Boris Boykov won first place in the youngest age group, 0 to 5 years. Zornitsa Martinova took second and Zlatina Yordanova—third place. Todor Alexandrov received a special prize. In the next age group, 6 to 9, Nikol Spasova won first place, Vasil Simeonov ranked second, and Kristian Mishev—third. Two special prizes were awarded in this category—to Irena Penkova for her original song 'If I Were a Wizard' and to Maxim Tolev for his project. Among the oldest kids, 10 to 12, Nikol Gancheva took home first prize, Alexander Gordeev ranked second, followed by Denislav Kolev. The special prize here went to Alexander-Peter Kirilov. All children received special presents from Geotrading AD for their participation in the competition.

GEOSTROY'S KIDS CELEBRATE CHILDREN'S DAY



On 3 June 2018, Geostroy AD organized a children's party for their employees' kids in Topolnitsa Archaeological Park situated in St. Petka locality near the village of Chavdar. The event hosted nearly 250 participants including 90 children from Sofia, Etropole and Srednogorie region for whom the company provided free transport.

A team of professional animators took care of the guests' wonderful mood by performing a kids' disco party, plenty of surprises, fun games and entertainments for both children and adults. The little children were able to paint on a huge white canvas entitled Geostroy's Kids Are Painting depicting their brightly colored dreams, smiles and sweet little handprints.

At the end of the party, all participants received gifts from the organizers – backpacks filled with treats and surprises. The 'Grand Prize' for all children was their free access to the Amusement Complex – The Rope Garden, the climbing walls and the newest facility in the complex – The RopeLand.

The guests went home laughing and smiling, tired of delightful emotions and filled with gratitude, making new friends and promising to come back again to the wonderful complex.

ZLATNA PANEGA CEMENT WITH A CAUSE FOR EQUAL ACCESS TO QUALITY EDUCATION



From 2013, Zlatna Panega Cement (TITAN Bulgaria) is a partner of the “Together at School” organization in the cause of ensuring equal access to quality education for each child. The company supports the organization materially and by actively involving its team in voluntary educational initiatives of teachers and schools in the Lovech region.

Thanks to the company’s support since 2013, a total of 19 motivated young people who have been carefully selected by “Together at School” have been working as teachers and have contributed to the development of over 500 pupils from socially disadvantaged families in five primary schools in Lovech region. Within the two-year “Together at School” program, teachers are directing their efforts to improve functional literacy, entrepreneurial skills and the ability of students to communicate. The initiatives of those who remain active advocates of education in the region and after the end of the program continue to be monitored and supported by TITAN Bulgaria.

The experience gained has enabled TITAN Bulgaria to share good practice and expand its support for education at national level. In 2017, TITAN Bulgaria joined the Education Bulgaria 2030 Association, thus fulfilling the commitment of the TITAN Group to the European Youth Pact, whose goal is to improve the opportunities for social inclusion and professional development of European youth. The association brings together more

than 40 organizations from the public, private and civic sectors around a common vision for achieving a qualitative change in Bulgarian education for which they work through monitoring, information and advocacy.



In the beginning of 2018, in support of academic education, Zlatna Panega Cement participated with two of its best practices: Business Strategy and Global Objectives of the UN and Non-Financial Reporting, in the new book “Corporate Sustainability and Responsibility” written by Dr. Marina Stefanova. This is the first Bulgarian corporate sustainability and responsibility textbook to summarize theory, expertise and good corporate practices in thirty different directions of strategic business management, oriented towards sustainable growth and leadership of companies in society.



BCMG - EVENTS AND INITIATIVES

ABOUT THE BCMG

The Bulgarian Chamber of Mining and Geology is a nationally representative organization, established in 1991, not-for-profit organization of the businesses in the extraction of underground resources and related activities. The Chamber is a member of the Bulgarian Industrial Association (BIA), of the Confederation of the Employers and the Industrialists in Bulgaria (CEIB), the European Association of Mining Industries, Metal Ores and Industrial Materials (EUROMINES), and of the European Association for Coal and Lignite (EURACOAL).

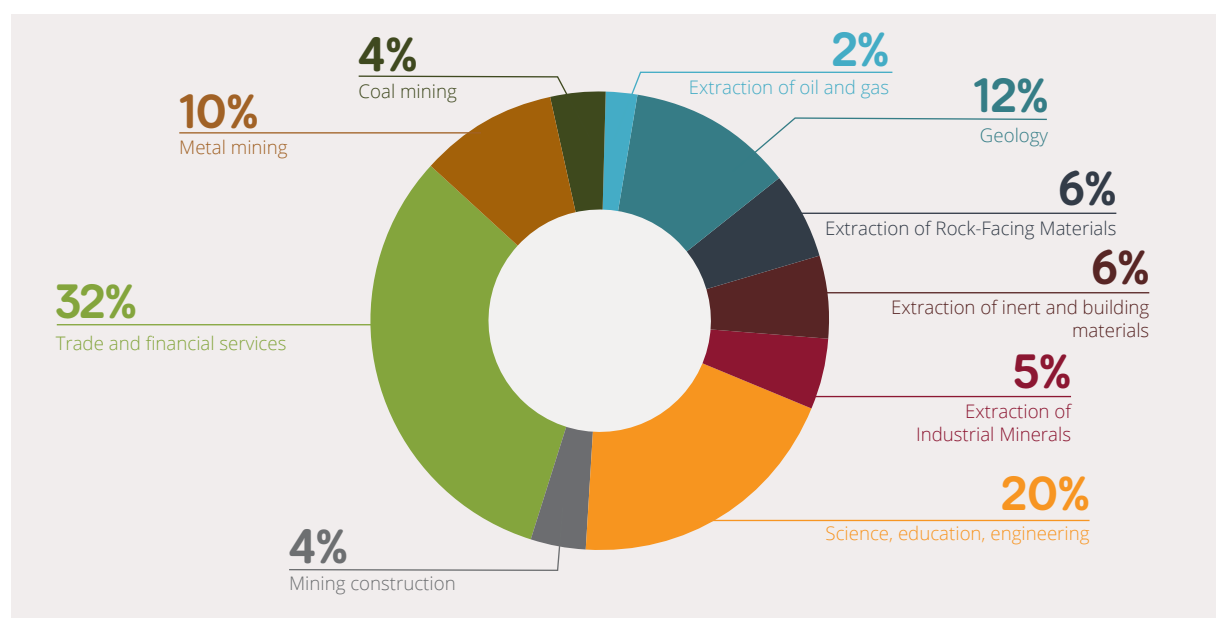
The Bulgarian Chamber of Mining and Geology supports the UN Global Contract and it is an active member of the Bulgarian network of the UN GC. Currently the members of the organization are around 110 entities from eight industries:

Extraction of Metal Ores, Extraction of Non-Metal Ores - Industrial Materials, Extraction of Oil and Natural Gas, Coal Mining, Extraction of Inert and Construction Materials, Extraction of Rock-lining Materials, Geology, Activities Servicing the sector - science, engineering, mining, construction, trade, etc.

The companies members of BCMG ensure a high representation of the industry - between 50 and 100% of all the companies in Bulgaria, operating in the mentioned spheres of industry. In the last year BCMG admitted 7 new members in the organization: Kaltsit EOOD, Galdiv EOOD, Euromax Services EOOD, Aqua Terra Consult EOOD, Vortex Trade OOD, Total Bulgaria EOOD and Bulgarian Geoinformation Company EOOD.

Members of the BCMG

BMGK members provide high sector representativeness - between 50% and 100% of all companies operating in the mining industry sub-sectors.



EVENTS AND INITIATIVES

In partnership with the Ministry of Energy and Euromin, the Bulgarian Chamber of Mining and Geology organized on 18 May the fifth and most significant edition of the European Mining Business Forum. The event was conducted under the auspices of the Minister of Energy Mrs. Temenuzhka Petkova and it was included in the calendar of the Bulgarian Presidency of the Council of the European Union. In the context of the constantly growing need of the European Union for resource independence, the forum offered the highest platform for discussing the future of mining in Europe.

Some of the most important topics concerning mining and geology in EU were included in the agenda discussed at the Forum, such as – legislation, investment opportunities, pros-



pects in the energy sector. Special attention was paid to the intelligent mining industry developing at steadily growing rates, where the application of new digital technologies is widely

used. An important point for the development of mining industry 4.0 are the innovations that are closely connected with the quality of education. Europe is focusing on raw materials, their extraction and processing is becoming a key element in its strategy for development till 2050. 'The application of high technologies, the binding of industry with education, the activities ensuring the actual functioning of the circular economy, the cooperation between different industries are among the steps in the Action plan' stated Rodrigo Chanes – a policy expert of the European Commission .

The discussion panels highlighted the policies and legislative initiatives at the national and European level, the future of this basic sector for the industry and economy of Europe. The Fo-



rum succeeded in engaging the participants and representatives of different stakeholders in an open dialogue on topical issues which concerned not only the mining companies, the local communities, but the whole EU community.

The Bulgarian mining industry has something to boast of not only locally, but globally as well, as became clear from the specially organized live video connection with Chelopech mines. Thanks to the existing over 90% wi-fi covering in the underground mine, the activities there become visible and the data transfer in real time is possible.



'The industry is the backbone of the economy, it creates the products that we need in our every-day live, it provides the well-paid jobs. This industry must be sustainable and competitive – something that we sometimes forget.' – said Mr. Mark Rachovides, Chairman of Euromin in his opening address.

Bulgaria is still among the leading countries in the European minerals industry, including in ore mining output. With a produced output for BGN 2,7 billion in 2016, the industry is steadily contributing to GDP, forming almost 5% of it. In view of this, our country provides a favorable environment for sharing good practices and long-standing experience in mining.

Over 350 people participated at the EMBF – representatives of businesses, of the responsible institutions at European and national level, diplomatic representatives from 21 states, experts and researchers, students.

Co-organizers and partners of the Forum were the Science and Technology Union of Mining, Geology and Metallurgy, 'St. Ivan Rilski' Mining and Geology University, the Bulgarian Industrial Association (BIA), the Confederation of the Employers and the Industrialists in Bulgaria (CEIB) and Bulgarian network of the UN GC. Golden sponsors of the event were Asarel-Medet AD, Geotradig AD, Dundee Precious Metals EAD and Minstroy Holding AD.



SEMINAR OF THE EUROPEAN ORGANIZATION EUMICON

On May 17, 2018, the BCMG hosted a workshop of the European organization EUMICON - EUMICON (European Mineral Resources Confederation) is a joint platform of stakeholders from public authorities, the raw materials industry and its entire value chain as well as science. Its mandate is to foster a multi-stakeholder dialogue on raw materials and to provide sustainable solutions. In collaboration with relevant stakeholders across Europe, we want to produce a manifesto addressing the path to secure value creation based on raw materials and made in Europe.

The purpose of the meeting in Sofia was to generate ideas and solutions related to the provision of access and fair trade in raw materials for industry under the motto "Made in Europe".



Technological changes that transform the value chain and the challenges in the know-how require a European cross-sectoral approach. Considering the behaviour of resource-rich regions, Europe must prepare for change in the world market of goods and to seek solutions that ensure its lasting prosperity and order. There is a pressing need for a long-term strategy that provides stability and order in the market.

During the meeting in Sofia there were discussions in several areas of action, for which the participants summed up different



ideas in the form of design thinking with practical orientation:

- Re-definition of fair trade
- Competition supporting legislation
- Integrated long-term policy making
- Industry 4.0
- Industry re-positioning
- A holistic approach to sustainability

The workshop brought together EUMICON, management of Euromin, BCMG, representatives of the Ministry of Energy, Scientific and Technical Union of Mining, Geology and Metallurgy, Bulgarian Association of Producers of aggregates, mining unions, industries along the value chain, representatives of various European organizations related to the mineral-raw materials industry, as well as the vice-president of the World Mining Congress.

In addition to the meeting in Sofia, the initiative includes workshops in Vienna, Brussels and Berlin as well as an International Conference in cooperation with the Austrian EU Presidency in September 2018 and will end with a round table in the European Parliament in Brussels in November 2018.

MINER'S DAY

The National celebration of the Miner's Day, which is organized every year by the Bulgarian Chamber of Mining and Geology, together with the Scientific and Technical Union of Mining, Geology and Metallurgy and the Miners' federations – Federation of the Independent Unions of Miners and the Confederation of Labor Podkrepa, was successfully organized in 2017.

Official guests for the Day of Miners were the Minister of Labor and Social Policy Biser Petkov, Galab Donev, Secretary of the President of Republic of Bulgaria, in charge of Social Policy and Healthcare, the Deputy-ministers of energy Zhecho Stankov and Krassimir Parvanov, the Deputy Minister of Economy Lachezar Borisov, the Chairman of the Board of Directors of the University of Mining and Geology Prof. Lyuben Totev, the





President of the Bulgarian Academy of Science Ac. Yulian Revalska, the President of CITUB Plamen Dimitrov, the President of the Bulgarian Chamber of Commerce and Industry Tsvetan Simeonov, the Vice President of the Confederation of Employers and industrialists in Bulgaria Boryana Manolova, the Vice President of the Bulgarian Economic Association Kamen Kolev, the leaders of all similar professional organizations, as well as a number of representatives of the state administration, science, educational institutions, the non-government sector, the mining industry, veterans and students. Guests of the celebra-

tion were the ambassadors of Ukraine, Belarus and Romania.

An interesting accent during this year's event was a unique real-time connection with miners from Chelopech Mine, who greeted their colleagues with a live performance of the bagpipe ensemble 'Petko Voyvoda' 600 meters underground. This is how the sector showed the high level of development of sophisticated technologies in the mining industry in Bulgaria, commensurate with the highest global standards.

During the celebration the Bulgarian Chamber of Mining and Geology handed its annual awards to companies from the sector. Prizes were awarded for the highest annual results achieved, for innovations, safety and health at the work place, environment protection actions and for the most socially responsible companies from the sector. Prizes for contribution to the Bulgarian mining and raw material industry were awarded to companies active members of BCMG, with round anniversaries, as well as to managers of companies from the sector.

Following the tradition, the best student of 'Saint Ivan Rilski' University of Mining and Geology was awarded, receiving a scholarship from Foundation Asarel, established in the name of Prof. Lachezar Tsotsorkov. The media which covered the industry most actively and objectively in 2016 was also awarded a prize.

EUROPEAN MINERALS DAY



Over
1000

persons visited the museum and had the opportunity to learn about minerals, which are in the basis of our existence.

On 23-24 September 2017 'Muzeiko' Children's Science Discovery Center celebrated the Pan-European Initiative Days of Minerals. In the year of the 10th anniversary from the beginning of the campaign for raising the awareness for the benefits of the mining and processing industry, companies from the industry in Bulgaria and members of BCMG ensured interactive activities for the visitors of Muzeiko.

Active participation with different initiatives in this event showed Kaolin EAD, Dundee Precious Metals EAD, Asarel-Medet AD and Elatsite-Med AD. Thematic rooms and stands with various activities for children were organized to show them the importance and application of minerals in our everyday lives, their extraction and processing. The visitors could see the interactive installation of a mining workmanship on the territory of the museum.

ECONOMY MISSIONS



BCMG and the Austrian Embassy organized on 17 and 18 October 2017 an Economy mission Mining Industry and Metallurgy. Representatives of the largest companies in the mining industry and metallurgy in Bulgaria met with the Austrian companies AUROAustria, BBG Baugeräte, FLS-midth Krebs, HellermannTyton, IMR metal powder technology, Rockmore, SCHIEBEL Antriebstechnik, Sempertrans, VA Intertrading. Members of the delegation were also representatives of the University of Mining and Geology in Leoben, Austria, who had the opportunity to share ideas with Prof. Lyuben Totec, Rector of 'Ivan Rilski' University of Mining and Geology.

The Program of the mission included a visit of the representatives of the Austrian companies to Dundee Precious Metals – Chelopech, where they were acquainted with the development of the company in the recent years, as well as with the project for wi-fi coverage in the mine. All of them were impressed with the possibility to receive in real time information about the operation of the machines, as well as of the health of the workers.

The two days were also used to discuss possibilities for cooperation and joint projects between the Bulgarian and Austrian companies. All participants were highly satisfied with the organization, mostly with the meetings and comprehensive discussions held with the experts from the sector.

The 15 of March, 2018 was a day, in which the UK Embassy, in partnership with the Bulgarian Chamber of Mining and Geology and the Ministry of Energy opened for the second time the Mining Trade Mission in Sofia. The aim of the event was to present companies from the United Kingdom, providing services in the area of mining, as well as the Bulgarian extraction and processing industry – one of the prospective sectors. The meetings were a platform for business and discussion on the existing and applicable services in the area of environment, mining design, geological exploration activities, social risk management, etc.

The presented data have shown clearly that the industries in Europe using mineral raw materials create a gross added val-

ue of EURO 1400 billion per year, and the people employed in these industries are over 30 million. Almost 20 English mining companies were represented at the event by 30 participants from Great Britain. Among the Bulgarian companies attending the event were Minstroy Holding AD, Geotechmin OOD, Elatsite-Med AD, Dundee Precious Metals and Aurubis Bulgaria, whose representatives made short presentations and answered to questions raised by the guests. The law company Delchev & Partners presented the legislative initiatives in the sector.



During the second day of the Mission, the representatives of the English companies had the opportunity to visit Asarel Medet AD and get acquainted directly with the achievements of the Bulgarian mining industry. During their tour the British entrepreneurs were acquainted with the management of the technological processes at the Dispatcher point of Asarel Mine, after which they examined the most modern installation in Europe for the extraction and electrolysis of cathode copper from mining waters. The visitors stated that they hoped that this visit would give a start to new partnerships.

THE ANNUAL MEETING OF THE MEMBERS OF BCMG



The annual General Meeting of the members of BCMG was successfully held for a fifth year now. The SPA Complex Borovets Hills in Borovets Resort was chosen again as a venue close to the capital city and offering convenience to the participants. The meeting was attended by 78 participants, of them 70% being representatives of the members of BCMG and 30% - guests, representatives of logistics companies.

The format of the meeting consisted of three parts – presentation of planned activities of BCMG for 2018, discussions with the members of the work of the Chamber and problems of the companies, together with company presentations. Among the main projects for 2018 BCMG placed the European Mining Business Forum, the development of Mining and Geology Magazine, the work on the Standard for sustainable development of the mining and raw materi-

al industry, the project Photographic Exhibition 2.0 and the legislative initiatives.

With the aim of encouraging the communication among the members, a professional moderator was hired who held ice-breaking exercises with the participants and organized group discussions on different priority themes proposed by the members. The aim was to hear the ideas of the companies about upcoming actions of the organization and proposals for the direction of work in the next year.

The logistics companies had the opportunity to acquaint the participants with their activities through presentations included in the agenda and advertising stands. The event ended with a common dinner for all participants and a show presented by BG Duet Group.

TRAINING – COURSE IN GEOMETALLURGY

BCMG organized in 2017 a training course 'Introduction to Geometallurgy', with lecturer from Amec Foster Wheeler – an international company working in the area of energy and resources.

The course was targeted to geologists, mining engineers, engineers-technologists, as well as facilities and project managers, wishing to overcome the boundaries between different specialties.

The objective of the course was to explain how the profitabil-

ity of projects could be placed in the core of every geometallurgical program. The course equipped the practitioners with tools for implementation of significant geometallurgical programs. Part of the program should also include a seminar for sharing the good and bad experience, in order to illustrate the geometallurgical program in action and the compelling need to have such a program.

20 experts from the mining companies attended the course – all the companies being members of BCMG. The participants gave very positive evaluation of the course.

QUALITY STANDARDS OF BCMG



The procedure for certification of BCMG under ISO 9001:2015 was successfully completed in November 2017. With this the Chamber demonstrated its capacity to deliver services that satisfied the members and were

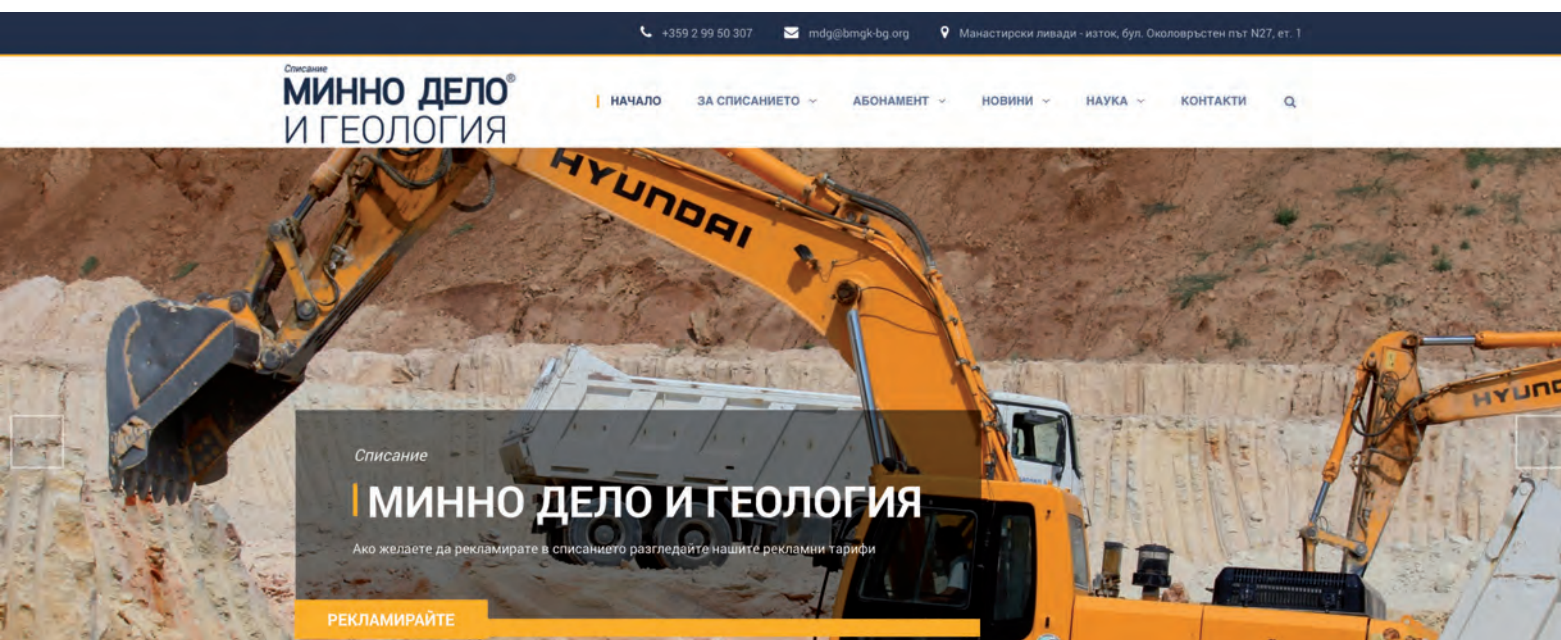
in compliance with all statutory requirements. It will be constantly working for developing and improving its management activities and work process, by ensuring possibilities for development and implementation of new policies and objectives.

The scope of the certificate includes: Assistance, representation and protection of the interests of the members of BCMG; Assistance for attraction of foreign investors to the sector;

- Project and program development and support for achieving high proficiency and reputation of the managerial potential of the members of BCMG;
- Development and implementation of a sustainable development standard for the materials industry.

The certificate was officially handed to the Chairman of BCMG Prof. Dr.Sc. Eng. Nikolay Valkanov by the Manager of TUV RHEINLAND-BULGARIA Ltd. at the Fifth Annual Meeting of the members of BCMG, held in December 2017 in Borovets.

MINING AND GEOLOGY MAGAZINE



In 2017, the Bulgarian Chamber of Mining and Geology continued working on the development of the Mining and Geology Magazine, the publication of which was restored in August 2016.

Based on a decision of its Management Board, the Chamber provided logistic support to the magazine by ensuring a work place and technical equipment in the office of BCMG. A full-time position for editor of the magazine was created.

With the aim of arousing interest in the magazine and to promote it as the main media in the sector, BCMG created an Internet site

of Mining and Geology <http://mdg-magazine.bg/>, with the main idea to publish at least three latest news from the sector every day, upcoming scientific and business events and to present in summary all scientific articles published in the magazine.

It is planned in 2018 to create electronic archives of all scientific materials published in the magazine from its start till now. Further on an electronic archive of scanned scientific articles shall be created, with a paid access to it. The objective being to create a rich and modern data base of scientific publications, concerning the sector. The website also allows for an electronic subscription.



INDUSTRY AWARDS

MINSTROY HOLDINGS WINS AN AWARD FOR OVERALL CONTRIBUTION AND SUSTAINABLE DEVELOPMENT



At a prestigious and glamorous ceremony at the Fourth Annual Gala of the Confederation of the Employers and Industrialists in Bulgaria (KRIB) on June 5, 2018 the Confederation presented the most coveted prizes in the business (KRIB – Quality, Growth and Bulgarian Innovations).

The special prize by the Chairman of KRIB for overall contribution to the development of Bulgaria's economy went to Minstroy Holding AD. The trophy was presented by KRIB's Chairman, Mr. Kiril Domuschiev and was accepted by Professor Doctor of the Technological Sciences Nikolay Valkanov, Eng.

ASAREL MEDET WAS NAMED INNOVATIVE ENTERPRISE OF THE YEAR



Asarel Medet AD was named Innovative Enterprise of the Year in the Green Innovation Category. The prize was presented to the Company's Chairman of the Board and Executive Director, Mr. Delcho Nikolov, Eng., by Ognian Zlatev, Head of the Representation of the

European Commission in Bulgaria at an official ceremony held on December, 15 at Sofia Hotel Balkan. The winners were congratulated by the President of the Republic of Bulgaria, Mr. Rumen Radev and by the Deputy Prime Minister Tomislav Donchev.

SOFIA UNIVERSITY OF MINING AND GEOLOGY AWARDED FOR ITS PROFESSIONAL DIVISION OF PROSPECTING, MINING, AND PROCESSING OF MINERAL RESOURCES



On January 12, 2018 Ivan Rilski Sofia University of Mining and Geology was honored as one of Bulgaria's top universities and received an award for its Professional Division of Prospecting, Mining, and Processing of Mineral Resources.

The award was presented at a special ceremony held at the Military Club in Sofia attended by members of the academic elite, ministers, mayors, and business leaders. The universities earning the most points by the Education Rating System in 2017 were awarded commemorative plaques for their best professional education divisions.

As a representative of Dundee Precious Metals, a company with long-standing traditions in supporting quality education at regional and national level, Dr. Ilia Grakov, Eng., had the privilege of presenting the prize to Professor Doctor

Lyuben Totev, Eng., Chancellor of Ivan Rilski University of Geology and Mining and Chairman of the Council of University Chancellors of Bulgaria.



ZLATNA PANEGA CEMENT – A COMPANY GIVING WINGS TO EDUCATION IN BULGARIA

Zlatna Panega Cement AD (TITAN Bulgaria) was recognized as a Company Giving Wings to Education in Bulgaria. The competition for business organizations with significant contributions to education in Bulgaria took place in May as part of the Campaign entitled Days of Integration 2018: Give Me Education, an initiative of the Center for Integrational Education. The competition's main objective was to encourage and promote the best corporate educational practices in Bulgaria.

The company was nominated for the competition by the Together In Class Organization whose partner in providing





equal access to education for every child in Bulgaria since 2013 has been none other than Zlatna Panega Cement AD.

The company provides financial support to the organization and its employees participate actively as volunteers in various educational initiatives by school teachers and schools in Lovech Province.

Thanks to this support, since 2013 a total of 19 young people hand-picked by Together in Class have been working as teachers contributing to the personal development of over 500 students from socially underprivileged families in five primary schools in Lovech Province.

ELATSITE-MED WINS A SIGNIFICANT AWARD



For the first time in Europe, Ellatzite-Med has received a customer appreciation award for the implementation of the innovative production system CYCLONEtrac PST. The award was personally handed by the Vice President of CiDRA Minerals Processing, USA, the company patented the system.

The upgrading of the Grinding Information Management System with the CYCLONEtrac PST Particle Size Distribution Monitoring System, has led to a qualitatively new level of control, management and optimization of this track from the technological process. This project has contributed for improving the company's energy efficiency, quantitative indicators and increasing the extraction rate of ore useful components.



ANNIVERSARIES

65 YEARS...

MINSTROY HOLDING



Sixty five years from the establishment of the Company Minstroy have elapsed in 2017. The Company was established in 1952 with a Council of Ministers Decree No П-37 as a specialized mining construction organization for quick construction and putting into operation of the raw materials resources and energy capacities in the country.

In its 65-years history the Company has built all mining and energy enterprises in the country: over 150 mines; more than 20 factories for preparation, processing and enrichment of extracted minerals; over 250 facilities for mining of coal; the highway tunnels Trayanovi Vrata and Vitinya, the underground infrastructure of residential complexes Obe-lya and Druzhba in Sofia; the main passable heat transfer

collectors in Sofia; Burgas-Sofia product pipeline; 14 oil stations; the gas pipeline Druzhba on the Bulgarian territory and many others.

Currently the Holding holds a total of 9 concessions for operation of metal minerals – lead and zinc ores, of which seven fields in the Rhodope ore basin in Bulgaria in the structure of Gorubso-Zlatograd and Gorubso-Madan. Two of the fields of lead and zinc are located in Macedonia: Zletovo (Municipality of Probishtib) and Toranitsa (Municipality of Kriva Palanka).

The Company owns four enrichment factories and four tailing ponds in Bulgaria and Macedonia. It owns a machine-repair enterprise Remotex and Hydro Power plant Zhrebchevo. The company has financed, built and managed own capacities for generation of electric power from renewable energy sources, mainly photovoltaic systems and small hydro-power systems for over 50 MW.

Minstroy Holding has made a big contribution to the construction of buildings in closed compounds in the most popular Bulgarian resorts. It owns hotels in Borovets and Devin.

Minstroy Holding AD has the necessary permits to work on NATO and EU projects, where access to classified information is required. The staff working in the system of the Company is 3 500 people.

MARITSA-IZTOK MINES

“Mines Maritsa-East EAD is one of the main pillars of the Bulgarian energy sector, it is the enterprise standing in the foundation of the sector and guaranteeing the energy security of the country”, said Mrs. Temenuzhka Petkova, Minister of Energy.

The largest Bulgarian coal mining company Mines Maritsa-East EAD has solemnly celebrated its 65th anniversary on 29 September 2017.

For 65 years now the history of Mines Maritsa-East has been the history of the current open pit mining in Bulgaria. The largest Bulgarian coal mining enterprise is working for the energy independence and security, for the development of the national economy.

From the beginning of the operation of Mines Maritsa-East EAD till August 2017 inclusive, the company has mined 1 145 243 598 tons of coal and uncovered, transported and piled 4 577 882 251 cub.m. of land. The 65-years of existence of Mines Maritsa-East have been a succession of events of intransient importance, interwoven with the generations of miners, combined with professionalism, responsibility, hard work, good team work and achieved results. The long history of the Company started on 16 June 1951 when the Council of Ministers issued Decree № 652 to establish a mining enterprise in Maritsa East. The first sod of Troyanovo-1 Mine took place on 3 March 1952 in the village of Troyanovo. The first billion tons of coal was extracted in the beginning of August 2012. Mines Maritsa-East is a responsible employer of more than 7 200 people and a stable partner – both on municipal and regional level. The concession area of the



Company covers the territory of three municipalities – Radnevo, Galabovo and Nova Zagora. According to the Law on Underground Resources of 2011, 50% of the funds go to the budgets of the municipalities in the concession area.

The activity of Mines Maritsa-East EAD has been going on for 65 years now and it is of vital importance for both the national energy balance, and the economic prosperity of the region and the country.

The energy from nature in alliance with the energy and skills of the people have been proving for decades that Maritsa-East means energy with a past, present and future capacity.

MANAGEMENT BOARD

CHAIRMAN



Prof. Dr.Sc. (Eng.) Nikolay Valkanov
Minstroy Holding AD

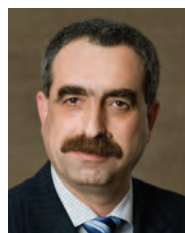
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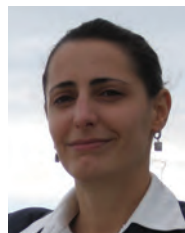
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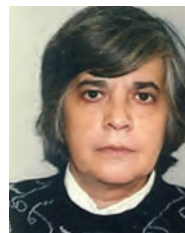
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