



Almalyk Mining and Metallurgical Complex

«APPROVED»

at the Meeting of the Supervisory Board
JSC "Almalyk MMC"
Minutes No. 9 (167)
dated November 30, 2017

"APPROVED BY"

Resolution of the sole shareholder of
all ordinary shares
JSC "Almalyk MMC"
Minutes No _____
dated ____ _____ 2017

BUSINESS PLAN

“Almalyk Mining and Metallurgical Complex”

Joint Stock Company

For 2018

Almalyk city



Almalı Mining and Metallurgical Complex

Authorizations:

(to the Business Plan)

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Almalıy Mining and Metallurgical Complex

1. INFORMATION ABOUT JSC “ALMALYK MMC”

JSC Almalıy MMC is one of the largest mining and processing enterprises in the Central Asian region, it occupies a corresponding place and role in the economy of Uzbekistan.



Joint-stock company "Almalıy Mining and Metallurgical Complex" hereinafter referred to as the "Company" is a legal entity and operates on the basis of the current legislation of the Republic of Uzbekistan and the Articles of Association.

The company has a Representative Office in the city of Tashkent (15, Babur Str.)

The corporate governance structure of JSC Almalıy MMC includes a General Meeting of Shareholders, Audit Committee which monitors the financial and economic activities of the Company, Supervisory Board, which provides overall management of the company, Management Board - which is a collective executive body.

Current activities of the Joint-Stock Company are managed collectively by the Executive Body (Management Board), headed by the Chairman of the Company's Board.

Regarding issues on production, scientific and technological development, economic and commercial activities, capital construction, human resources and social areas, as well as all structural units are focused on the functional responsibilities of the Chairman of the Board, First Deputy Chairman of the Board - Chief Engineer and Deputy Chairmen by areas of activity.

The management and control of the structural units' activities of the plant is carried out through the Company's executive office.

In accordance with No.PP-3280 Resolution of the President of the Republic of Uzbekistan dated September 15, 2017 “Regarding measures to further improve the management system of JSC Almalıy MMC”, the organizational structure of JSC Almalıy MMC was approved as well as the structure of its executive office (Table No. 1 and No.1a).

2. DETAILS AND STATUS OF JSC “ALMALYK MMC”

The name of the Company in Uzbek language: "Olmaliq kon - metallurgiya kombinati" Aksiyadorlik Jamiyati ("Olmaliq KMK" AJ).

In Russian: Акционерное общество «Алmalıкский горно-металлургический комбинат» (АО «Алmalıкский ГМК»).

Postal address and location of the Company: 110100, Republic of Uzbekistan, Tashkent region, Almalıy, 53, Amir Temur Street.

The plant includes three open pit mines, an underground mine of complex ores, three underground mines for the extraction of gold ore, five processing plants, two metallurgical plants with sulfuric acid production, a research and production association for the production of rare metals and hard alloys, and a quarry with a mine limestone and loess, Angren Pipe Plant, Mechanical Repair Plant, Lime Plant, Department of Industrial Railway Transport, Department of Automobile Transport with six motor depots, Department of production of consumer goods, as well as more than twenty subsidiary workshops and laboratories.

The production structure of Almalıy MMC is oriented in the following areas: copper-molybdenum, lead-zinc, gold-mining, cement production, production of rare metals and hard alloys.



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Copper production includes the mining divisions —“Kalmakir” Mining Department, two Copper Processing Plants (CPP and CPP-2) and a Copper Smelting Plant (CSP).

Lead-zinc production includes Mining Department “Handiz” and Zinc Plant (ZP).

Gold mining production includes the Angren Mining Department (AMD), the Chadak Mining Department (CMD) and the “Kauldy” mine.

Delivery of mined ores from the mines to the processing plants is performed by the transport departments: Railway Transport Department and Automobile Transport Department.

For the construction of underground mines there is a Mine Construction Department (MCA).

To ensure the technological chain from the extraction of rare metals and to their deep processing and the production of rare metals and hard alloys, Scientific and Production Association for the production of rare metals and hard alloys (SPA) was established as part of Almaryk MMC.

In order to manufacture products based on deep processing of non-ferrous metals, new production facilities have been created - the Angren Pipe Plant (APP), the copper wire production sector, and the zinc oxide production sector.

To support technological processes, auxiliary workshops were established, such as: a Lime Plant, a Central Mechanical Repair Plant (CMRP), a Specialized Repair Operations Department (SROD), a Central Heating Plant (CHP), an Industrial Water Supply Workshop (IWSW), Electrical Network Department (END) Explosive Materials Plant, “Olmalikmetallurgkurilish” Trust, laboratories and others.

A Department for production of consumer goods is operating to carry out the program for the production of consumer goods and agricultural products.

JSC Almaryk MMC is a manufacturer of the following products:

- refined copper (cathodes);
- copper wire rod;
- copper wire (wire);
- round copper wires with enamel insulation;
- copper pipes of various diameters;
- copper sulphate;
- pig metal zinc;
- zinc oxide;
- zinc vitriol;
- Zamak alloy;
- metallic cadmium;
- technical selenium;
- technical tellurium;
- ammonium rhenium acid (rhenium);
- portland cement, portland white cement, sulphate-resistant portland cement;
- metallic molybdenum;
- molybdenum trioxide (molybdenum anhydride);
- metal tungsten;
- tungsten trioxide (tungsten anhydride);
- hard metal products;
- refractory chamotte products;
- nitrogen-calcium fertilizers;
- sulphuric acid;

construction products (reinforced concrete elements for canals and tunnels, concrete mixtures of heavy concrete, road asphalt concrete mixtures).



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Copper products (50.1%), refined gold and silver (28.8%), metal zinc (5.9%), cement (4.5%) occupy a significant share in the products sold.







Copper cathode 	Copper wire rod 	Copper wire 
Wire with enamel 	Copper pipes 	Copper sulfate 
Zinc metal 	Zinc oxide 	Zamak alloy 
Metal cadmium 	Technical selenium 	Technical tellurium 
Ammonium rhenium acid 	Portland cement white 	Construction portland cement 
Molybdenum metal 	Molybdenum trioxide 	Metallic tungsten 



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Tungsten trioxide	Hard metal products	Refractory products
		
Nitrogen-calcium fertilizer	Sulphuric acid	
		

MMC produces the following consumer goods:
 Wearing apparel, polyethylene products (film, bags, sleeves, etc.);
 plastic windows and double glazing;
 marble tiles;
 office furniture and window blocks;
 meat and dairy products, agricultural products and bakery products, live pond fish (seasonal fish).

		
Furniture products	Meat products	Milk products
		



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Agricultural products	Bakery products	Live fish
		

“Almaryk MMC” JSC, as an enterprise of the metallurgical industry, is distinguished by high capital intensity, high level of mechanization of production processes and has its own specifics. Therefore, in its activities, it pays special attention to the rational use of energy resources, level of cooperation, sales market for finished products, geography of raw material supplies, etc.

The Complex sells its products at freely negotiated, declared prices and commodity exchange prices.

JSC Almaryk MMC is a co-founder of Joint Ventures, such as:

“Know-How in Production Process” Joint Venture is the production of fine copper sulfate with anti-caking based on in-depth processing of copper sulfate for the needs of agriculture, chemical industry, animal husbandry, poultry farming and technical needs.

The authorized Fund of the Joint Venture is \$ 1.9 million.

The founders of the Joint Venture are: from the foreign side: TANOTRADE AG (Switzerland) - 60%., from the Uzbek side: Almaryk MMC - 40%.

The forecast for provision of products (raw materials) of JV LLC KNOW-HOW IN PRODUCTION PROCESS for 2018 shall be as follows:

Description	Unit of measure	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Total need
Copper sulphate	ton	1550	1650	1500	1500	6200

Joint Venture “Hayat Power Cable Systems” LLC for the production of high-voltage cables and self-supporting insulated wires with insulation of cross-linked polyethylene for voltages up to 400 kilovolts in the Navoi FEZ.

The authorized Fund of the Joint Venture is \$ 18.8 million, with the shareholding of Almaryk MMC (50%), JV Uzkabel JSC (25%) and Gulf Cable Trading Company (PRC) (25%).

The forecast of provision of products (raw materials) of Hayat Power Cable Systems LLC for 2018 shall be as follows:

Description	Unit of measure	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Total need
Cathode copper	ton	450	1250	1500	1050	4250

Joint Venture AWP LLC - for the production of mixers for sanitary fittings, valves and components for the domestic consumer market in the Jizzakh FEZ.

The authorized Fund of the Joint Venture is in the amount of 10.5 million US dollars, with an equity stake of Almaryk MMC JSC (50%), JV Peng Sheng LLC (Uzbekistan) (17%) and Wenzhou Jinsheng Trade Co., LTD (PRC) (33%).

Currently, JV AWP LLC is developing dynamically and is working on a project with a goal to increase the volume and improve the structure of the production of sanitary products on the basis of existing production space at the expense of borrowed funds. This will increase the



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range and volume of finished products in the future. So, in 2018 it is planned to master the production of a mixer with a zinc body, which has sufficient demand both in the domestic market and in the CIS countries. It is based on the technology of the Chinese founders, providing for the maximum use of non-ferrous recycled scrap.

In the current period, the main raw material for the production of finished products (shut-off and control valves) is copper and zinc purchased by the Joint Venture from Almalyk MMC (50% in the Authorized Fund of the Joint Venture) at Uzbekistan Republican Commodity Exchange. During the processes associated with the liberalization of foreign exchange market, the cost of purchasing raw materials increased by more than 90.0%, the use of primary non-ferrous metals in the manufacture of valves and control valves led to an increase in production costs. This creates risk conditions for both non-competitiveness of products and non-compliance with established production forecasts.

Taking into account the emerging development prospects of the enterprise in the framework of the development of cooperation between Uzbekistan and the PRC, as well as the need to support the enterprise of Jizzakh FEZ, it is considered expedient to consider the authorization of JV AWP to purchase scrap and non-ferrous metal wastes from legal entities and individuals to provide their own production with raw materials, without the right to transfer scrap raw materials to third parties.

Almalyk MMC is a monopoly producer of copper cathode, metallic zinc, sulfuric acid and iron-containing additives in Uzbekistan. The main closest competitors of the plant in the region for copper and zinc are the manufacturers of the Republic of Kazakhstan: “Kazakhmys” Corporation and “Kazzinc” LLP, as well as Russia (UMMC - Ural Mining and Metallurgical Company, RCC – Russian Copper Company) and Mongolia (Erdenet). For molybdenum products, competitors are enterprises of China and Russia.

3. DEVELOPMENT PROSPECTS

According to No.PP-3280 Resolution of the President of the Republic of Uzbekistan dated 15.09.2017 “Regarding measures to further improve the management system of JSC Almalyk MMC” in order to further improve the management system and ensure on this basis improved production efficiency, expanding the mineral resource base and sustainable development of production capacities, increasing ore volumes, production of non-ferrous, precious and rare metals, as well as other competitive products that enjoy stable demand in the domestic and foreign markets, the introduction of modern methods of corporate management the following main objectives and directions of JSC "Almalyk MMC" activity have been determined:

- implementation of a unified technical policy in the field of expanding the mineral resource base and developing new deposits of non-ferrous and rare metal ores, aimed at ensuring the introduction of modern methods of mining production, extraction of mineral resources and further processing, increasing the production of finished export-oriented products based on deep processing non-ferrous and rare metals;

- further deepening of structural changes, modernization and diversification of production in order to ensure high stable growth rates of production, increase exports of industrial products with high added value, including through the development of new markets, targeted work to reduce costs and improve the quality of products ;

- pursuing an active investment policy ensuring the stable attraction of investments, including foreign ones, in the implementation of large investment projects involving the construction and commissioning of new high-tech industries, the creation of new jobs, the introduction of modern project management methods aimed at improving the efficiency and transparency of the development and implementation of investment projects;



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- further deepening of the processes of localization of production, import substitution and saturation of the domestic market with necessary goods and components, expansion of inter-sectoral industrial cooperation based on the priority use of products of domestic producers in order to gradually reduce imports of certain types of goods and services;

- organization of research works, including in the framework of the program of applied research in the field of non-ferrous, precious, rare metals and hard alloys, participation in the development and introduction of new technologies and innovative developments in the production;

- the widespread introduction of modern information and communication technologies and software products, ensuring on this basis increased management efficiency, lower production costs and cost of products, and increase their competitiveness, as well as transparency of the financial and economic activities of the plant;

- strengthening the personnel potential of the plant, improving the skills of engineering, technical and managerial personnel, organizing their retraining by strengthening cooperation with higher and secondary specialized, professional educational and scientific institutions, attracting young and talented specialists who are able to ensure the efficient operation of the plant in the face of tough competition.

In order to ensure sustainable development of the production capacity of Almalik MMC, the expansion of raw material base of the Complex, the Government of the Republic of Uzbekistan decided to develop the “Yoshlik-I” and “Yoshlik-II” deposits.

In accordance with No.PP-3211 Resolution of the President of the Republic of Uzbekistan dated August 15, 2017 “Regarding additional measures for further development of Almalik MMC JSC”, investment projects were launched for the development of “Yoshlik-I” and “Yoshlik-II” deposits with a preliminary cost equivalent to 1 696.2 million UZS and 420.0 million US dollars, respectively.

When involving ore mining at the “Yoshlik-I” deposit, it is planned to develop the “Central” open-pit mine, with capital and strip mining operations, and construction and creating of corresponding production, transport, energy and other auxiliary infrastructure facilities. For these purposes, mining and other equipment will be purchased. Also, the construction of a complex of processing, smelting, related and auxiliary facilities is envisaged.

In general, development of the “Yoshlik-I” deposit will make it possible to ensure an increase in copper production in 2030 by 38.6% as compared with 2016. At the same time, over 6 thousand people will be additionally provided with jobs. Currently, capital and strip mining operations and construction and installation work are underway with the parallel development of design and estimate documentation.

The ore mining at the “Yoshlik-II” deposit will be developed by underground mining with an ore mining capacity of up to 2 million tons per year and reaching the design capacity in 2023. At the same time, the construction of an underground mine with its own infrastructure, as well as the construction of highways, a double-circuit power line of a 35/6 kV substation, loading and unloading ramps, a compressor station, and other engineering infrastructure facilities are envisaged. As a result of the investment project, more than one thousand new jobs will be created.

Expansion of production facilities for mining and processing of ore (Kalmakyr, Sary-Cekku, ATD, RWTD, CPP) will increase the production capacity for ore mining from 35 million tons per year to 40.3 million tons per year (Kalmakyr from 30 to 35 mln. tons, Sary-Cekku from 5 to 5.3 mln. tons per year), an increase in the processing capacity of the ore at the Copper Processing Plant from 35 to 40.3 mln. tons per year with the construction of 2 stages of a double-track spiral railway access track at “Kalmakyr” mine, replacement of worn-out mining transport equipment, construction of a new unit for processing ore at Copper Processing Plant to 5.3 mln.



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tons a year, which will increase the production of nonferrous and precious metals. The project implementation period shall be 2017-2021.

In order to replenish the retired capacities of the Angren ore field, underground mines are being built at the “Samarchuk” and “Mejdurechye” fields on the basis of “Kyzyl-Alma” deposit, with an output of 220 thousand tons of ore per year (including Samarchuk - 100 thousand tons, "Mejdurechye"- 120 thousand tons). The construction period of “Samarchuk” mine is 2015-2018, "Mejdurechye" is 2017- 2022.

In accordance with No.PP-2628 Resolution of the President of the Republic of Uzbekistan dated October 10, 2016 “Regarding measures to implement the investment project “Construction of a Cement Plant in the Sherabad district of Surkhandarya region”, it is planned to build a new, modern cement plant with a capacity of 1.5 million tons year.

The construction of Sherabad Cement Plant is stipulated by production of cement, which is in high demand in the domestic and foreign markets, as well as by creation of additional jobs.

4. QUALITY MANAGEMENT SYSTEM

Products are manufactured according to interstate (GOST) and national standards (O’zDst, Ts). For the production of high-quality products, a quality management system (QMS) has been introduced, certified and maintained in accordance with the requirements of the international standard ISO 9001. Every year, an international audit authority conducts a supervisory audit to determine whether the system complies with the requirements of the international standard.

The availability of a certified quality management system for compliance with the requirements of the international standard ISO 9001 in the production of copper cathode and enamel wire, copper pipes, cement, metallic molybdenum in the form of sintered briquettes, metallic tungsten in the form of sintered briquettes is the basis for continuous improvement of product quality and increasing satisfaction by consumers, and other interested parties.

The application of ISO 9001 standards and subsequent certification of the Quality Management System affects the competitiveness of an enterprise on the world market, participation in international tenders, the implementation of international loans, and the attraction of investments.

5. IMPACT ON ECOLOGY AND ENVIRONMENT

Production capacities of the Complex are based on the reserves of a group of porphyry copper, lead-zinc and gold-silver deposits located in the territories of Tashkent, Djizak, Surkhandarya and Namangan regions.

Mining and processing of minerals, production of non-ferrous metals cause the inevitable negative impact on the environment, such as:

- changes in the terrain;
- withdrawal of land areas for the arrangement of storage sites for industrial waste, dumps of ore and non-metallic materials, sludge collectors;
- reduction of natural mineral and energy resources;
- air pollution with pulverized and gaseous industrial emissions;
- pollution of surface and groundwater with pollutants discharged from industrial effluents;

Almalik MMC JSC complies with mandatory provisions and environmental protection requirements provided for by the Environmental Protection Laws of the Republic of Uzbekistan, the Laws “Regarding Nature Protection”, “Regarding Subsoil”, “Regarding Air Protection”,



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“Regarding Waste”, “Regarding Water and Water Use”, “Regarding State Ecological Expertise”, etc.

All the operating production units of the plant underwent an environmental inventory in order to determine the sources of emissions (discharges) of pollutants into the environment and dispose of production wastes.

Based on the inventories and environmental quotas determined by the State Committee of the Republic of Uzbekistan on Ecology and Environmental Protection, the maximum permissible concentrations of pollutants in emissions, discharges (MPE and MPD) are determined for each emission source (discharges) at the plant. The limits of generation and disposal of production and consumption wastes, limits on the use of water resources are also defined.

The environmental indicators established to the plant for maximum permissible impact on the environment are observed. This is achieved through the implementation of annual environmental protection plans for the plant, which include:

- improving the efficiency of equipment for purification of atmospheric discharge and industrial runoff from pollutants;
- ensuring the rational use of natural water resources;
- ensuring the safe ecological condition of the storage sites and storage of industrial waste (sludge collectors, tailing dumps, waste dumps, etc.), organizing their utilization by own resources or transferring it to third-party organizations as secondary raw materials (scrap metal, spent fuel and grease, tailings of secondary processing of slag dumps of copper smelter);
- ensuring the rational development of mineral resources by open and underground methods in compliance with the requirements for maintaining the stability of natural rocks;
- maintenance and expansion of green areas and others.

The costs of the Complex for the implementation of annual environmental protection measures, environmental efficiency are as follows:

Year	Expenses for implementation of measures, mln. UZS	Ecological effectiveness of environmental measures		
		Reduction of		
		emissions of pollutants into the atmosphere, tons / year	pollutant discharges to the relief and water bodies, tons / year	volume of accumulation of industrial waste, tons / year
2016 (actually)	38 199	23 500	160	1 058
2017 (assessment)	39 527	12 000	190	2 832
2018 (estimate)	54 513	15 000	195	4 725

JSC Almalik MMC, in accordance with No. 199 Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated 01.05.2003, transfers compensation payments to the funds of ecology, environmental protection and waste management for environmental pollution and waste disposal:

2016 - 640 million UZS / year.

2017 (assessment) - 1,331 million UZS / year.

2018 (estimate) - 1,098 million UZS / year.

The increase in compensation payments is associated with an increase in the size of compensation payments for emissions (discharges) and waste disposal on the basis of No. PP-2699 Decree of the President of the Republic of Uzbekistan dated December 27, 2016.



6. PROVISION OF ENERGY SUPPLY

6.1. Power supply.

Power supply of the divisions in Almalik city is carried out from the power system of Uzbekenergo JSC - Tashkent, Novoagren and Syrdarya TPP through three head substations: Kara-Kiya-Sai with voltage of 220/110/35/6 kV with two 200000 kVA transformers, 5 substation – “5-Tyagovaya” with voltage 110/35 / 6kV with two 25000kVA transformers and Adolat substation - 220/110/35 / 6kV voltage with two 200000kVA transformers. The power supply circuit is designed in such a way that all the production divisions of the Complex are dual-powered via 110, 35 and 6 kV lines.

The Complex’s power supply scheme involves:

- overhead power lines with voltage of 110, 35, 6 kV over 800 km long;
- cable lines up to 10 kV - more than 400 km;
- electric motors more than 20,000 units with a total capacity of more than 615,000 kW;
- power transformers more than 850 units

The power supply of the Uch-Kulach mine and the Jizzakh Cement Plant is carried out from the networks of the Jizzakh Enterprise of Territorial Electrical Networks through the 110/10 kV Nurafshon substation.

The power supply of the Chadak Mining Department is carried out from the networks of the Namangan Enterprise of Territorial Electrical Networks (ETEN) through the two 35 kV and the Papskaya 110 kV head substations.

The power supply of the Angren Mining Department and the Angren Pipe Plant is carried out from the networks of the Tashkent Enterprise of Territorial Electrical Networks via the 110 kV LEP lines through a 110/35/6 kV substation with three 16000 kVA transformers.

The power supply of the Khandiza Mining Department is carried out from the networks of the Surkhandarya Power Plant via the 110/6 kV Kenguzar substation with two 10,000 kVA transformers and through the Khandiza 110/6 kV substation with two 10,000 kVA transformers.

The power supply of Sherabad Cement Plant is carried out from the networks of the Surkhandarya Power Plant via 110 kV lines through a 110/6 kV substation with two transformers of 40,000 kVA each.

The power supply of Scientific and Production Association for the production of rare metals and hard alloys is carried out from the grids of the power network of Uzbekenergo JSC:

- Chirchik Substation "Akkavak HPP-10, and "Akkavak HPP-15" with voltage of 35 kV head stepdown substation GPP-I with voltage 35/6 kV with two transformers 10,000 kVA capacity.
- Tashkent Hydro-Electric Power Station (HEPS) through a step-down substation GPP-2 with a voltage of 110/6 with a transformer of 40000 kVA (backup line).
- Tashkent State District Power Plant through the “Saodat” substation, with a voltage of 110/10 with transformers 4300 kVA.

6.2. Gas supply.

Gas supply to the divisions of the Complex in the city of Almalik is provided from the Shurtan and Gazli fields via two independent main gas pipelines of JSC Uztransgaz:

- high pressure gas pipeline (6 kg / cm²) with a pipe diameter of 426 mm through the Gas-Distributing Station GDS-Almalik-I (Gazli field);
- high pressure gas pipeline (6 kg / cm²) with a diameter of 500 mm - through the GDS-Almalik-II (Shurtan field).



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Gas is supplied to all enterprises of the Complex from the Gas Distribution Station GDS-Almalyk-I, through the GDS-Almalyk-II to the Copper Smelter, Copper Processing Plant, Zinc Plant, Central Heating Plant.

Gas supply of the Jizzakh Cement Plant is carried out through a high-pressure gas pipeline through the branch "Forishtumangaz" of the Unitary Enterprise "Markazgamtaminot".

Gas supply to the Angren Mining Department is carried out via a high-pressure gas pipeline with a diameter of 273 mm gas pipeline through the Angrenshakhargaz branch of the Tashkenttaminot Unitary Enterprise.

Gas supply to Scientific and Production Association for the production of rare metals and hard alloys is carried out from JSC Uztransgaz through the Gas-Distribution Point "Chirchikshahargaz" through one main gas pipeline, followed by division into:

- I industrial site with a diameter of 300 mm.
- II industrial site - high pressure gas pipeline (3 kg / cm³) with a pipe diameter of 219 mm.

Gas supply to the Sherabad Cement Plant under construction is carried out through the pipeline system of JSC "Uztransgaz".

6.3. Heat supply.

The source of heat supply of the Complex, housing facilities, as well as industrial enterprises of the city of Almalyk is the Central heating and power plant with an installed capacity of 36 MW of electricity and 420 Gcal / h of heat. The length of the main networks in one pipe is 128 km.

The need of the plant for electricity and natural gas in the following volumes was agreed with Uzbekenergo JSC and Uztransgaz JSC for 2018:

- electricity - 2813.1 million kWh;
- natural gas - 465.9 million m³.

The production of copper products throughout the technological cycle is marked by a high level of energy consumption, so the main objective of the plant is the effective use of all types of fuel and energy resources. For 2018, a set of measures will be developed aimed at reducing the energy intensity of production by:

- implementation of specific organizational and technical measures for each unit separately, aimed at the efficient use and saving of fuel and energy resources.
- use of alternative energy sources.

In 2018, it is planned to introduce solar collectors in the Oltin-Oлма boarding house, which will bring energy savings through the use of alternative energy sources to 1.95 million kWh.

Modernization of the compressor station at the Copper Smelter will bring energy savings of 8.5 million kWh.

7. SOCIAL FACILITIES

Along with industrial subdivisions, the system of Almalyk MMC includes social and cultural facilities that provide the infrastructure for many thousands of staff, whose activities were particularly developed during the years of independence of Uzbekistan and are aimed at fulfilling the tasks of ensuring the social needs of both the workers of the Mining and Metallurgical Complex and the city and nearby areas in general.



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A social block represents the Department of social facilities. Its structure includes 16 pre-school educational institutions (PEI), which are attended by more than 3,000 children. Employees of pre-school educational institutions are constantly working on the upbringing of a harmoniously-developed generation.

Workers of the Complex and members of their families have the opportunity to improve their health in a health-care center. In the summer, they can relax in the recreation areas "Sinogorye" and "Avtomobilist", and year-round in the boarding house "Oltin Olma". Cultural, physical and recreational work is carried out in the "Metallurg" Palace of Culture and the "AGMK" sports complex. The children of the MMC employees are happy to spend their summer holidays in the children's recreation camps "Tong", "Metallurg", "Parvoz", "Istiklol".

In the spring and summer period, the citizens and guests of the city are accepted by the children's park "Bolajon" and the Aqua park "Dolphin".

On the basis of a collective agreement, vouchers are purchased and provided to employees of JSC Almalik MMC and members of their families in the sanatorium "Uzbekistan" in the cities of Yalta, Kislovodsk.

The Department of social facilities for many years ensures uninterrupted activity for the MMC workers and their family members, regardless of age group, who can adequately spend their leisure time, rest and strengthen their health.

8. KEY INDICATORS

The forecast for 2018 provides the volume of production of commodity products in current prices 8209.8 billion UZS. The growth rate by 2017 will be 102.2%.

(The main production indicators for 2018 forecast are shown in Table No. 2)

9. MOUNTAIN ENTERPRISES

9.1. Open pit mining

Open-pit mines Kalmakir and Sary-Ceku are operating as open-pit mining of copper-molybdenum ores.





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In 2018, 38.0 million tons of copper-molybdenum ores are expected to be mined in open-pit mining, including 33.0 million tons from Kalmakir open-pit mine and 5.0 million tons from the Sary-Cheku open-pit mine.

The volume of stripping operations is 15.8 million m³, including: 13.6 million m³ at the Kalmakir open pit and 2.2 million m³ at the Sary-Cheku open pit.

In addition, to ensure the stable operation of quarries, a number of organizational and technical measures are planned.

Regarding "Kalmakir" Mining Department:

- remove mined rock for reloading 7.0 million m³;
- overhaul of railway tracks at the quarry and dumps –5 km, construction of a double-track railway access track (stage 2).

In general, at the Kalmakir Mining Department, due to the implementation of a set of measures, it is planned to reduce the loss of ore against the calculated ones by 0.1%.

Regarding the Sauk-Bulak quarry, limestone mining will be made in an amount that meets the needs of the lime processing plants of the MMC.

Regarding the limestone quarry "Zapadny Balyklytau" of the Jizzakh Cement Plant, mining operations are planned to ensure the production capacity of the Cement Plant.

Mining and capital operations (overburden) were started at the limestone, clay and gypsum facilities at the Sherabad Cement Plant.

9.2. Underground mining operations

The MMC includes the Angren Mining Department (AMD), the Chadak Mining Department (CMD), the Khandiza Mining Department and the Kauldy mine, which carry out mining operations for the mining of gold and lead-zinc ores by underground mining - 1015 thousand tons of gold-bearing ore and 650 thousand tons of polymetallic ore.

In order to ensure the fulfillment of production volumes for 2018, the following main measures are foreseen:

Regarding Angren Mining Department:

Ensure the implementation of mining and capital operations:

- on the fourth mine horizon (+880 m) of the Kochbulak mine in the amount of 500 rm.

In order to replenish the retired capacity at the Senguran mine, at the Kairagach and Samarchuk fields, it is necessary to provide for the extraction of gold ore in volumes of, respectively, 60.0 thousand tons and 20.0 thousand tons per year;

The implementation of the investment project "Construction of the underground mine Samarchuk" on the basis of the operating field "Kyzyl-Alma" will be carried out by the MMC together with the contractor NJSC "Bashkir Shaft-Sinking Department" (Russia), which runs a vertical shaft. The slanting shaft is made by the Shaft Sinking Department (SSD), surface facilities are carried out by the Olmalikmetallurgkurilish Trust and Specialized Repair Operations Department (SROD).

In 2018, the SSD will continue the construction of an underground mine at the Samarchuk site, and start operations at the Mezhdurechye field and at the base of the Kyzyl-Alma deposit.

Regarding Chadak Mining Department:

To replenish the retired capacity, stripping should be performed to test the reserves along the lode No. 9 and No. 10 of the Pirmirab deposit, for which it is necessary to pass 400 rm. Also to perform stripping and mining of ore bodies reserves No. 1 and the "Glavnaya" (Main) lode on the horizon of 1030 meters, for which it is necessary to pass 280 rm of mining.



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Regarding the Kaulda Mine:

It is necessary to equip the milling hole of the “Loading station” at the horizon 730 meters for the Vibration feeder (VF) “Siberian”.

Regarding "Handiza" Mining Department:

Ensure the fulfillment of forecast indicators for mining and processing at the level of the enterprise's designed capacity - 650 thousand tons of ore per year.

9.3. Availability of raw materials

JSC Almalik MMC is provided with explored reserves of copper-molybdenum ores for more than 100 years of operation, gold-bearing ore for 30 years, polymetallic ores for more than 60 years, reserves of limestone and loess for more than 90 years.

According to No.PP-3004 Decree of the President of the Republic of Uzbekistan dated 24.05.2017. "Regarding measures to create a single geological service in the system of the State Committee of the Republic of Uzbekistan on geology and mineral resources" geological exploration to ensure the growth of mineral reserves and reproduction of the mineral resource base, taking into account the creation of new industrial capacities in the field, is carried out by the State Committee on Geology and Mineral Resources of the Republic of Uzbekistan.

The Yoshlik-I field involved in the development, is located on the northern slope of the Kuramin Range, 1 km south-east of the city of Almalik and is located in close proximity to the Kalmakyr field, the most important raw material base after the Kalmakyr deposit of "Almalik MMC". The field development method is open. The proposed ore extraction capacity is up to 26.0 million tons per year.

The Yoshlik-II field is located in the Pskent district of the Tashkent region, 18 km from the city of Almalik. The field development method is underground. The proposed ore production capacity is up to 2.0 million tons per year.

In order to accelerate the preparation for the development of reserves in the Samarchuk field on the basis of the operating Kyzyl-Alma field, mining operations shall be carried out from the passed inclined exit from the surface on the horizon of 1045 m by the SSD for developing of the mining level. In 2018, ore mining at the Samarchuk field, due to the large volumes of mining operations, will amount to 20 thousand tons of ore per year.

We consider involvement of the mine "Uch-Kulach" located in the Farish district of Jizzakh region in the development. The design capacity for the extraction of lead-zinc ore is 500 thousand tons per year. Due to the decline in world prices for zinc and lead and non-profitability of production, the mine was mothballed in 1996. A Preliminary Feasibility Study of the project is currently being developed, according to which the resumption of production of lead-zinc ore in the Uch-Kulach mine is envisaged. At the same time, the matter on construction of a lead-zinc concentration plant with a capacity of 500 thousand tons of ore per year is being considered.

Industry-related waste is also considered as an additional source of copper raw materials. The project “Involvement in off-balance dumping ores of the Kalmakir deposit” with a production capacity for processing raw materials - 4.0 million tons per year has been implemented.

10. PRODUCTION AND TECHNOLOGY

10.1. Copper Processing Plant (CPP)



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The copper processing plant processes the copper-molybdenum ores from the Kalmakir and Sary-Ceku deposits.

The factory includes crushing workshop No. 1, CGW (crushing and grinding workshop) with a unit for large crushing and a unit for semi-self-grinding, a grinding workshop with 10 technological sections, a flotation unit with 5 monosections, CPC-2 (crushing and processing complex) with a crushing plant, with 3 grinding sections and flotation monosection, a selection and drying workshop for copper and molybdenum concentrates.

The technological scheme provides for three-stage crushing and two-stage grinding in a closed cycle, followed by flotation of crushed ore to produce a collective copper-molybdenum concentrate. The collective concentrate is subjected to selection with the production of copper concentrate and molybdenum middlings with subsequent transportation to the Copper Smelting Plant.

The production forecast for 2018 at the copper processing plant is planned to process 38,000 thousand tons of ore, including 33,000 thousand tons from the Kalmakir open-pit mine and 5,000 thousand tons from the Sary-Cheku open-pit mine.

The main activities for 2018 are the implementation of a project to increase the production capacity of the CPP under the project “Expansion of production capacities for the extraction and processing of raw materials (Kalmakir, Sary-Cheku, Railway Transport Department, Automobile Transport Department, CCP), as well as the implementation of organizational and technical measures for the replacement and modernization of technological and energy equipment aimed at energy efficiency.



10.2. Copper Processing Plant - 2 (CPP-2)

The Factory includes crushing plant, grinding and flotation plant, dehydration unit and tailing facilities.

The technological scheme provides for three-stage crushing and two-stage grinding in the closed cycle, followed by flotation of crushed ore to produce a collective copper-molybdenum concentrate.

According to the production forecast for 2018, it is planned to process 4,600 thousand tons of raw materials, including off-balance 4,000 thousand tons, 500 thousand tons of waste dumps and 100 thousand tons of converter slag with the subsequent processing of concentrates in at the Copper Smelting Plant (CSP).

In 2016, a new site for processing off-balance dump ores was put into operation.

10.3. Angren Gold Processing Plant

The Angren Gold Processing Plant is designed to process gold ores from the Koch-Bulak, Kyzyl-Alma and Kairagach deposits of the Angren ore field.

The technological scheme of ore processing includes the operations of ore grinding, flotation, thickening, filtration and drying of flotation concentrate.



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The resulting flotation concentrate is shipped to a copper smelting plant to produce gold and silver refining.

The production forecast for 2018 is scheduled for processing of ore 740 thousand tons per year, including 650 thousand tons at the Angren gold processing plant (AGPP) and at the crushing and charging unit to produce 90 thousand tons of flux ore, which is shipped to the Copper Smelting Plant (CSP).

The main event for 2018 is the implementation of organizational and technical measures for the replacement and modernization of technological and energy equipment aimed at energy efficiency.

10.4. Chadak Gold Processing Plant

The Chadak gold processing plant processes the gold-bearing ores from the Pirmirab and Guzaksai deposits of the Chadak ore field.

The technological scheme includes three-stage crushing, single-stage grinding in the closed cycle with a two-stage ore classification, condensation of a hydrocyclone, cyanidation of the condensed product, filtration of gold-containing solutions, precipitation of precious metals on zinc dust and drying of zinc precipitates with further treatment at the Copper Smelting Plant (CSP).

In 2018, it is planned to process 175 thousand tons of ore in the Chadak gold processing plant.

10.5. Khandiz processing plant

The factory includes units for crushing, separation of grinding, flotation, thickening and filtration of copper, zinc and lead concentrates, selection of copper-lead concentrate.

The forecast for production at the Khandiz processing plant for 2018 is scheduled to process 650 thousand tons of ore (design capacity).

Extraction of copper, lead, and zinc in the concentrates of the same name remains at the level of 2017, with further processing of zinc and copper concentrates, respectively, at the zinc and copper plants.

The main event for 2018 is the implementation of organizational and technical measures to ensure fulfillment of the forecast for production of metals.

11. METALLURGICAL PLANTS AND CEMENT PRODUCTION

11.1. Copper Smelting Plant (CSP)

The main raw materials for production are copper concentrates of the MMC processing plants, as well as copper scrap and waste, imported copper concentrates under the terms of their processing. The production forecast for 2018 envisages production in the following volumes:

blister copper - 112,065 tons;
copper anode - 129,144 tons;
copper cathode - 107,446 tons;
sulfuric acid - 628,958 tons;
molybdenum in cinder - 647.9 tons;
ammonium perrhenate - 824.9 kg;
therein rhenium - 570 kg;
copper wire - 6,228 tons;
enameled wire - 500 tons;
copper sulfate - 9,194 tons





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To achieve production of the forecasted production volumes, the schedule of repair of the main metallurgical units has been developed and approved, a number of organizational and technical measures are planned, aimed at improving operation of the main and auxiliary equipment, extending their service life, improving working conditions. With the launch of the new smelting furnace, the design capacity of the copper smelter for the production of blister copper has been increased to 135 thousand tons per year.

Pre-design work has been started on the project for the further development of Almalyk MMC on the basis of the Yoshlik-I and Yoshlik-II deposits. Negotiations are underway with foreign companies for the construction of a new copper electrolysis plant, an air separation unit, a new sulfuric acid (SAP-5), and a new melting furnace.

11.2. Zinc Plant (ZP)

Zinc plant processes zinc concentrate of “Handiza” Mining Department, as well as imported zinc concentrates from CIS countries, Iran and the Islamic Republic under tolling terms.



Approved production forecasts for 2018 provide for the release of 18,224 tons of metallic zinc from its own sulphide concentrate from Handiza Mining Department, which accounts for 23.3% of the total output of zinc. Consequently, the majority (76.7%) of zinc metal output will depend on the timely supply of tolling sulfide concentrate and its quality. All this will affect the rhythm of the plant.

In 2018, the plant should produce 78177 tons of zinc metal, 402 tons of metallic cadmium and 104,103 tons of sulfuric acid, as well as the release of new types of products - 1,830 tons of zinc oxide (zinc oxide) and 1,778 tons of vitriol.

11.3. Jizzak Cement Plant

The design capacity of the Jizzakh Cement Plant is 1 million tons per year for gray cement or 350 thousand tons per year for white cement.

The production complex consists of a mining shop with three quarries and production and technological lines.



The Plant produces: white Portland cement grade PCBI- 1500/42.5 and general construction Portland cement grade CEM I and CEM II.

In 2018, production of 924,050 tons of general construction and 35,000 tons of white Portland cement is expected.

The products of the cement plant are aimed at meeting the growing demand for cement in Uzbekistan, as well as the release of export-oriented products, in order to ensure the further expansion of export potential and the additional inflow of foreign currency.



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11.4. Sherabad Cement Plant

In 2018, in accordance with No.PP-2628 Resolution of the President of the Republic of Uzbekistan dated October 10, 2016 "Regarding measures to implement the investment project" "Construction of a cement plant in Sherabad district of Surkhandarya region" it is planned to complete the construction of a new, modern cement plant with a capacity of 1.5 million tons of cement per year.

The construction of Sherabad Cement Plant is stipulated by the production of cement, which is in high demand in the domestic and foreign markets, as well as the creation of additional jobs.

Since 2016, the investment project is being implemented on a turnkey basis with DAL TEKNİK MAKİNA TICARET VE SANAYİ A. S. (Turkey).

The total cost of the project is 212.8 million US dollars.

In 2018, production of 150 thousand tons of general construction cement is expected.

11.5. Angren Pipe Plant

In 2017, pursuant to No. 188 Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 6, 2017 and No. 272 order of the MMC dated April 10, 2017 UE Angren Tube Plant was reorganized and incorporated into JSC Almalyk MMC as a structural unit - Angren pipe plant with not separate legal entity.

The plant consists of the following units:

- production facilities;
- nitrogen station;
- pumping station of the water cycle (WC) with a block cooling tower;
- inventory warehouse (IW).

The design capacity of the plant is 6,000 tons of copper pipes per year, based on the production of copper pipes of various diameters, taking into account small diameters.

Finished products meet the requirements of GOST and European standards (EN, ASTM).

In 2018, the production forecast is 5240 tons of copper pipes, including 3000 tons are planned for export.

11.6. Scientific and Production Association for the production of rare metals and hard alloys.

The Scientific and Production Association for the Production of Rare Metals and Hard Alloys (SPA) was established on the basis of the Joint-Stock Company "Uzbek Factory of Refractory and Heat-Resistant Metals" as a result of merging with JSC Almalyk MMC. The SPA includes the Scientific and Technological Center of Rare Metals and Hard Alloys (STC) and the plant for the production of rare metals and hard alloys (hereinafter referred to as the Plant).

From 2018, it is planned to form and develop a scientific and technological center (STC), which will include:

- laboratory of research and enrichment of mineral raw materials;
- laboratory of metallurgical research and high-purity metals;
- hard alloys laboratory;
- laboratory of nanotechnology, composite and advanced materials;
- laboratory research of the structure and properties of materials;
- pilot industrial workshop.

The plant for production of rare metals and hard alloys has a complete technological cycle from the processing of concentrates to the production of tungsten and molybdenum products, hard alloys and tools made from them, incandescent lamps for general purposes.

The plant includes the following production:



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hydrometallurgical workshop for the production of molybdenum-tungsten semi-finished products;

- hydrometallurgical plant for the production of molybdenum and tungsten;
- shop for the production of composite materials and hard alloys;
- shop for deep processing of rare metals;
- workshop for the production of tools and tooling;
- power supply shop;
- mechanical repair shop;
- laboratory of analytical control;
- workshop for the production of refractory products.

The plant for the production of rare metals and hard alloys is a manufacturer of tungsten and molybdenum products in the form of powders, rods, wire of different sections, molybdenum

round and flat rolled products, alloys of refractory metals, single crystals of tungsten, molybdenum and rhenium, obtained by powder metallurgy.

All the production of the plant is deployed in two industrial areas.

The first industrial area is the stage of recovery of chemical compounds of the metal to molybdenum and metallic tungsten and its mechanical processing into rolling, wire and hard alloys, as well as the assembly of incandescent lamps.

The second industrial area combines hydrometallurgical workshops for the production of semi-finished products of tungsten and molybdenum, which process concentrates into intermediate products - ammonium tetramolybdate, tungsten oxide, ammonium vapor fluoride, etc.

The second industrial area has a railway interchange. Both territories have the necessary infrastructure and engineering structures. Unloading and loading platforms are equipped with the necessary means of mechanization.

The main raw materials for production are molybdenum custard CSP and purchased scheelite concentrate.

According to No.PP-3280 Decree of the President dated September 15, 2017 "Regarding measures to further improve the management system of Almayk MMC", changes were made to the volumetric figures for the production of tungsten products, in particular, the volume of metal tungsten for 2018 is 10.3 tons. This volume of tungsten metal will be produced from purchased raw materials. Currently, the issue of tungsten concentrate purchase is being discussed, the terms of reference for the technical and commercial proposal has been prepared. In addition, the production of carbide products will be provided through the processing of tungsten-containing waste (dump cakes).

The production forecast for 2018 envisages production in the following volumes:

- molybdenum trioxide - 943.0 tons; including Mo - 648.3 t
- molybdenum billets - 591.4 tons;
- tungsten trioxide - 49.6 tons; including W - 39.3 tons
- tungsten billets - 10.3 tons;
- tungsten carbide - 29.7 tons.





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hard alloy products - 27.1 tons;

12. BASIC CHARACTERISTICS OF FINISHED PRODUCTS

Copper cathodes are sheets of size 850x950 mm, thickness 8-12 mm; used in the electrical industry, for the manufacture of cable products, for the production of cast and deformed copper products; produced according to specifications, GOST 546-2001, chemical composition - GOST 859-2014 copper brand M00K and M0K.

Copper wire rod is manufactured by KMO grade, diameter 8.0 mm; 16.0 mm; designed for the manufacture of electrical wires and cables; manufactured in accordance with O'zDSt 2809: 2013.

Copper wire is manufactured by MM grade with diameters of 1.8 mm and 2.62 mm according to the organization standard Ts 05755737 - 008: 2013.

Refined gold grade Au-1 in bullion is produced according to the State Standard of Uzbekistan O'z DSt 610: 2009.

Refined silver grade Ag-1 in bullion is produced according to the State Standard of Uzbekistan O'z DSt 611: 2009.

Zinc metal - is made in the form of bullion weighing 19-25 kg; designed for the manufacture of alloys, rolling, production of zinc powder for the electrical industry; produced according to GOST 3640-94, brand **Z0A, Z0**.

Sulfuric acid (H_2SO_4) GOST 2184-2013 is an oily liquid with a mass fraction of monohydrate: for the "improved" grade - 92.5 - 94%, for the "technical" grade not less than 92.5%. It is intended for the production of fertilizers, artificial fibers, caprolactam, titanium dioxide, ethyl alcohol, aniline dyes and a number of other industries. Sulfuric acid is fire and explosion hazardous, fumes are toxic.

Selenium technical grade ST-1 is produced in bullions of 5-7.5 kg in weight; designed to produce pure selenium, the production of glass, paints, enamels, pharmaceutical production; produced in accordance with GOST 10298-79.

Tellurium technical grades T1, T2 is produced in the form of dark gray or black powder; designed to obtain high purity tellurium, making babbitts, paints; produced in accordance with GOST 17614-80.

Metal cadmium is produced in bullions weighing 10 ± 1.5 kg according to GOST 1467-93, grade Kd0, and is intended to produce cadmium oxide.

Ammonium perrhenate (ammonium rhenium acid) - is a white or gray crystals. It is used to produce metallic rhenium, refractory alloys, catalysts for oil refining, and others. Three grades of AP - 00, AP-0, AP-1, GOST 31411-2009 are produced.

Molybdenum middling cinder is obtained by oxidizing roasting of molybdenum middlings. Molybdenum middling cinder is intended for the production of molybdenum salts, technical molybdenum trioxide; produced according to TSh 64-23283880-07: 2013.

Enameled wire is a copper round wire with enamel insulation brand PET-155; produced according to GOST 21428-75. Enameled wire is intended for use in electrical products.

Copper sulfate ($CuSO_4 \cdot 5H_2O$) is a blue powder; intended for agriculture, industry (in the production of artificial fibers, organic dyes, mineral dyes, arsenic chemicals, to enrich the ore during flotation); produced according to GOST 19347-99, grade A is a top grade and grade 1, grade B are first grade.

Technical zinc sulfate ($ZnSO_4 \cdot 5H_2O$) are granules, powder or mixture of white color; intended for use as a reagent for the beneficiation of ores and for other technical purposes; produced in accordance with the technical specifications TSh 48.1-57: 2012, the mass fraction of zinc is not less than 30%.



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Portland cement and white cement are designed for construction work; produced in accordance with GOST 31108-2003 and O'z DSt 761: 1996.

Sulfate-resistant portland cement is produced according to GOST 22266-94. It is used for the manufacture of concrete and reinforced concrete structures that have a corrosion resistance when exposed to environments that are aggressive in the content of sulfates.

Copper pipes are designed for sanitary purposes for various purposes; production is made in accordance with Ts 00193950-006: 2014.

Zinc oxide (zinc white) (ZnO) is a colorless crystalline powder, insoluble in water, turning yellow when heated. It is used in the paint industry as pigments, in the manufacture of rubber products, as well as in dentistry, in the manufacture of dental cement and abrasive products; produced according to GOST 212-84

Molybdenum metal in the form of sintered briquettes is pre-sintered briquettes weighing (0.02-2.6) kg; used for steel alloying in the metallurgical industry; produced in accordance with Ts 15126592-02: 2013.

Molybdenum trioxide (molybdenum anhydride) is a friable powder of pale greenish-yellow color, not containing lumps and inclusions; produced according to TU 48-19-134-85.

Metal tungsten in the form of sintered briquettes is pre-sintered briquettes with a mass (0.02-5.0) kg; for steel alloying in the metallurgical industry; produced according to Ts 15126592-01: 2013; designed for the production of metallic molybdenum.

Tungsten anhydride made from ammonium paratungstate is a friable powder of pale greenish-yellow color, not containing lumps and inclusions; designed for the production of ligatures; produced according to TU 48-19-35-79.

Nitrogen-calcium fertilizers (grade "A" and "B") - Grade "A" is a crystalline powder from gray-white to gray-green. Grade "B" is an opaque yellow-pink liquid. It is used on all types of soil, especially in acidic and greasy, and has a positive effect on their fertility; regulates the growth of the vegetative mass, increases the yield of crops; produced in accordance with Ts 00193944-11: 2014.

Fireclay chamotte and half-sour general-purpose products (Brick ShA-5) are orange-colored bricks, size 230x114x65 mm; used for construction and repair of furnaces and other thermal units; produced according to GOST 390-96, GOST 8691-73.

Hard-alloy products for the mountain tool are products of type G, brand BK; intended to equip mining tools; produced according to GOST 880-75.

Hard-alloy plates soldered types 07, 67 are standard plates of the brand BK, TK; for cutting, through passage, boring and revolving cutters; produced according to GOST 25426 -90.

Hard alloy dies are carbide dies BK8 of molds No. 2, 4, 8; for drawing wire and round bars; produced in accordance with Ts 00193944-016: 2014; dies BK8 of molds No.9,10,12,14 produced according to GOST - 9453.

Molybdenum billets are manufactured according to the State Standard of Uzbekistan O'zDSt3009: 2017. Molybdenum billets are designed for alloying of steel in steelmaking, for the production of molybdenum castings, manufacture of electrodes for arc melting.

Tungsten billets are produced according to the State Standard of Uzbekistan O'zDSt3008: 2017. Tungsten billets are used for alloying of steel in the steel-smelting and foundry industry.

13. PERFORMANCE OF REPAIR WORKS

In 2018, 471.6 billion UZS are planned for the repair operations, which will be used to maintain fixed assets in working condition, 456.1 billion UZS for the repair of fixed assets for production, 15,5 billion UZS for repair of non-production fixed assets.



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Fixed assets operated at Almalik MMC include equipment, vehicles, transmission devices, buildings and structures.

The level of wear of the main and auxiliary process equipment for Almalik MMC JSC is 32.1% (according to the accounting data as of October 1, 2017)

The decrease in the level of wear of the main and auxiliary equipment is associated with the commissioning of equipment for implemented investment projects, in particular:

- "Construction of an underground mine at the Kairagach field";
- "Involvement in mining off-balance dump ores of the Kalmakyr deposit";
- "Construction of the crushing and grinding unit";
- "Construction of a new melting furnace at the copper smelting plant";
- "The organization of the production of copper wire."

14. LOCALIZATION

In 2018, at the Almalik MMC JSC, under the Program for localizing the production of finished products, components and materials, it is planned to implement 35 projects for a total amount of 26.7 billion UZS, including:

29 existing projects involving the production of finished types of equipment and components, such as pumps type GRAT and HC, centrifugal and axial fans, spare parts for crushing and grinding equipment and excavators, etc., as well as products for deep processing of local raw materials, namely faucets for plumbing products, brass (copper) fittings, PC-14 cutter, etc. for a total of 22.5 billion UZS.

6 new projects involving the production of zinc oxide, sanitary plumbing mixers with a zinc body, rare metal products and solid alloys totaling 4.2 billion UZS.

Implementation of the localization program will save currency in the amount of \$ 1.8 million.

In order to organize the production of localized products, the plant has launched in recent years:

- Angren Pipe Plant;
- □JV "AWP";
- Workshop for the production of mining equipment;
- Zinc sulphate production unit;
- Unit for the production of alloy Zamac;
- Unit for the production of packaged explosives;
- Unit for the production of centrifugal and axial fans, etc.

(The range of output and efficiency in the implementation of projects of localized products for 2018 are given in Tables 3 and 3a.

15. EXPORT OF PRODUCTS AND SERVICES

The export forecast for 2018 is projected at \$ 491.8 million.

Finished products (cathode copper, copper rod, copper wire, copper pipes, zinc metal, portland cement, molybdenum, tungsten, and also rare earth metals) are mainly exported to Turkey, Russia, Ukraine, China, Kazakhstan, Finland, the Netherlands and other countries.

Copper pipes of various diameters are exported to the markets of Turkey, Russia, Azerbaijan, Kazakhstan, Ukraine and Bulgaria in order to increase export volumes and expand the geography of sales.



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In 2018, the strengthening of the presence and increase in the export of copper pipes to the above markets is considered a priority, it is also planned to develop the markets of the Middle East (UAE) and European countries (Poland, Latvia).

Production of Portland cement and white cement in the Jizzakh region with a production capacity of 350 thousand tons of white cement (or 1 million tons of general construction cement) was mastered at Almalayk MMC. The white cement product of the Cement plant is exported mainly to the Republic of Kazakhstan and the Republic of Kyrgyzstan. At the same time, cement products are sold within the country to foreign non-resident contractors for hard currency (domestic exports).

JSC Almalayk MMC in 2017 mastered the new products - white zinc. In 2018, it is planned to increase the sales of these products.

However, the plant provides export services for the processing of copper and zinc concentrates.

Products of Almalayk MMC are exported in accordance with the contracts concluded, as well as under other additional contracts concluded during the year.

The pricing of sold metal products for export is determined by the quotes of Metal Pages, Metal Bulletin and the London Metal Exchange (LME), and a discount or premium is assigned based on the type of product and terms of delivery by road or rail.

The forecast of exports of goods and services for 2018 is shown in Table No. 4.

16. SUPPLY OF MATERIALS AND MACHINERY

To fulfill the production and investment programs in 2018, the amount of UZS 3 787.2 billion is planned for the purchase of raw materials and materials, machinery and equipment, as well as spare parts and components:

- domestic supplies - 635.0 billion UZS;
- import deliveries - 389.2 million dollars (3 152.2 billion UZS), which accounts for 83% of the total volume of goods scheduled for delivery.

Of the total volume of material and technical resources planned for delivery in 2018:

for maintaining existing production and performance of production indicators:

- domestic supplies - 340.4 billion UZS;
- import deliveries - \$ 116.9 million;

for investment programs:

- domestic deliveries - 294.5 billion UZS;
- import deliveries - \$ 272.3 million

In order to gradually reduce imports of certain types of goods and services, it is envisaged to further deepen the processes of localization of production, import substitution and saturation of the domestic market with necessary goods and components, expansion of inter-sectoral industrial cooperation based on the priority use of domestic products.

17. INVESTMENT PROGRAM

An investment program is being implemented to implement an active investment policy, ensuring the implementation of large investment projects involving the construction and commissioning of new high-tech industries, the introduction of modern project management methods aimed at improving the efficiency and transparency of the development and implementation of investment projects at the MMC.

Objective of the program is as follows:

- further increasing the production of non-ferrous and precious metals by expanding the raw material base of the Complex;



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- increase in the processing of sulphide ores with a higher content of precious metals;
- introduction of advanced energy-saving technologies for the processing of extracted ore; the complex extraction of useful ore components, especially rare earth metals;
- ensuring contingency and increasing the level of loading of existing mining and processing production capacities through the use of its own sources of raw materials;
- mastering the production of new types of products that are in demand on the domestic and foreign markets in order to increase export potential;
- improving production efficiency and reducing the consumption of fuel and energy resources through the introduction of modern technologies and equipment;
- creation of new jobs.

According to the Investment Program in 2018, the forecast provides for 7 projects with a total funding of 1538.8 billion UZS (Tables 6a and 6b and Section 22), including by sources:

- own funds of Almalik MMC - 265.3 billion UZS;
- funds of the Fund for Reconstruction and Development of the Republic of Uzbekistan - 1118 billion UZS;
- loans from commercial banks - 154.6 billion UZS.

In 2018, it is planned to introduce two sites:

- "Construction of a cement plant in Sherabad district of Surkhandarya region" in September;
 - "Construction of an underground mine in the Samarchuk site on the basis of the existing Kyzyl-Alma deposit" (Angren) in December,
- Commissioning of these projects shall allow:
- production up to 150 thousand tons of portland cement in 2018;
 - production of 100 thousand tons of gold-bearing ore annually and production of up to 1.5 million tons of portland cement from 2019.

(The list of the Address List of construction projects for 2018 is given in Table No. 5).

18. SALARY PAYMENT SYSTEM

The remuneration of employees of JSC "Almalik MMC" is made in accordance with the 22-categories Unified Rate Schedule, approved by No. 206 Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated July 21, 2009 "Regarding Further Improvement of the Unified Rate Schedule".

In accordance with No. 6 Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated January 11, 2012 "Regarding Amendments to Certain Decisions of the Government of the Republic of Uzbekistan", the initial (zero) category was canceled and the first category of the Unified Rate Schedule was set to the initial category. According to the above resolution of the Cabinet of Ministers, JSC Almalik MMC established higher tariff rates under the Unified Rate Schedule, based on their financial capabilities and business results, using industry rates to hourly wage rates that take into account the nature of the work, in accordance with the collective agreement of JSC Almalik MMC .

Separate remuneration of the executive office (Management Board) was carried out on the basis of No. 207 Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated July 28, 2015. Projected key performance indicators are calculated based on financial statements prepared in accordance with national accounting standards. (Table No.7).

The remuneration of managers, specialists and technical staff is made according to monthly salaries, in accordance with the Staff List approved by the General Director for each structural unit.

The remuneration of individual highly skilled workers is made on a contractual form of remuneration in accordance with the regulations in force at the Complex.



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Measures with appropriate material remuneration are envisaged for success in work, achievement of high performance indicators: expression of gratitude, awarding a Certificate of Honor, a valuable gift, awarding the title of "Veteran of Labor" of JSC Almalik MMC, awarding the medal "Gornyatskaya slava" (Mining Glory) of three degrees, as well as nomination to state awards.

Various benefits are provided for employees of the MMC:

- a main extended labor leave of 18 working days is established and additional leave of up to 6 working days depending on the length of work record;
- additional leave is granted for up to 24 working days for employees employed in jobs with unfavorable working conditions, based on the results of certification of workplaces;
- the duration of night time work is increased by two hours in winter time (December - February), paid in the increased amount,;
- free food is provided to all employees of the MMC who are not entitled to medical and prophylactic food;
- a monthly service reward is paid;
- payment of a lump sum on retirement has been established;
- financial support for health improvement is paid when taking a leave in the amount of a monthly wage rate (official salary) to employees who do not have violations of labor discipline during the 11 months preceding their leave.

Awarding of MCC employees has been established for the main results of operations 50 to 75% in accordance with the approved provisions. Bonuses for managers, specialists and workers of mines and underground mines for the performance of production indicators are made in an increased amount.

For the fulfillment of particularly important production targets, production assignments of heads of structural divisions, as well as for labor achievements, one-time bonuses are paid to employees in accordance with the provisions in force.

Provision is made for awarding workers for the saving of fuels and lubricants, the collection and delivery of recycled paper waste.

For 2018, the forecast number of personnel of Almalik MMC has been increased to 36,922 people, due to the commissioning of new production facilities envisaged by the investment program and the industry development program.

In accordance with No. PP-3280 Resolution of the President of the Republic of Uzbekistan dated September 15, 2017 "Regarding measures to further improve the management system of Almalik MMC JSC", the organizational structure of Almalik MMC JSC was approved and the structure of its executive office with the maximum number of administrative staff 138 units.

In accordance with No. 192 order of JSC "Almalik MMC" dated March 3, 2017 "Regarding the establishment of Directorate for the implementation of investment projects "Development of the "Yoshlik-I" and "Yoshlik II" deposits, an additional limit on the number of personnel for the structural divisions of Almalik MMC was allocated for training personnel reserve at similar workplaces for newly commissioned facilities.

In accordance with No. 188 Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 6, 2017 "Regarding Amendments to the Resolution of the Cabinet of Ministers dated May 29, 2013, No. 146 "Regarding Measures for Implementing the Investment Project "Organizing the Production of Copper Tubes of Different Diameters in the FEZ "Angren" and No. 272 Order of JSC "Almalik MMC" dated April 10, 2017 "Regarding execution of No. 188 Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 6, 2017" Unitary Enterprise "Angren Pipe Plant" was liquidated on a voluntary basis by establishing a new structural unit in the JSC "Almalik MMC" - Angren Pipe Plant.



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In accordance with No.PP-3004 Resolution of the President of the Republic of Uzbekistan dated May 25, 2017 “Regarding measures to create a Unified Geological Survey in the system of the State Committee of the Republic of Uzbekistan on Geology and Mineral Resources”, the Scientific and Production Center “Geology of Non-Ferrous Metals” was transferred to the State Committee on Geology of the Republic of Uzbekistan.

Starting May 1, 2018 and September 1, 2018, an increase in tariff rates and official salaries to employees of Almalik MMC JSC is envisaged.

It is planned to create 477 new jobs, including 303 jobs for the investment program, 104 jobs for the industry development program and 70 jobs for the implementation of projects in the construction industry.

19. PERSONNEL TRAINING

Regular activities are carried out in personnel training in order to strengthen the personnel potential of the MMC, improve the skills of engineering, technical and managerial personnel; organize their retraining by strengthening cooperation with higher and secondary specialized, professional educational and scientific institutions, attracting young and talented specialists who are able to ensure the effective work of the MCC.

Retraining and advanced training of personnel of the MCC is carried out according to the requested plan for technical training, drawn up taking into account the need for skilled workers for the planned year and the need to improve the production and technical skills of workers, managers and specialists.

Training of workers of the MCC is carried out both at the Training Center, on the job, and in educational institutions of the Republic of Uzbekistan and abroad, off-the-job training.

Annually improve their skills:

more than 5,300 workers;

more than 1,700 managers and specialists, including more than 750 people in the centers of advanced training of the Republic of Uzbekistan and the CIS countries with off-the-job training.

Pursuant to No. 3153 Resolution of the President of the Republic of Uzbekistan dated July 27, 2017 “Regarding Measures to Improve the Training of Engineering and Technical Personnel for the Production and Industrial Sector of the Tashkent Region”, the Almalik branch of the Tashkent State Technical University named after Islam Karimov was established and the branch of the National Research Technological University “Moscow Institute of Steel and Alloys” (MISaA) was opened.

In order to train highly qualified specialists in the specialties required at the MCC, the MMC cooperates with three higher educational institutions of the Republic of Uzbekistan and the CIS countries, where 164 people are trained in specialties on a fee-contract basis at the expense of JSC Almalik MMC.

The main partners in the training of specialists with higher technical education are as follows:

- Almalik branch of the Tashkent State Technical University named after Islam Karimov;

- Tashkent State Technical University named after Islam Karimov;

In order to meet the needs of the MMC for qualified personnel in the field, an agreement was entered into with the National Research Technological University "MISaA" in Moscow for training specialists with higher education.

In order to train workers for the shops and divisions of the MCC, Almalik MMC cooperates with 7 professional colleges:

- Almalik Mining and Metallurgical Professional College;



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- Almaryk Mining Professional College;
- Pap vocational college of mining metallurgy and service (Namangan region);
- Denau Vocational College of Mining (Surkhandarya region);
- Gallyaral industrial professional college "Lalmikor" (Jizzakh region);
- Angren Professional College of Chemical Industry (Tashkent region);
- Chirchik Industrial Professional College (Tashkent region).

Since September 2017, the Almaryk Mining and Metallurgical and Almaryk Mining vocational colleges belong to the structure of the Almaryk MMC. Within the framework of cooperation with professional colleges, the MMC carries out systematic work:

№	Description	Unit of measure	2015	2016	2017
1	Organization of on-the-job training and pre-diploma practice	Persons	2071	3270	2349
2	Employment of graduates of vocational colleges on the basis of pre-diploma practice	Persons	1147	1135	1200
3	Expenses for trainees during the practice period	mln.UZS	116	113	214
4	Expenses for payment to managers of practice (mentors) by the MMC	mln.UZS	63	34	180
5	The cost of monthly scholarships for gifted students and additional payments to college teachers with high rates	mln.UZS	77	73	120

The leading specialists of the MMC regularly conduct training seminars and lectures for students, job training instructors and teachers of special disciplines.

JSC "Almaryk MMC" annually allocates funds For the training of personnel:

- 2016 (actually) - 3200 million UZS
- 2017 (assessment) - 2300 million UZS;
- 2018 (estimate) - 6450 million UZS.

Since August 2017, the training of newly hired workers of the Sherabad Cement Plant under construction on the basis of the existing Jizzakh cement plant has been organized. Currently, 284 people have been hired at Sherabad Cement Plant. Training is organized in the main areas of specialties:

- filed of study - technology of cement production;
- mechanical and energy services;
- Laboratory assistant of chemical analysis, automation of production technology control systems.

Specialists from other departments of the MMC, teaching staff of the Tashkent Institute of Chemical Technology are involved in the training.

At the same time, a weekly check is organized for the knowledge of workers at the Sherabad Cement Plant, and candidates for engineering and technical workers are identified.

For employees of the Youth Union, it is planned and organize further training seminars, refresher courses, in order to develop their leadership skills and practical assistance in realizing the professional skills of young employees of the plant.



20. LABOR RESOURCES

The need of MMC in 2018 for specialists with higher education is 521 people, which will be partially provided by employing 29 graduates of universities of the Republic of Uzbekistan and the Russian Federation who studied at the expense of the MMC and employing citizens with higher education in the amount of 492 people.

In accordance with the approved Regulations “Regarding the reserve of personnel for senior positions”, “Regarding probation of reservists for senior positions” with reservists, work is continuing on replacing absent managers, on improving their qualifications, on probation in senior positions, on commission hearings of their reports on the implementation of an individual plan.

The Union of Youth with a program of comprehensive measures to improve the activities of the Union of Youth for 2018 operates to form the organizational and legal base of work with young people, create a system of support for young personnel, increase the effectiveness of young people’s activities at the MMC.

21. APPEALS OF PHYSICAL AND LEGAL ENTITIES

A virtual reception of the Chairman of the Board of the Executive Office of JSC "Almalyk MMC" is created in order to ensure the introduction of new effective methods of continuous open dialogue with citizens in accordance with No.UP-4904 Decree of the President of the Republic of Uzbekistan dated December 28, 2016 “Regarding measures to fundamentally improve the system of working with individuals and legal entities”, improving the operational response to the appeals of legal entities and individuals, the system of working with written and oral appeals of citizens and the service for monitoring coordination of work with appeals of individuals and legal entities; a telephone hotline has been created under the Council of the trade union of the MMC workers. All received applications are reviewed on time and clarifications are provided.

22. FINANCIAL AND ECONOMIC INDICATORS

Revenues of JSC Almalyk MMC for 2018 are generated on the basis of approved production volumes and current prices for manufactured products. The total revenue from the production of marketable products will be 8209.8 billion UZS, including by main types: copper products 4111.9 billion UZS, precious metals 2366.4 billion UZS, metal zinc 281.3 billion UZS, cement 369, 8 billion UZS, copper pipes 248.6 billion UZS. Other income from operating activities will amount to 19.3 billion UZS.

Production costs will amount to 5706.4 billion UZS, including production costs - 3017.9 billion UZS. In determining the cost of commodity products, increases in tariffs for electricity and natural gas were taken into account, from April and October, by 10%. Also two increases in the payroll fund, 10% each, from May and September 2018 are also provided. Production material costs are determined based on the needs of the divisions of the MMC, in particular, production materials are calculated according to the approved consumption norms and key production indicators. The expenses for services of third-party industrial organizations and other cash expenses of the MMC were taken into account.

Expenditures of the period for 2018 will amount to 2688.5 billion UZS, including taxes and obligatory payments of 1480.1 billion UZS (55.1% in expenses of the period and 25.9% in total production costs), other expenses 1208, 4 billion UZS. Other expenses include sales of 36.5 billion UZS, administrative expenses of 128.0 billion UZS, other operating expenses of 1043.9 billion UZS. The main items of other operating expenses are: contributions to charitable funds



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and the provision of sponsorship assistance in the amount of 595.0 billion UZS (Table 9); compensatory and incentive payments - 210.9 billion UZS, the cost of maintaining social facilities - 73 , 5 billion UZS

Deductions for investment special accounts will amount to 601.6 billion UZS, including copper - 312.7 billion UZS and gold - 288.9 billion UZS. The excess profit tax on copper will be 312.7 billion UZS, on gray cement - 35.5 billion UZS. Profit tax and other taxes on profits 339.9 billion UZS. Expenses (income) on financial activities will amount to 108.3 billion UZS (For generation of income and expenses see Table No. 6a, 6b).

As a result of the measures taken, the sources of financial resources in 2018 are projected at 2998.9 billion UZS, including net profit 1124.7 billion UZS.

The receipt of funds on special investment accounts for copper and gold will amount to 601.6 billion UZS, which will be fully used to finance the Investment Program and pay off previously taken loans.

According to the Decree of the President of the Republic of Uzbekistan “Regarding the Investment Program of the Republic of Uzbekistan for 2018”, it is planned to attract loan funds in the amount of 1,272.6 billion UZS, including 11118.0 billion UZS are funds of the Fund for Reconstruction and Development of Uzbekistan and 154.6 billion UZS from commercial banks.

The debt on loans received as of 01/01/2018 will amount to 5,329.7 billion UZS.

Repayment of principal on previously received loans, according to repayment schedules, will amount to 689.8 billion UZS in 2018 (loans from the Fund for Reconstruction and Development of Uzbekistan 458.0 billion UZS and loans from commercial banks 231.8 billion UZS).

(Information on repayment of loans under current loan agreements for 2018, Table No. 6c and Generation of sources of financing, Table No. 6g.)

23. MAIN OBJECTIVES FOR 2018

To ensure the stable operation of the MMC, to achieve the established production and economic indicators, the main tasks for 2018 are as follows:

1. Unconditional fulfillment of forecast production parameters:
 - the output of marketable products in the amount of 8 209.8 billion UZS;
 - ensuring the growth rate of output in comparable prices to the corresponding period of 2017 by 102.2%;
 - ensuring the export of products in the amount of \$ 491.8 million;
 - reduction of imports due to cooperative ties in the amount of \$ 2.3 million;
 - implementation of the localization program for the production of finished products, components and materials in the amount of 26.7 billion UZS.
2. Further increase in the production of non-ferrous, precious, rare and carbide metals by expanding the raw material base of the plant, including:
 - copper porphyry ores - Yoshlik-I and Yoshlik-II deposits;
 - gold-bearing ores - the Samarchuk field on the basis of existing Kyzyl-Alma deposit;
 - polymetallic ores - Uch-Kulach deposit.
3. Ensure fulfillment of objectives for precious metals.
4. Purposeful implementation of the Investment Program, including major strategic projects:
 - "Construction of a cement plant in Sherabad district of Surkhandarya region";



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- “Construction of an underground mine at the Samarchuk field on the basis of existing Kyzyl-Alma field.
- 5. Introduction of advanced energy-saving technologies for processing the extracted ore, complex extraction of useful components from it, especially rare earth metals.
- 6. Ensure contingency and increase the level of loading of existing mining and processing production facilities, including mining and processing of copper porphyry ores by 100%, blister copper 83%, sulfuric acid production by 84.3%.
- 7. Implementation of the Program of applied research on the Scientific - Production Association for the production of rare metals and hard alloys, set for 2018.
- 8. Introduction and development of modern technologies for the processing of rare metals with the production of pure metals and alloys.
- 9. Performance of export parameters for products and services.
- 10. Expansion of the range and unconditional implementation of the forecast parameters of the Localization Program for finished products, components and materials.
- 11. Decrease in imports due to the optimization and expansion of stable cooperation links between enterprises - domestic producers is projected to \$ 24.8 million.
- 12. Improving production efficiency and reducing the costs by saving and reducing the costs of inventory, including fuel and energy resources through the introduction of modern technologies and equipment.
- 13. Improving energy efficiency through the introduction of energy-saving technologies.
- 14. Preventing the generation of overdue receivables and the phased repayment of existing payables (Table No. 8).
- 15. Addressing social issues, including the creation of new jobs and the provision of employment.
- 16. Fulfillment of predicted employment parameters for graduates of vocational colleges.
- 17. Ensure systematic work on the preparation of an efficient and high-quality personnel reserve.
- 18. Monitor the professional growth and business activity of persons in the reserve.
- 19. Organize high-quality training of young professionals from the number of engineers and workers in accordance with all applicable industry regulations on health and safety.
- 20. Strengthen control to reduce overall and occupational morbidity.