

INTRODUCTION TO THE CONCENTRATE SMELTING PLANT CONSTRUCTION PROJECT

Mongolia has been becoming as the biggest player of the world market through the mineral resource outputs and the product outputs of the Erdenet, Oyutolgoi, and copper mines. Copper concentrate production was increased till 1 million 378 thousand tons by pure copper metals 249 thousand tons per year. It becomes possible to develop a large integrated metallurgical industry for the processing of copper concentrate.

Therefore, the Ministry of mining and heavy industry has introduced a project to process 1 million tons of copper concentrate per year by the state and private sectors partnership, based on resources of copper deposits of Erdenetiin oboo and of copper and gold deposits Oyu Tolgoi

For the development of the copper industry which have an exclusive significance for the economy of Mongolia, the Great State Khural and Government has issued the following Resolutions and decisions:

Resolution No.21 of the State Great Khural on “Copper Concentrate Smelting and Refining Plant construction work” dated April 29, 2010;

In 2016, the Parliament of Mongolia approved the concept of sustainable development of Mongolia until 2030. This concept is defined as the development of heavy industry has an advanced industry in the sustainable development of Mongolia.

The Parliament was amended on 14 May 2015 the new Investment Law that provides a comprehensive regulatory regime for foreign and local investments in Mongolia.

- The law grants a land possession right to foreign investors.
- A foreign investor may be entitled to a tax stabilization if its investment in Mongolia is more than MNT 30 Billion.
- A foreign investor that invests more than MNT 500 Billion may enter into an investment agreement with the Minister in charge of investment matters. The GOM determines types and codes of “finished mining products.” Under the VAT Law of Mongolia, which becomes effective from 1 January 2016, VAT will be assessed at the rate of 0% (zero percent) for finished mining products.

Article 2.72 “Promotion of the setting up of an enterprise for the melting and cleaning of copper concentrate” of the Program activities on 2016-2020 years of the Government of Mongolia” According to which the government of Mongolia adopted a resolution No 88 “ Acceleration of the construction work for a copper concentrate processing plant” it was decided to set up a plant in Khanbogd soum of Umnugovi province near the Oyutolgoi copper mine project and The Government will own at least 10 percent without any cost of the total shares project investment cost.

The government will guarantee the following conditions: According to the investment agreement of Oyu Tolgoi project , the draft article 3.21 will provide continuously with copper concentrate to the future copper concentrate smelting plant

Providing the infrastructure including the Oyutolga mine will connect the railway with the mainline railway building between Tavantolgoi coal mine and Gashuun suhayt border station to the Chinese border

Providing of a electricity from the substation build by Oyu Tolgoi mine for a distance of 8 km

Providing of a water supply to the planned construction of the surface water supply system of the Kherlen project

Providing of a land for the construction of the copper smelting plant

The government will not give any guarantee for the investment of the project and the investor will be responsible for financing the project

COPPER CONCENTRATE SMELTING PROJECT FUTURE LOCATION AND OYU TOLGOI MINE RESOURCES

The copper mine and concentration plant OYU TOLGOI project located in Southern zone has the ore reserves and capacity to supply the smelter with by resources for more than 100 years. OT LLC owned 34% by Government of Mongolia, 66% by Turquoise Hill Resources (TRQ) public company registered on the TSE and Rio Tinto owns 51% of TRQ.

Oyu Tolgoi Copper-Gold Deposits consist of the following three main deposits.

1. Oyut group of deposits (Southern Oyu, Southwestern Oyu, Central Oyu and Link)

2. Hugo Dummett group of deposits (South Hugo, North Hugo), 3. Heruga deposit

As estimated the minimum 0,3% equivalent copper content, Oyutolgoi mine submitted the 6,541 million ton geological ore resources, comprised of 45,03 million ton copper and 1838 ton gold for the concentration by the National Professional Mineral Board on July 01, 2009 and entered the resource to the general resource registration. Oyutolgoi mine capacity is average from 35 million tons to 43 million tons after starting underground mine and concentrate plant capacity is having a same capacity. Since 2029 when Oyutolgoi underground mine will start, it will be possible to export from 1,5 million to 2 million tons of copper concentrate per year comprised of 450 thousand ton copper, 12 ton gold, 120 ton silver.

Erdenet Ovoo's copper and molybdenum mine's current copper resources is 1,3 billion ton geological ore resources , comprised of 4,6 million ton copper and 125,4 thousand ton molybdenum. 'Erdenet mining Plant' LLC manufactures the 530,0 thousand ton copper concentrate with 23,5% copper content and 4,0 thousand ton molybdenum

concentrate with 51% content Mo a year. The pure copper in the copper concentrate is 128 thousand ton.

INFRASTRUCTURE CONDITION OF THE CONSTRUCTION PROJECT

1. Railway existing and planning to See Ports at present, there is a single main railway running from the northern border with Russia to the southern border station Zamyn uud Erlyan with China. Of course there are a branch railway up to the Erdenet mine and the Borundur fluorite mine and Baganuur coal mine These roads can be seen on the map

Oyutolgoi mine and Tavan Tolgoi coal mine have no railway . But the Government plans to build 267 km of railway from Tavantolgoi coken coal mine to Gashuun Sukhain border which shall cross in near proximity 25 km to Oyu Tolgoi mine on the right site on the left site about 43 km. Not far from the crossroads of the railway will be built future copper smelting plant. Oyutolgoi hag the most favorable conditions for transportation and logistics and given the possibilities to freely transport the copper production and sulfuric acid to China's market to deliver to Chinese customers and transport costs will be 2,5 times less than through the Zamiin Uud Erlyan railway.

2 Existing energy system and planning to Oyu Tolgoi mine

Depending on the size of the facility and utilized technology the project is expected to require 50-100 MW. The Region has existing 110 kV and 220 kV networks from Central Power system to Tavantolgoi coal mine and in this area is expected to construct Tavan tolgoi power plant with capacity 350-400MW and from this Power plant will be to provide power to users in Southern region of Mongolia Oyu Tolgoi mine and other. We think that there is full possibility to supply electricity from the Central Power system. Now a substation with 2 transformers of 125 kVt with two 220 kV transmission lines from the Central Power system has been built by the state budget at a distance of 8 km from the Oyu Tolgoi mine site. In the future the capacity of this substation will be increased with the commissioning of the Tavan Tolgoi power plant.

Now Oyu Tolgoi mine and processing plant have been supplied with electricity by a 220 kV line from Chinese electricity. The Ministry of Energy hag submitted the conclusion that the Copper smelting plant can be supplied with electro-energy from Mongolian Central Power System.

3 Water supply condition

Regarding water resources of Mongolia is heavily dependent on demographic zones. The northern region of the country has abundant rainfall and the water resources, but southern Gobi and southeastern regions have limited water resources.

Particularly in the southern regions with limited water supply, groundwater is one of the main sources of water in the country-generally held in aquifers between 50 & 400 m below the ground surface. Groundwater resources cannot be a reliable source.

In order to provide water for the planned industries of Tavantolgoi and Sainshand in the South Gobi region the Government of Mongolia together with the World Bank has initiated a water pipeline projects Orkhon-Govi and Hurlen-Gobi. The figure shows the planning routes for the Otkhon-gobi\1\ project and Kherlen-gobi project\3\ water pipeline projects.

According to the researches jointly with World Bank on water supply and consumption in the south gobi region, it is expected that the water resources in region will be inadequate from 2018 and will be not provide an increasing needs of water consumption. There is the deficit of consumption 51630 m³/day for only mining sector. Therefore the project implementers of the World Bank have issued a recommendation to support Government policy on the use of not only groundwater but also surface water in the mining industry in the South Gobi.

Consumption of technological water in copper smelting plant is 10 times lower than Oyu tolgoi processing plant and when the underground mine is commissioned and capacity of processing plant will be is increased up to 120000 -150000 tons a day and water consumption will be reach 900-1199lt/sec which means that the determined water resources of 870lt/sec will not be sufficient. Therefore the Government of Mongolia should support and implement a project for the creation in South Gobi a surface water system by regulating surface water within the frame of the World Bank initiated project Orkhon-Gobi and Huglen-Gobi for the reliable water supply of Southern region's mining and industrial project.

GENERAL INFORMATION ABOUT PROJECT

1. Technology parameters : Since 2029 when Oyu Tolgoi underground mine will be put into operation it will be possible to export 1 – 2 million tons of copper concentrate per year and in the metal it will be 450 thousand tons pure cathode copper, 12 tons gold, 120 tons silver

The project plant will process one million tons of copper concentrate per year and will produce final products of 257,200 tons of cathode copper 5880 kg of gold and 57000 kg of silver and 988,000 tons of sulfuric acid. The Production of cathode copper will provide a domestic production of new types of copper products \ electrical parts, automobile radiators, copper chip, electronic products, etc\ and create market values and will lead to a diversification of the economic structure and ensure high GDP growth.

Limited consumption of sulfuric acid in the domestic market is forced to export all sulfuric acid in the initial period. In the future, as the development of uranium and other oxidized copper projects will consume a significant amount of sulfuric acid. China's annual imports of sulfuric acid is 12 million tons and the plant is located of the China border 100 km Therefore, it is possible to supply sulfuric acid to the Chinese consumer.

Erdenet and Ovoot railway in this direct will be built by concession and after the launch of this line it will be possible to develop the Burenkhan phosphorite deposit and

the production of phosphorite fertilizer will use sulfuric acid. In future the need for sulfuric acid will be increasing in internal Mongolia.

2. Financial indicator

According to the resolution of the Government, the project is working to implement the unit does the preparation land clearance and preliminary feasibility study and assessment of the environmental impact and the issue of the water supply of the project

According to preliminary is an investment about 1.9-2.3 billion dollars USA. The revenue after operation 1,99 billion dollars USA per year, Tax after the operation 46 million dollars USA per year, Profit after Tax is 139 million dollar USA , and IRR of project is 14% , the period of return investment is 10-13 year . The required place of employees are 1080 peoples.

There are make next project: Hatch Co Ltd PreFS report “Copper smelting project of Mongolia”

“Erdenet mining Corporation” LLC - ENFI PreFS “copper smelting project with 520.000 tn copper concentrate

COPPER PLANT COMPLEX

COPPER PLANT COMPLEX INCLUDING NEXT PLANTS:

- 1 Copper smelting and refining plant
- 2 Anode production plant
- 3 Copper refining plant
- 4 Sulfur acid plant and elemental sulfur plant

The project implementing unit Ministry of Mining and Heavy Industry of Mongolia