INVESTMENT POSSIBILITIES OF USE ORE DEPOSIT IN SLOVAKIA DEPENDING ON THE METHODS OF FUNDING

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Mining projects are known by high or extreme Risk ratio not only for employee working under surface, state economy, but also for environmental impact. During mining operations may happen a large number of unforeseen events, which in different ways, negatively affect the project. This situation can be avoided primarily with responsible human expertise and thorough preparation, planning and control, which are one of the main management tasks of the project. Risk of adverse events can be reduced by thorough preparation for all alternatives; it is essential to a thorough processing of all required documents (pre-project studies, feasibility studies, assessment of environmental impact - EIA, etc.). Preparation of all necessary requirements takes a lot of time and requires a high degree of professionalism reviewers. Therefore that mining project is unique and specific. There are no two companies in mining area that which exactly have the same processes. This fact is fully touching in my model example project, especially in the context of technological problems in relation to mine flooding.

K e y w o r d s. mining, project, investors, feasibility study

1 INTRODUCTION

The decision to invest in mining company contains large amounts of parameters. All this parameters must be known to effective assessing of investment. Main groups of this information are:

- Parameters of mineral deposit
- Possible technical problems
- Mining technology
- Mining methods
- Secondary needs
- Legislative
- External economic situation (and investment assess)
- Project risk assess
- Mining company (under loyalty, efficiency, company history and company business crime)

Using this information the assessment investment and investment opportunities on the mineral deposit can be done.

We can classify 4 groups of most possible financial assistance (financial options):

- State financial option
- Bank loan
- Own funds
- Investor funds

Consideration of all investment opportunities is very important, used to the right investment decision. Without this information the level of project risk in all above named category of information is rising. Only with a complete base of information can be project assessed accurately.

2 GENERAL INFORMATIONS

By the investment decision, an investor accounts mainly in the following facts:

- A detailed economic study of economic efficiency of business with the establishment of rate acceleration opportunities (screening)
- Compare of the relative merits of all investment funds (ranking)
- Business valuation bids, selling the same products or services
- Decision to buy or rent
- Determine the value or price for the purchase and sale of products
- Determine the cost of credit, short-and long-term creditor liabilities
- Replacement of existing equipment or services
- Choice between attractive investment alternatives

Investor assesses the cost-effectiveness mostly based on the following financial project data:

- Return on investment – ROI
- Payback period - PBP
- Internal rate of return – IRR
- Value of net profit – NV [1]

There are several opportunities for mining investments in Slovak republic (Including exist many lucrative investment opportunities). For explanation of investment requirements I choose ore mining deposit of silver – gold vein. For example of business risk ratio I consider about problems with groundwater.

Investment opportunity, which can I consider in my model example is Maria Mine in Slovak republic (Area rich to silver, cuprum and colored metal). This investment opportunity is followed by the public in two contexts in present:

- Because of mining renewal on the ore deposit (like interesting investment opinion)
- Because of leakage of groundwater potentially threatening soil and near town – Roznava.

Zelba Company owned Maria Mine in 90s. In 1994 was discussed in parliament proposal for Interim preservation of the mine. In 2003 mine was finally shut down mining and flooding of mine has begun. Since 2005 is mine totally flooded. Groundwater is monitored in the context of environmental safe. Mineral deposits in his mine are significant for economy. To restore production at the mine in the present are trying the investors. This example is potentially the best for me to explain the basic of investor's interest.

3 SILVER VEIN PROJECT

Maria Mine is the mining area in the south of Slovak republic with high mining potential. This area is content with several Veins, 2 are most considerable:
1. Mária (Maria) long over 1km with maximum power 20m.
2. Strieborná (Silver)
3. Others Veins

In Maria Mine area is high content of silver, copper, mercury, gold and other colored metals in the Veins. In this time are all this mining areas flooded for 3 years. The Roznava Mining District is located at the south end of the Spis - Gemer Rudohorie (Ore Mountains) range. This district extends NW and NE of the town of Roznava in a zone 12km long and 4km wide.

The Silver Vein project is aimed at restarting mining operations at Maria Mine near Roznava, Slovakia, which hosts the Silver Vein silver-copper deposit. GMS currently owns rights to Mining Leases Roznava I and III, covering the historic Maria Mine. [2,5]

3.1 Parameters of mineral deposit (the first category of information)

Resources of the Silver Vein Deposit, classified and calculated by AMC, and reported in their NI 43-101 compliant Resource Statement dated April 2008 are:

Figure 1. Silver Vein Deposit [2]

Global Resource (no cut-off grade applied)						
RESOURCE CATEGORY	Mt	thickness (m)	Ag g/t	Cu %	Sb %	Fe %
Measured	215,000	5.8	468	2.2	1.4	20.6
Indicated	1,710,000	3.4	202	1.0	0.6	33.2
Inferred	1,500,000	3.2	180	0.9	0.6	33.6
TOTAL	3,425,000	3.4	208	1.0	0.7	32.6

Totally:

Figure 2. Content in the Silver Vein Resource (Numerical $.10^3$) [2]

RESOURCE CATEGORY	Mt	oz Ag	lb Cu	lb Sb	mt Fe
Measured	**215**	**3 235**	**10 430**	**6 640**	**44,3**
Indicated	**1 710**	**11 105**	**37 705**	**22 625**	**568**
Inferred	1 500	8 680	29 770	19 845	504

TOTAL	3 425	23 020	77 900	49 110	1 116,3

Silver Vein mineralization is characterized by high grades of Cu, Ag and Sb minerals. Although the Silver Vein does not reach the surface, over 3.5km on five underground levels have been developed and extensively explored.

- Ore minerals: Fe-Cu-Ag-Sb ore material (polymetallic ore), Tetrahedrite is the main Ag, Cu and Sb mineral
- Mineralogy: Vein material consists of siderite, quartz, tetrahedrite, arsenopyrite, pyrite, chalcopyrite, covellite, albite, ankerite, sericite
- Vein Width: 1 – 12m, averaging 3.4m
- Vein Dip: Variable, 60 - 80°
- Vein Extent: 500m vertical extent, open down-dip 1,500m horizontal extent, open along strike [2,4]

3.2 Possible technical problems (the second category of information)

The main mining problem in this area is groundwater. Because of groundwater is 100% of the Silver deposit flooded. Before begging of mining works is necessary to pump out this subsurface water from existing mining works and to tunnel new mining hoisting shaft, which substitute combined transportation (with wins and impasse working pit) in existing mining working.

For pumping mining groundwater with capacity app. 930 m3 and water reduction into the surface water – flow is necessary to build up mining water sewerage plant with minimum capacity 300 m3/24 hours and canal with sufficient capacity.

3.3 Open mining work (related with the forth category of information – mining methods)

Open mining Work is designed by condition mining deposit factors, which are:

- Deposit location
- Information base on the quality and state of geological reserves
- Hydrogeological and geomechanical situation
- Deposit and Layer position

Silver Deposit is access only from flooded mining works from Maria Deposit from the storey level:

- Horizon 6th with 180m dimension
- Horizon 8th with 79m dimension
- Horizon 9th with 30m dimension
- Horizon 10th with -19,5m dimension
- Horizon 13th with -165,8m dimension

There is accessed 6th horizon with winze parallel with surface on the 359,5m dimension. On the winze at dimension 332,5m feed transportation tail with length approximately 1500m, which mouth in Slany stream valley on the dimension 325,8m. From 6th horizon in the distance app. 100m out of winze are access with staple pit additional horizons to the horizon 13th with -165,8m dimension. [2,6]

Because of traffic and conveying is necessary to have minimum 3 lodges at 8th 10th and 13th horizon.

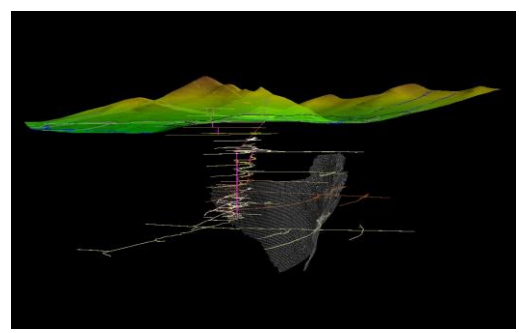

Figure 3. Open mining work model [2]

According to Silver Deposit model and his surroundings were proposed 3 variants of location and excavation new mining hole:

- Excavation existing mining works from surface – the mining pit, which was in past excavation in app. 60m depth and is located in area of Mine Roznava factory. This pit will be excavating in surface (on dimension 365m) to dimension 13th horizon with -165m elevations.

- Excavation of existing mining works from underground – in this variant will be the mining excavation hole realize under build safety ceiling. The surface objects will be building additionally under settlement land access. Excavation of the pit will be realized from 2nd horizon, elevation 304m to horizon -165m with secondary through connection with traffic hole with 332,5m elevation.
- New staple excavation – staple excavation is situated in the near of existing winze. With this variant the excavation from elevation 332,5m to elevation -165m is possible.
- New staple excavation from surface outside of Maria Mine area. [2,3]

Most probably variant is open stope mining with crown pillar and Long-hole stope with backfill. Current resource base (measured and indicated) will support 500 tons per day operation for 12 years. The mine life can be extended to 20 years if the "Inferred Resource" is included.

In present is the most widespread of mining reinforcement the sprayed concrete, either used separate in thickness 5- 10cm or in combination with steel. In the proposal are 2 types of profiles: parabolic and open with flat vault and several different types of steel reinforcement, their using depends on geotechnical conditions and costs minimization with environment stabilization maintain.

The Current Resources of the Silver Project could grow through further exploration:

- Within the Silver Vein itself a ~50% increase in resources might be achieved by exploring the unexplored areas above Level 8 and below level 13, and to the boundaries of the property.
- On the two Mining Licenses there are three parallel veins; exploration of the Maria, the Podlozna, and an unnamed vein (intersected in drill hole VRS6/2-86 - 2.2m, 667 g/t Ag , 5.1% Cu and 3.4% Sb) could yield up to a 200% increase of the current resource.
- The Kalvaria and Tri Vrchy cover potential parallel veins to Silver. The Rakos Exploration Permit covers any extension of the Silver vein system. The District contains over 90 known vein systems, but none of these have been explored for anything other than siderite since the beginning of the 20th century. There are reports of shallow medieval gold and silver workings east of Cucma

3.4 Proposed processing (related with the third category of information – mining technology)

Proposed processing of extracted materials are:

- Ore will be crushed and ground to support a 500 tons/day mining operation
- Flotation process will recover 90-95% of the Ag, Cu, Sb, and Au bearing minerals, producing 40-50 tons of concentrate per day, grading 4000-5000 g/t Ag, 25-30 % Cu, 15-20% Sb, and 5-10 g/t Au
- 50 tons per day of concentrate will be further treated using the special process, producing a saleable Cu-Ag-Au concentrate and elemental Sb

3.5 Secondary needs (fifth category of information)

Most important part of organization is planning of all parts of ore mining process. Concerning for direct organization of projecting and realization works will be increase amount of investment means. It was the best to classify the investment project into three periods:

- Building out of surface mining field and infrastructure
- Building out of treatment plant
- Building out of administrative offices

Mining works can be for example project in two groups – transport roads and mining roads. In terms of length of implementation and its purpose will be made following procedures:

- Purchase land for the investment location
- Preparation of project documentation and permitting processes run various stages on the investment project
- Implementation of the first stage of investment project (underground mining works)

- Implementation of the second stage investment project (construction finishing works)
- Preparing open mining process and exclusive deposit
- Launch pilot plant
- Start operation [1]

3.6 Legislative (sixth category of information)

First main part of legislative needs is environmental impact analyze. The implementation of the investment project restore the rational exploitation of mineral wealth, create new employee opinions in the professions, which does not apply in this region, further disposed environmental burden threatening for Roznava and surrounding populated areas. It is creating new job positions used in the service sector.

Groundwater in Maria Bana threat and pollutes groundwater natural flows and threaten the widen neighborhood of Roznava town. Depletion of groundwater is positive environment impact for Roznava district.

Running mining operations precede legislative requirements relating to various environmental components, namely:

- Air
- Soil, rocks
- Running water (mining, utility)

The second main part of legislative needs is to resolve the legislative needs. In the case of waste, investors must deal with the waste management service solution. It is necessary to make initial measurements on occupational health and propose measures to avoid adverse effects on employees and the wider environment of operation.

Investor (the operator) is required to establish and maintain records on the types and quantities of waste. He must manage hazardous waste at 100 kg total for a year is necessary to ask the Office District guidelines for consent to the disposal of hazardous waste. Main part of an application for approval is supported by an assurance contract or waste disposal and emergency plan for handling hazardous wastes. Also necessary is to develop a waste management program for producer of the waste in excess of more than 500 kg of hazardous waste or other waste 10 t.

Main project impact for residents is making works opinions with secondary work positions in service sector.

3.5 Main project risk (eight category of information)

Project Risk profile is in all direction minimal, we can classify the mining risks in 4 groups:

- Country Risk: Slovakia has been a full-fledged member of European Union since 2004, member of Schengen-space EU countries (free movement of persons and goods) since 2007. This risk is in condition of Slovak legislative minimal.
- Resource Risk (fully consider on the base of feasibility study)
- Recovery Risk (fully consider on the base of feasibility study)
- Permitting Risk (fully consider on the base of external economical situation) [1]

Among the important factors that could cause actual results to differ materially from those indicated forward-looking statements are failure to obtain capital as needed for exploration and development, delays and difficulties in developing, currently held properties, the failure of exploratory drilling to result in economically viable resources, delays due to limited availability of drilling equipment, mining and milling equipment and personnel, fluctuations in metal prices, general economic conditions, the risk factors detailed from time to time.

5 CONCLUSIONS

Opinions of mining investment in Slovak republic are with high investment potential because of legislative, mineral resources and mineral deposits. Necessary is to follow the excellent projected return on investment and significant exploration potential for resource increase in both size and quality. Investor can

calculate support of EU and Slovak Government subsidies and grants for this model project (infrastructure, environment, workforce, tax incentives) and all levels of government favorable.

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