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ECONOMIC EVALUATION OF MINERAL RESOURCES FROM THE STANDPOINT OF BUSINESS AND SOCIAL PROFITABILITY

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ABSTRACT

The application of economic criteria of profitability and business operation is not only required but essential in the modern business climate for the proper functioning of a country's mineral sector, mineral economics and ensuring market survival. A distinctive feature of economic evaluations of mineral reserves is their division into strategic mineral resources and other mineral resources. Apart from their economic significance, strategic mineral resources are particularly noteworthy due to their national or social importance. Depending on the type of resource and its social and economic significance, the economic evaluation of mineral resources may be conducted from two standpoints: business and social profitability. Given the transition of the mineral economics into a market economy, special attention needs to be paid to social profitability, since solely orienting towards business profitability may cause long-term negative effects on the economy and mineral economics. What this means in practice is adhering to economic criteria and market orientation on one hand, while analytically including key components of social profitability on the other.

Keywords:
business profitability, social profitability, mineral economics, mineral sector.

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1. INTRODUCTION

Speaking in modern terms regarding the economic profitability of business activities, business success is predominantly determined on the basis of financial gains or profit. The basic strategic guideline, especially in the business activity of private companies, is to maximise profit which mainly manifests as business profitability. However, in state-owned enterprises the tendency to maximise social profitability via its activities, realised production of goods or services provided predominates and mainly manifests as social profitability. Previously in Serbia the prevailing presence of public interest and the total disregard of economic profit have led to losses in the

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business activities some of these enterprises. In order to prevent this further impacting Serbia's macroeconomic stability and increasing its budget deficit, the Serbian government has adopted a clear stance that attention needs to be devoted to positive economic activity or business activity without losses while serving the public and general public interest.

In investment theory, especially in the part referring to the evaluation of industrial projects, special attention is given to analyses of their business and social profitability. When analysing both types of evaluations, an effort is made to identify all of the expenses and benefits of a certain investment [4]. However, the social profitability analysis of a project is considerably more complex. Above all, it is focused on determining the project's contributions to fundamental and developmental economic and non-economic goals i.e. the evaluation of the project's direct and indirect, measurable and non-measurable effects.

An analysis of social profitability is particularly relevant during the transition of the mineral economics into a market economy. In a specific way, the analysis is present in the mineral sector. This is especially true for analyses of states of active mines, economic evaluation of deposits, assessing their capital value or when evaluating the realisation of new projects in the domain of mineral economics.

In Central and Eastern European countries which have completed their transition process, a large number of mines and accompanying production facilities were closed down in the early stages of this complex and long process on the sole basis of business profitability, often due to external factors and hurried decicion-making. In rare cases, primarily those regarding strategic mineral resources which were of great national importance such as coal, oil, uranium etc. or those where social unrest posed a threat, certain mines and production facilities stayed open [5].

Taking into account all of the specificities of production in the mineral sector, in a relatively small number of cases the contribution of the mineral sector to the national economy should bear more weight than other, purely financial results, expressed through business profitability. In no way does this threaten the mineral economics' orientation towards a market economy, rather it enables more stable economic growth and prerequisites are created, directly and indirectly, for a faster transition into a market economy. Additionally, it positively affects the state of management of mineral resources and more successful management of business activities of companies in the country's mineral sector [10, 11].

The main goal of this paper is to indicate the place, significance and role when considering and analysing social and business profitability in a country's mineral sector so that they take into account the specificities in the way that mineral economics function and enable more efficient supply of various mineral resources to numerous branches of the industry which produce mineral resource-based goods.

2. ECONOMIC INTERESTS, BUSINESS AND SOCIAL PROFITABILITY

Various questions and problems regarding general and specific economic interests of working society as a whole are subject to numerous studies, evaluations and dedications not just in economic sciences but in philosophy and sociology as well [4]. Within the so-called neoclassical

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economics this has ultimately resulted in the establishment and development of the economic theory of well-being or economic well-being ('Welfare economics'). Stemming from the conceptual bases of economic well-being, several methods of economic analysis have been created, such as the cost-benefit analysis and the concept of index numbers of domestic income/well-being [3].

Recently, the stance in US and Western European scientific literature towards the issue of economic principles in the mineral sector has sometimes been conflicted. While making the case for profit maximisation being the highest principle of mining profitability, opposite principles are also present. Starting from the fact that mineral resources are scarce, exhaustable and non-renewable it is established that, fundamentally, great care needs to be taken in their long-term handling in the interest of meeting domestic needs, taking into account that rapid growth and development require a sizeable amount of various mineral resources [6]. Given the above, the activities of the mineral sector bear a special responsibility, one not shared with other branches of the industry which necessitates the fullest possible utilisation of mineral reserves and exploitation of subject deposits. This approach is not always met favourably by the public, especially not by business managers and strategists to whom profit maximisation is the chief principle in business activities. If the manager's request that the primary purpose and aim of every business was profitability [1], and mineral deposits were treated in accordance with the principles of profit maximisation, the inevitable consequence would be a rapid and irreparable extraction of mineral resources as part of natural resources in a relatively short amount of time, thus fuelling the irreversible depletion of mineral deposits.

An analysis of the conditions for maximising net gains in mineral economics, including geologic explorations and the exploitation of mineral resources, makes a clear distinction when defining net gains in the domain of business activities of two types of companies: (a) private companies and (b) public enterprises.

Private mining companies make business decisions mostly based on clear financial and market indicators and criteria, tending to strive for profit maximisation. The business goal may be defined through certain intermediate sub-goals e.g.: increasing revenue from sales, maintaining a position on the market, achieving a more effective level of production, reducing workforce expenditure per produced unit, increasing the degree of utilisation at current capacity, increasing the level of expertise within the company in certain departments, extraction or preparation technology, locating or purchasing mineral deposits of a certain type, quality or size [2].

The second group represents public enterprises which deal with the exploitation of mineral resources and often have: (a) non-financial (non-business) and (b) financial (business) goals. While also striving to maximise profits, these enterprises may also have different economic and developmental goals such as: to accrue foreign currency, reduce unemployment, ensure secure mineral resource supply in the country, reducing the mineral resource price fluctuations on the domestic market etc. In a way, these enterprises serve a special purpose because they act as a kind of economic growth regulator of a particular region or even the country as a whole should they happen to depend on mineral resources for their economic growth.

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3. ASPECTS OF NATIONAL ECONOMIC EVALUATION

The effects of national economic evaluation of active mines in industrially developed countries can be divided into two groups[1]: (a) direct and (b) indirect effects. Direct effects deal with the adjustment of business and economic results according to shadow prices and the economic principle of opportunity costs. The indirect effects include: (a) the effect on business activity in other sectors of the economy; (b) equalising the balance of foreign exchange sales and purchases; (c) export goals know-how; (d) securing supply in times of crisis; (e) keeping/maintaining domestic know-how; (f) maintaining active mining exploitation etc.

Securing the supply of mineral resources in times of crisis as a result of the mineral sector's direct business operation is the most compelling reason the national economy should maintain its economically unprofitable mining operations, as opposed to the business/economic practice in industrialised Western European countries. For example, that is particularly applicable to coal which is an energy resource that plays a vital part in the national economies of modern European countries. Justifying the supply of all needed mineral resources has even been likened to the upkeep of an army due to crises erupting in world politics which are also not governed by economic principles but by principles of rationality [4].

Questions and issues regarding the economic treatment of mineral reserves are closely connected to the appraisal of investment projects in general, especially in the mineral sector. Two types of profitability are analysed in respect to investment projects: business and social.

Essentially, analysing and determining business profitability encompasses two types of analyses: (a) an analysis of investment profitability and (b) a financial analysis [13,14].

Investment profitability represents an evaluation of potential resource yields connected to the mineral project, through which the direct yield on invested capital is expressed given that the form of financing in not directly significant. This evaluation is conducted by static and dynamic methods. The method of simple rate of return and the payback period method may be placed in the first group. Neither method takes into account the entire time period of the mineral project and the overall economic results that the mineral project is supposed to accomplish. These methods are based on non-discounted i.e. nominal values of annual financial revenues and losses [15].

The method of net present value (NPV) and the method of internal rate of return (IRR) may be placed within the category of dynamic methods belonging to the group of discount methods. These methods have been successfully used for a long time for the economic evaluation of mineral resource deposits both domestically and internationally.

The second part of the profitability analysis includes a financial analysis i.e. a liquidity analysis and capital structure analysis.

For many reasons, social profitability is more complex than business profitability. In investment theory it is considered that the techniques used for analysing business profitability are not sufficient for evaluating social profitability.

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In essence, national economic evaluation in the mineral sector is determining the contribution of mineral projects to the national economy. In practice, the method of cost-benefit analysis is mainly used for this purpose, developed for such needs and is successfully used in the mineral sector.

4. THE NEED FOR AN ANALYSIS OF SOCIAL AND BUSINESS PROFITABILITY

The issue of social and business profitability in the mineral sector is chiefly connected to developmental planning which encompasses the identification of goals and their ranking, efficient allocation and the utilisation of available resources of all types. That is to say, it is connected to the evaluation of new investment projects [7]. However, this issue is also of great importance when it comes to the evaluation of existing, active production facilities, especially for the evaluation of the capital value in the process of privatisation, capital increase etc. [8].

Specifically determining business and social profitability when evaluating mineral reserves or mineral resource deposits is an essential segment or foundation for the creation of an adequate mineral policy and mineral strategy of a country which the country's mineral sector and mineral economics depend on for further development [9].

Apart from determining the basic criterion for social profitability in the mineral sector through added value, due to the primary influence the mineral project has on the national economy other additional indicators must be taken into account such as the effects of market evaluation and the valorization of mineral reserves on: (a) employment; (b) social distribution; (c) FX inflow; (d) international competitiveness. If the influences and effects cannot be directly quantified, it is necessary to conduct separate qualitative analyses dealing with impact on infrastructure, technical know-how and the environment of mineral economics.

Business profitability is mostly connected with total economic profitability, meaning covering the real market price with the selling price with adequate gain/profit. Social (societal/regional/national) profitability is profitability on a social level with goals of national significance, working toward the greater good of the public or represent the fulfilment of needs of national proportions [12]. Meanwhile, the primary goal is not acquiring gains or profits but for the basic price of mineral resources to be lower than the real market price. Various forms of financial activities would then partially cover the price discrepancy until it reaches the real market price while simultaneously ensuring the economy is supplied with the required mineral resources.

It is interesting to note that in countries with developed market economies there were, and still are, examples of social profitability taking precedence over business profitability. This was the case with several uranium deposits/mines in the USA and with the exploration and production of gold in northern Canada. Also present was the abolishment of certain types of taxes in Australia in order to positively affect mining as a nationally significant branch of industry thereby causing certain deposits to become factually and economically profitable in the general interest of the national economy. Other examples could be added exemplifying countries with developed market economies putting social profitability above all else.

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The need for business and social profitability analyses in the mineral sector especially arises in conditions when the mineral economics is in the process of transition which Serbia is currently in. The shift to market conditions and criteria necessitates a special economic and strategic analysis to determine whether only the production facilities which have clear business profitability should be left in the mineral sector or if, under the right conditions, it would be necessary to opt for social profitability. The nature of mineral reserves, the conditions and means of their exploration, exploitation, utilisation and valorisation as well as the strategic properties of certain mineral resources unambiguosly entail the consideration of the same not only for business but social profitability as well.

A very telling example of the current conditions and functioning of the mineral sector in Serbia is the example of coal mineral reserves, being a strategically significant energy resource used in two of the largest thermal power plants in Serbia, TPP Obrenovac and TPP Kostolac. In order to secure cheap electrical energy for a population earning low salaries (approximately 400 Eur/month) and low purchasing power, representing a type of social profitability, a low price for the production inputs must be secured. Coal being an energy resource represents a key input. In the current economic environment coal cannot be sold at market price according to which 1 tonne of coal bought by EPS (Serbia's state-owned electric utility power company) is paid to coal mines Kolubara and Kostolac. The current price of electricity in Serbia is 5.35 Eurocents/kWh for households and 5.09 Eurocents/kWh for the industry. The price of coal at Kostolac open pit mine which is the supplier of TPP Kostolac is 1.65 Eur/GJ which means that, taking into account coal's heating value of approximately 9 GJ/t, equals a price of 14.85 Eur/t. It is particulary interesting to compare the aforementioned price of 1 tonne of coal with the market value price of the same, present on the market for natural persons or legal entities available for purchase for the purpose of heating. The retail price of this coal is approximately 56 Eur/t. In no way does this type of approach negate gain/profit as the general and basic motive of the mineral resource market, but it points to the possibility and need to, based on national interests and in suitable cases, deviate from business profitability of mineral resources in the interest of national goals for the country's economy and mineral economics.

5. CONCLUSION

Speaking in modern terms regarding the economic profitability of business activities, business success is predominantly determined on the basis of earnings produced i.e. profit. However, in state-owned enterprises the tendency to maximise social profitability via its activities, realised production of goods or services provided is dominant. This mainly manifests as social profitability. An analysis of social profitability is particularly relevant during the transition of the mineral economics into a market economy. In a specific way, the analysis is present in the mineral sector. This is especially true for analyses of states of active mines, economic evaluation of deposits, assessing their capital value or when evaluating the realisation of new projects in the domain of mineral economics. The key reason the national economy should maintain economically unprofitable mining operations, contrary to business/economic practice, is being able to ensure a secure supply of mineral resources in times of crisis as a result of the mineral sector's direct business operation.

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The transition of the mineral economics into a market economy is a highly complex socio-economic process, requiring a thorough revision of all factors relevant to the domain of mineral economics and the entire mineral sector. In accordance with that, a new, market-based national mineral strategy and mineral policy ought to be devised, grounded in business and social profitability of mineral resources and including guidelines for the functioning of the mineral sector and mineral economics in the upcoming period of growth for Serbia's economy and mineral economics.

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