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REVIEW ARTICLES

# Evaluation of Mining Enterprises Within The Framework of International Financial Reporting

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***Abstract***

The different structure of the enterprises operating in the mining sector from other sectors is important in terms of the comprehensibility of the information they present in the financial statements. In the "IFRS 6 Exploration and Evaluation of Mineral Resources" standard, the issues to be considered in the reporting of mining enterprises are included. In this study, how the mining sector should be examined within the framework of financial reporting is given. In the article, firstly, the importance of the mining sector in Turkey, difference from other sectors and in the world was evaluated, mining activities are explained and then the standards in the reporting of mining enterprises in the finance sector were discussed. The aim is to compare the reporting standard required by IFRS 6, which determines the accounting policies of mining enterprises, with generally accepted accounting policies. In the study, it has been researched how the profit and loss situation of mining enterprises can change according to the International Accounting Standards and Tax Procedure Law, the conditions that can create deferred taxes are discussed, and the effect of this situation on companies is emphasized.

***Keyword***

Mining Operations, Tax Procedure Law, International Financial Reporting Standards

## 1. INTRODUCTION

"Mining Sector", which is one of the sectors that add value to our country's economy, provides the basic inputs needed by other sectors, especially the industry, and also creates new employment areas in rural areas. According to the Report of the Mining Research Commission of the Turkish Grand National Assembly, approximately 10 billion tons of mines worth 1.5 trillion USD are produced in the world every year. 75% of this production is energy raw materials, 10% is metallic minerals and 15% is industrial raw materials. Thanks to these data, it becomes clear how important the mining sector is for the world economy (Sönmez, 2016: 316). The USA, China, South Africa, Canada, Australia and Russia are among the countries that play a role in the world's mineral reserves and mineral production. The Republic of South Africa is rich in gold, platinum group metals, manganese, chromium and aluminum. China is rich in iron, lead, manganese, molybdenum, tin, zirconium, zinc, phosphate mines. Canada has uranium, zinc, gold, copper, nickel, cobalt,

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iron, oil and natural gas mines. Australia is rich in coal, iron, rutile, zinc, lead uranium and the USA is rich in lead, molybdenum and phosphate ores. In addition, Saudi Arabia, Kuwait, Iran and Russia have significant reserves in oil production that are not included in the mining group. Canada, Australia and the USA are the leading countries that invest the most in mineral exploration activities.

Considering Turkey, the complex geological structure has led to the discovery of various mineral deposits. Our country is rich in energy raw materials such as industrial raw materials, metallic mines, lignite and geothermal resources. However, except for a few mines, our worldwide reserves are limited. Turkey is among the self-sufficient countries in terms of the diversity of its mineral resources. Boron minerals take the first place among the mines that our country is rich in. The size of the demand realized in the world markets and the production volume provided in the country are the main factors that determine the exports realized by the mining sector in Turkey. The developments in the global markets are effective especially in the export of metallic ore, and the positive economic developments in the world markets offer important development opportunities to Turkish mining.

Mining has some differences compared to other businesses. In the mining sector, production is made from natural resources that are consumed and cannot be reproduced until they reach the production stage, and preliminary studies such as research, evaluation and preparation for production are carried out. Due to the impact of natural events in the mining sector, there is a great risk of failure and loss compared to the risks in other production enterprises.

New mining sites are risky and uncertain for mineral reserves, making it difficult to apply economic management methods. For this reason, mining activities take a long time to take place and therefore delays are experienced in income generation. There are also additional costs incurred to restore the mined area. Mining enterprises, unlike other enterprises, also receive reactions from non-governmental organizations due to the damage to the environment (Özkan & Aksoylu, 2012).

In terms of the position of the mining sector in the world and national economy, it is important that the financial information regarding this sector is accurate, reliable and comparable. The differences in accounting and reporting principles for the sector increase the costs of producing financial information, while restricting access to accurate and reliable financial information. Accounting policies for the mining sector are regulated in the IAS 38-Intangible Assets standard and IAS 16- Tangible Fixed Assets standard. The IFRS-6 Mineral Resources Exploration and Evaluation Standard was published to be implemented in 2006.

In this article, it is aimed to emphasize how the companies that will report according to IFRS-6 should apply their accounting policies. In our study, the reports declared by the enterprises according to the Tax Procedure Law and international accounting standards are emphasized and the effect of the company on the profit-loss situation is discussed.

In this context, mining activities in the first part of the study explained. In the second part, the financial statements to be prepared by the mining enterprises according to the Tax Procedure Law are emphasized, and in the third part, the preparation of the financial statements according to the international accounting standards is explained. In the last part of the study, the regulations on the accounting of mining activities in our country's legislation and the effect on the company's situation are discussed.

## 2. MINING ACTIVITIES

Mining activities are operations involving the safe extraction of geological raw materials in the earth's crust from their location in order to obtain economic value. Mining activities include different production processes according to the type and usage areas of the mine, but most production stages are included in all activities. Mining is a set of processes that starts with exploration activities, continues with ore production and enrichment processes, and ends the project with closing the areas where the ore ends and reintroducing the working area to nature.

***Pre-Production Activities***

The first work to be done to reveal an ore deposit is the start of exploration activities. Methods such as the examination of mineral deposits from maps, geological studies, aerial photographs and mapping form the basis of mineral exploration studies. Exploration activities, which constitute the first step for the realization of the project, continue in the following process, including the production phase. At the planning stage, a preparation process is foreseen according to the production capacity of the mine, the areal size and the technology to be applied. In this process, all areas are made ready for the mine to start production, and this process can take up to 1 year according to the specified criteria. Construction and installation of structures such as mine roads, waste or waste areas, ore preparation and enrichment facilities are carried out at this stage. Before the construction of all project units, the vegetative soil of the determined thickness is taken and stored in a designated area to be used in rehabilitation activities. At the same time, this process can be carried out in parallel with production within the scope of land preparation in units that will be newly established or whose active usage area has expanded depending on the project progress stage. In case the mining method in which the mine will be produced is underground, underground entrance structures such as wells and galleries are constructed to provide access to the ore in accordance with the production-term plans. These structures are applied by drilling-blasting or special excavation methods and take place underground. In order for ore production to start, all underground units determined during the planning phase, such as fortification structures, ventilation, human and material transport routes, are created during the preparation process. In open pit mining, however, the topsoil on the surface of the study area is taken first, if available, by adhering to the production-term plan. If the ore deposit, which is mostly encountered in formations such as limestone, basalt and marble, is formed on the surface, mineral production can be started directly. In case the ore deposit is deeper, the uneconomical rock, which is called waste, is loaded onto trucks by drilling or dismantling method according to the structure of the rock and transported to the waste storage area. Rust production can also be carried out simultaneously with ore production. This situation has been determined in the production-term plan according to the economic evaluations.

***Production Activities***

Extraction of ore from underground is carried out in two ways using surface and underground mining methods. Open pit mining, or in other words, surface mining, is a form of production applied in areas where the ore is close to the ground surface, for the economical extraction of the cover layer (rust) on the mine when necessary. When the surface mines opened for operation today are examined, it can be said that three different methods are applied in general. These; Lignite and coal mines with horizontal ore deposits, metallic mines with inclined or steeply branched ore deposits, industrial raw materials and natural stone mines with ore deposits formed on a slope near the surface can be exemplified. Underground mining, on the other hand, is a form of production in which the ore is extracted by creating galleries or wells in case the ore cannot be economically extracted by deep and open pit method. In addition, there are special production methods such as underground gasification and solution mining, which are classified as underground mining. Following the preparatory work, the ore is prepared by extracting it from its location, enriching it if necessary, then placing it on the market or transporting it to the place where it will be used. The main purpose of the mining method determined at the feasibility stage is to determine the scope of production activities. The ore obtained through production activities is not always suitable for direct use or sale due to its physical and chemical properties. In order to make these kinds of ores suitable for their use, they should be subjected to ore preparation and, if necessary, enrichment processes. With the ore preparation processes, it is aimed to obtain a product with the requested physical properties such as particle size and shape without interfering with the chemical properties of the ore. The most commonly used ore preparation processes are; applications such as crushing, grinding, screening, classification, solid-liquid separation. Depending on the characteristics of the mine structure, ore preparation processes can be carried out in dry or aqueous environments. Ore beneficiation applications are usually made after the ore preparation process. Manual or mechanical sorting, sorting by size, gravity separation, magnetic separation are the most commonly used physical separation methods. The part containing the ore grains intended to be obtained in ore enrichment is considered as concentrate, and the part separated from the other side is considered as waste. If the concentrate obtained is suitable for sale, it is put on the market or directed to further enrichment processes such as refinery to

remove the impurity content. The resulting waste is evaluated with alternatives such as storage, use for filling purposes, and transfer to disposal facilities.

***Post Production Activities***

The final stage of the mining projects, the closure and rehabilitation period, is actually carried out together with the operational activities, it is applied intensively at the end of the operation period, and continues in the form of environmental monitoring after the closure.

Closure and rehabilitation activities carried out in parallel with operational activities; In order to restore the areas whose production or storage process has been completed and temporarily used areas to nature in a suitable quality, the area can be leveled or covered with a top cover in accordance with its design, and the vegetative soil stripped during the construction period is moved to these areas and laid again. At the end of the operation period, it is aimed to dismantle the structures, level the entire activity area in accordance with the topography, and make the area adapt to nature by carrying out the activities included in the rehabilitation planning (planting soil, afforestation, etc.).

## 3. EXAMINATION OF MINING ACTIVITIES ACCORDING TO TAX PROCEDURE LAW

In Article 316 of the Tax Procedure Law, "the concession and cost values of the mines and quarries that lost their material value due to the decrease in the ore due to operation, their size and nature upon the application of the relevant parties, and separately for each mine and quarry, It is destroyed over the proportions to be determined by the Ministries of Industry". If the enterprise has its own license, the price to be redeemed is the concession price. The concession price includes all the expenses related to the determination of the ore such as the preparation of the topographical maps required to obtain the concession, the fees of the technical and other personnel sent to the mine site, the drilling costs, and the expenses such as concession fee, stamp duty. If the usage right is leased or purchased, the amount to be amortized in the acquired mines is the cost price. This price includes the price paid to the concessionaire in exchange for the acquisition of the mine from the concessionaire and the related expenses. The depreciation amounts to be calculated over the cost values of tangible and intangible assets are determined by estimating the useful lives of these assets, while the cost values of the operating and concession rights capitalized as special depletion assets are converted into expense and what rates will be destroyed is determined on the basis of the amount of reserves extracted or planned to be extracted in the mine sites (Uygun, 2013). According to the Tax Procedure Law, there is no regulation on recording or capitalizing exploration and development expenditures as expenses. It is envisaged that the expenditures will be recorded at cost.

According to tax laws, expenses incurred during the acquisition of oil exploration rights, development expenses and operating expenses are capitalized as Intangible Assets. Expenses incurred in order to obtain the right to explore and capitalized with cost are amortized through depreciation during the period that the exploration right is held. According to tax laws, it is also possible to record the incurred expenses of mining operations as direct expenses. The benefit of spending on preparations for land cover removal in order to mine in an area; Since it is limited to the amount of oil or mineral to be purchased from there, the said expenditures are subject to special depletion (Sevilengül, 1998). These expenditures are reported as "Special Exhaustion Asset" in the Uniform Accounting System in practice in our country.

According to the Uniform Accounting System, "Search Expenses"; It is the account in which the expenses made to determine whether the mineral deposit is suitable for operation and the petroleum exploration expenses are followed. Internationally accepted accounting policies require these expenses to be capitalized in a single temporary account as soon as they are incurred and transferred to a different account according to the result of the exploration activity (Hacırüstemoğlu & Boz, 2006). The depreciation calculated for the research and development periods of the mining sector is generally included in the income statement, but if the depreciable asset is used in the production of other assets, they are included in the cost of the asset subject to production. The depreciation of the fixed asset used in the development phase of the mine should be capitalized like all other direct expenses of the development phase. If producible mineral ore reserves are found as a result of exploration activities, these expenses are amortized. If the search result is negative, these expenses are recorded as direct loss. "Preparation and Development Expenses" account within the asset

group subject to special depletion; It is the account in which the expenses incurred as a result of the operations required to make the ore or oil ready for extraction, such as removing the cover over the mine, entering the underground mine and dividing the mineral deposits into pieces suitable for production, are followed. Both accounts are amortized through depreciation. The depreciation rates to be applied to oil exploration and development expenditures are determined separately by the Ministry of Finance, taking into account the reserve situation. According to IAS 38 Intangible Assets, "the amortized value of intangible assets with finite useful lives can be determined after deducting that value". However, a residual value is not foreseen for intangible assets in the Tax Procedure Law.

## 4. EXAMINATION OF MINING ACTIVITIES ACCORDING TO INTERNATIONAL FINANCIAL REPORTING STANDARDS

Mining activities consist of the stages described above. The prominent issues in accounting for these activities are; determining the scope of the expenses to be capitalized, amortizing the capitalized expenses and accounting for closing activities. The International Financial Reporting Standard (IFRS-6) on the Exploration and Evaluation of Mineral Resources determines the financial reporting principles for the expenditures incurred during the exploration and evaluation of resources, not the financial reporting principles for the development of mineral resources. IFRS-6 states that businesses should determine a policy for capitalizing or recording the expenditures made during the research and evaluation phase as a period expense and that this policy should be applied consistently (IFRS-6, Art. 9). This standard does not focus on accounting practices related to other stages other than the research and evaluation stage. At the recognition stage, exploration and evaluation assets should be measured at cost. In the next measurement, either cost or revaluation model is used (IFRS-6, Art. 12). Research and evaluation assets should be classified as tangible or intangible assets according to their structure (IFRS-6, Art. 15). Where the carrying amount of research and evaluation assets exceeds the asset's recoverable amount, the research and evaluation asset should be reviewed for impairment. Impairment is measured in accordance with IAS-36 “Impairment of Assets” (IFRS-6, Art.2-b).

### *Impairment*

Assets are assessed for impairment when circumstances indicate that the carrying amount of the exploration and evaluation asset may exceed its recoverable amount. The entity measures, presents and publicly discloses the resulting impairment loss in accordance with IAS 36. One or more of the following conditions indicates that an entity should test research and evaluation assets for impairment.

- The entity's right to conduct research in a particular area expires during the period or will expire in the near future, and is not expected to be renewed.

- Significant expenditure for further exploration and evaluation of mineral resources in a particular area is not budgeted or planned

- The exploration and evaluation of mineral resources in a particular area did not result in the discovery of commercially viable amounts of mineral resources and the entity decided to cease such activities in a specific area

-Adequate information is available to indicate that although improvement in the particular area is likely to progress, full recovery of the carrying amount of the research and evaluation asset through successful development or sale is not possible.

In such or similar circumstances, the entity applies an impairment test in accordance with IAS 36. The purpose of this Standard; It is to determine the principles that should be applied to ensure that a business is not monitored for a value greater than the recoverable amount of its assets. The carrying amount of an asset; If it is more than the amount that will be recovered through its use or sale, the related asset is followed up with a higher amount than its recoverable amount. If this is the case, the asset is impaired and the Standard requires the entity to recognize the impairment loss. The standard also regulates when an entity should reverse an impairment loss and the disclosures that must be made to the public. An entity establishes an accounting policy for the allocation of research and evaluation assets to cash-generating units or groups of

cash-generating units in order to assess them for impairment. Each cash-generating unit or group of units to which research and evaluation assets are distributed cannot be larger than the segments of the entity based on primary or secondary reporting as determined in accordance with IFRS 8 Operating Segments (IFRS 6, p. 21).

The level determined by the entity for testing exploration and evaluation assets for impairment may include one or more cash-generating units (IFRS 6, p.22).

### *Depreciation In Mining Operations*

According to IFRS-6, expenditures incurred during the research and evaluation phase can be capitalized depending on the policy determined by the enterprises. IFRS-6 does not directly regulate the depreciation of capitalized research and evaluation expenses. However, according to the Standard on Tangible Fixed Assets (IAS-16), the depreciation method used is required to show the entity's consumption of the economic benefit of an asset. For this purpose, the Standard is to leave the most appropriate method to the preference of the enterprise; recommends straight-line depreciation, declining balances, and unit of production methods. Capitalized expenses are considered intangible assets and must be depreciated (amortized). The investment made by mining enterprises in the mine is finite, that is, it cannot continuously reproduce itself as in other industrial sectors. For this reason, depreciation should be deducted from the revenues obtained from mining activities (Common and Sanyal, 1998). Thus, mining enterprises will consume some of their income while maintaining the initial value of their capital. It is given the chance to create research capital in order to replace the existing source or to find additional reserves (Oygür, 1995).

### *Mine Closing Cost*

Closing costs are recorded as expense in the period they are incurred. The entity is required to set aside provisions for future reinstatement and renewal transactions. The amount of provision to be allocated must be estimated very well. Since mining investments are long-term investments, the time value of money gains importance in determining the provision amount. In this case, the provision amount required by the enterprises for the said expenses will be the present value of the expenses estimated to fulfill the obligation, calculated with an appropriate discount rate. The provision amount should be updated as of each balance sheet date. These provision expenses can be capitalized according to the wishes of the enterprises. International Accounting Standards neither prohibit nor require the capitalization of provisions.(Karapınar et al., 2010)

As for the principles of accounting for expenditures incurred during development, production and closure activities, which are among the activities of mining enterprises, it is regulated in the standard that expenditures related to the development of mineral resources cannot be accounted for as exploration and evaluation assets (IFRS-6.10). Expenditures related to the development activity will be measured and recorded in accordance with the provisions of the “IAS 38 Intangible Assets” Standard. Removal and restoration liabilities that mining enterprises encounter as a result of closing activities are reflected in the financial statements in accordance with the “IAS 37 Provisions, Contingent Liabilities and Contingent Assets” standard (IFRS-6.11).

Expenditures incurred when the technical feasibility and economic adequacy of extracting ore from a mineral resource are determined are not classified as research and development assets. This requires reclassification of these expenditures (IFRS 6.17). If impairment is detected during reclassification, impairment losses are recognized.

### *Open Pit Mining*

"Open pit mining operation", which is one of the mine production methods, is taken from the ground in a way that includes "loosening, digging, loading, unloading, laying the cover layer on the mine mass, shaping the dump area according to the project, making it suitable for the natural environment, loosening it, and

building the roads leading to the quarry" (the process is called stripping.) refers to the mine production operations.

Pursuant to the provision in the 42nd article of the Income Tax Law No. 193, the works related to stripping are considered as construction works and if it spreads to more than one year, it is within the scope of "construction and repair work extending to years". is being evaluated. Among the comments of Turkish Financial Reporting Standards, "IFRS Interpretation 20 Pickling Costs in the Production Stage of Open Mine", waste cleaning, stripping, etc. used for. These stripping activities carried out to reach the mine are accounted for as non-current assets under the name of "assets related to stripping-related activities" within the framework of the determined rules. The cost items related to the stripping operations of the ongoing business are accounted for in accordance with the IAS 2 Stocks standard text. Asset items related to stripping operations are recorded in accounting records as improvements to an existing asset and classified as tangible fixed assets or intangible assets, in relation to the nature of the parts created by the existing asset item. Cost items related to stripping that may occur before production in the development step of the mining operation are included in the capitalization process as an addition to the cost to be depreciated during the establishment, development and construction phases of the mine. These cost items in the asset are generally consumed with the start of production, by depreciation or amortization according to the unit method. These cover layer removal and stripping operations also include the continuation of the mining operation throughout the production period.

***Formation of Deferred Tax***

In the application of TFRS 6, enterprises choose an accounting policy for which expenses to be expensed or capitalized in the accounting of expenses related to mining activities. If capitalization of the expenditures in the exploration and evaluation phase is chosen among the stages of the mining activity, the said expenditures are measured at cost as an asset. Expenditures in the development phase are evaluated within the scope of TAS 38. Expenditures in the production and closing stages are generally recognized as an expense unless they are an expense that falls under the definition of an asset. Expenditures before obtaining licenses related to mining activities are not within the scope of TFRS 6, and enterprises choose their accounting policy to expense or capitalize these expenditures. In terms of tax legislation, the concession or cost of mining activity is capitalized. In fact, the expenses in question are the costs of acquiring the necessary licenses to operate in mining. However, some of the expenditures defined as research and evaluation expenditures in TFRS 6 are also included in the definition of concession or cost value in the tax legislation. In other words, the concession or cost value includes both the expenses for obtaining a license and some research expenses. However, if these expenses are selected to be expensed, a deductible temporary difference will be equal to the difference between the expensed amount and the capitalized amount, and the deferred tax asset should be calculated over this difference.

In the application of TFRS 6, capitalized research and evaluation expenditures are valued using the cost model and revaluation model in subsequent measurements. In tax application, it is not clearly stated which measure will be used in subsequent valuations. Therefore, the provision of Article 289 of the TPL should be applied. In this case, the buildings and land in question are valued with their tax values, the others, if any, with the stock market value, if not, with the precedent value, if not, with the precedent value. The amount capitalized as a concession or cost value will generally be measured at its recorded value in the following periods. After the explanations above, if the value calculated according to the cost or revaluation model used in accordance with TFRS 6 of the activated exploration and evaluation assets is different from the value calculated according to the tax legislation, a deferred tax asset will need to be calculated. In case of choosing the cost model, the most important factors that will lead to differentiation are the selection of a depreciation method other than the production quantity method in accordance with TFRS 6 and the allocation of impairment. In accordance with the tax legislation, the production amount method is generally used and no impairment is recognized. The reason for the impairment is important in terms of tax legislation. If the impairment is due to a decrease in the mineral reserve, further depreciation will be made; therefore, the impairment would have been taken into account indirectly through depreciation. On the other hand, TFRS 6, p. The cases of impairment listed in Article 20 are also cases that allow direct expense in terms of tax legislation.

## 5. CONCLUSION

In our study, the accounting and financial reporting processes of the research, development and production activities of the mining sector were examined. Although there are not many different and unique applications regarding the mining sector in terms of Turkish Tax Law, separate accounts are defined for R&D expenses. Mining operation accounting has been specially arranged because the amount of ore contained in each mine and the operating conditions are different. The depreciation rate of the mines will be determined separately for each mine and it is essential to know the reserve amount in order to be subject to depreciation. In order for mines to be subject to depreciation, the amount of ore in them must decrease. The amount of depreciation that can be allocated will be determined according to the ratio of the amount of ore mined during the year to the apparent reserve. Without these conditions, it is not possible to depreciate the price paid for the mine site in any way. Regarding the standards examined in our study, IFRS 6 regulates only the research and evaluation phases of the mining industry, refers to IAS 16 and IAS 38 related to other operational phases, so it is not a detailed mining standard. In terms of Fixed Asset Valuation and Depreciation in mining enterprises, both fields are based on cost value in the initial recognition. In terms of determining the economic life of depreciation, the Tax Procedure Law is based on the generally accepted depreciation periods for tangible fixed assets.

It is based on taking into account the practices of the market and on the amount of reserves in special depleted assets. In IFRS, the determination of the useful life of tangible assets is left to the experience and foresight of the enterprise, and the economic life of assets subject to special depletion is determined according to the amount of reserves.

In the process of comparing the financial statements according to the Tax Procedure Law and International Accounting Standards, which is one of the main objectives of our study, it has been evaluated that the company may be in loss as a result of the reclassification and valuation in IFRS.

Profitability rates may decrease as a result of classifications, provisions, severance pay, deferred tax effects and contributions of an enterprise operating in the mining sector, on the financial statements prepared in accordance with the provisions of the Tax Procedure Law. As a result of this, as a result of the conversion of these financial statements of the businesses that appear to be profitable in the financial statements prepared in accordance with the provisions of the Tax Procedure Law, it is revealed that the business may declare a loss in the converted financial statements as a result of the conversion of these financial statements.

The differences between the financial statements that are required to be regulated legally according to the Tax Procedure Law and the IFRS financial statements are noteworthy.

When the financial statements prepared for the purpose of determining the tax base and the realistic and comparable IFRS statements are compared, it is concluded that their financial performance has weakened. It can be said that the financial statements prepared according to the Turkish Accounting Standards are more dynamic and up-to-date than the ones prepared according to the Tax Procedure Law, reveal the risks posed by the resources and assets of the business more clearly, and enable the opportunities to be seen more clearly. Lenders, investors and business owners can make clearer and more accurate financial analysis.

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