

AN ANALYSIS OF MINING SECTOR ECONOMICS IN MONGOLIA

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ABSTRACT

This paper provides an assessment of the mining sector and shows how it is critical for further sustainable growth in Mongolia. In 1990, Mongolia transferred from socialism to a parliamentary democracy and since then has implemented political and economic reforms that have constituted a sweeping break from the past; succeeding in a way that very few other post communist nations have been able to do. The Mongolian economy was mostly influenced by agriculture and small and medium sized businesses; however since the late 1990s, the Mongolian capital market has had a strong correlation with the fate of Mongolia's mining deposits, which are of worldwide interest. If these deposits were exploited, the Mongolian capital market would boom and thus strongly effect the whole economic situation. During the last few years the mining sectors have started to provide an important contribution to the GDP. Unfortunately without previous experience and the appropriate legal environment, the mining industry faces great challenges in further development; at same time investment opportunities for the whole country have been delayed for an uncertain period. Thus, this paper emphasizes how to maintain the sustainability of Mongolian economic growth while identifying and analyzing the main difficulties, challenges and strategic efforts in the mining sector and determining appropriate solutions based on international experience and practices.

JEL: A1; D2; G00; L00; L5; O4

KEYWORDS: Mongolia, mining industry, investment, economic growth

INTRODUCTION

In October 2009, the Government of Mongolia signed an agreement with Canada based private mining company, Ivanhoe Mines, to utilize the copper and gold deposits under “Oyu Tolgoi” project. A week after the signing ceremony, Ivanhoe Mines handed out an initial 100 million USD to the state budget of the country. During this activity, the Minister of Finance of Mongolia, Mr. Bayartsogt declared that each citizen of the country will receive one time incentive of 50,000 MNT or 35 USD from this payment within next year, 2010 (Ministry of Finance of Mongolia, 2009). 1 USD = 1,428.5 MNT as of October 2009 (Mongol Bank, 2009). The population of Mongolia is around three million, if we multiply this figure by the 35 USD; it would be 105 million USD. I asked myself, why Government is going to do such a thing. Thus, I was motivated to know that what kind of problematic issues are arising, how other countries deal with the mining sector, and how the mining sector can be a positively influence in the growth of the country.

Mongolia has an area of over 1.5 million sq km with a population of only 2,737,602 and divided into 21 aimags (provinces). The country is located in the heart of the Asian continent between Russia and China, is a democratic country with a free market economy and has extensive and largely untapped mineral resources. Thus the mining sector has started to play an important role towards the country's future economic development. The Government encourages foreign investment and has adopted several long-term programs in exploration, exploitation and processing of minerals, such as coal, copper, fluorspar, gold, oil and silver (Byamba –Oyu & Tsendorj, 2007). The bubble in commodities in the world stock market has particularly benefited Mongolia either by raising the profits in the mining sector or increasing

the value of the massive untapped mineral resources. Unfortunately, since April 2008, because of the financial crisis, commodity prices have sharply declined in the worldwide stock market, having a negative impact on the Mongolian economy. Despite this set back, Mongolia continues to enjoy a rapid economic growth as GDP averaged 8.1% during 2004-08, and was 3.0% in 2009 and hopes will have growth in 2010. Per capita GDP was 1,563 USD in 2009. But sustaining this performance will require an intensive development program in the mining sector.

“In the period ahead, the Mongolian economy stands to benefit considerably from its significant mineral deposits. It is important, therefore, to press ahead with agreements in the mining sector and to strengthen institutions needed to effectively manage this mineral wealth,” Kato.T (2009), stated.

The data and research materials were analyzed in order to understand the current situation, international practices and possible actions that could be taken towards the growth of the country. This paper uses statistical data and analyses to assess the rise in difficulties for mining industry of the country and evaluate the current legal, social and economic situations. Also investigated the international practices in an attempt to determine an appropriate solution for Mongolia.

LITERATURE REVIEW

A Literature review indicates that the mining industry has become responsible for one-fifth of the GDP, two-thirds of industrial output, three-quarters of export earnings and one-half of public revenue of Mongolia (mnSec.com, 2009). Traditionally, to achieve the economic efficiency, the focus is on the interrelationship between neo-classic economic theory and government policy analysis. But in a competitive market some actions taken by government can cause a failure in the market, which in the real circumstances can be seen as a perfect in the short-term, but in fact are wrong in the long-term (Edwards, 2007). The main objectives of the country are to set a favorable regulatory framework, a stability monitoring system, transparency of information within government agencies, consistency of regulation and legislations and avoidance of corruption (Husband & Songwe, 2003).

Corollary 1: The mining sector impacts the macro-economy of the country.

Before beginning to talk about the mining sector and its impact on the macro-economy of the country, the factors of macro-economics need to be understanding (Ghosh, 2006). Through an analysis of macro-economic measurements we could respond with the following questions: 1) How to sustain the economic growth of the country; 2) Is it possible to continue economic growth without limit, and 3) What actions can, or should, the government be able to take (Williamson, 2002).

The Mongolian economy has been through a rapid economic growth and, as of October 2009, the total production output was 2,936.7 million USD, with exports at 1,369.9 million USD and imports at 1,566.8 million USD (Narankhuu, 2009). Mining accounted for about 30% of the country's industrial output and 60% of its export revenue shown by Figure 1 and export of minerals at total exported products of Mongolia (by percentage) summarized at Table 1. In 2007, the mining sector exports were 78.4% of total exports and in 2008 this figure rose to 80.7%, an increase of 2.3 percentage points from 2007 (Open Society Forum of Mongolia, 2009 & World Bank Report, 2009).

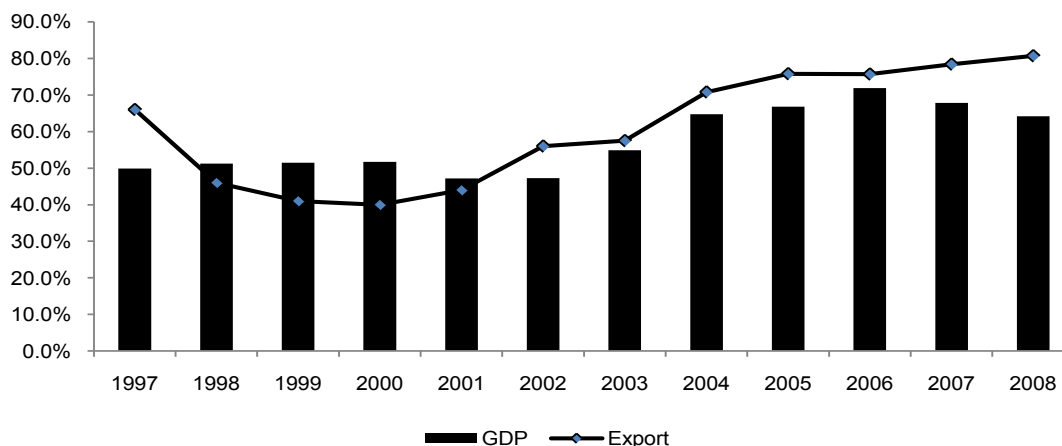
Between 1990 and 2001, the mining industry accounted for 31% of all foreign direct investment in Mongolia (Richmond, 2005), but it is continuously increasing since then. Thus the government has to prioritize the issues that positively impact the investment climate and manage the macro-economic stability (Hancock, 2008).

Table 1: Export of Minerals at Total Exported Products of Mongolia (by percentage)

Name of Minerals	Percentage
Copper ore	25.5%
Unprocessed and semi-processed gold	19%
Coal	16.2%
Zinc	6%
Crude oil	5.2%
Iron ore	3.9%
Fluorspar	2.4%

Source: Narankhuu, 2009

Figure 1: How Mine Production Contributes to Export & GDP of Country



Source: Mineral Resource Authority of Mongolia, 2009

According to the statistics, today in Mongolia over 1.7 million working-age people are in employment, 100,000 of them are engaged in artisanal small-scale mining, especially for gold and fluorspar without any permission or license and operate under a shadow economy and approximately 100,000 employees are engaged in mid- and large-scaled mining companies (National Statistic Year Book of Mongolia, 2008). The unemployment rate was 3% in 2008 and 2.8% in 2009, which ranked 31 among world countries. As of September 2008 inflation had rapidly increased and reached 34%, which is the first time in the past decade of the country and this is the highest level of inflation in East Asia (Central Intelligence Agency (CIA), World Fact book, 2009). This rapid rise and high rate of unemployment is seen to be due to the current global financial crisis. The main economic indicators of Mongolia shown at Table 2.

Table 2: Main Economic Indicators of Mongolia, From 2003-2009

Economic Indicators	2003	2004	2005	2006	2007	2008	2009
GDP Growth (%)	7.0%	10.6%	7.2%	8.5%	10.2%	8.8%	0.5%
GDP Per Capita (US\$)	581.657	720.068	905.308	1,223.77	1,502.83	1,975.32	1,563.58
GDP purchasing-power-party (PPP) Per Capita (US\$)	2,175.78	2,410.19	2,614.99	2,896.21	3,237.99	3,546.93	3,566.75
Inflation (%)	5.1%	7.9%	12.4%	4.4%	8.1%	26.8%	8.5%
Unemployment (%)	20%	4.6%	6.7%	6.7%	3.3%	3.0%	2.8%

Sources: CIA World Fact book, 2009

Corollary 2: The legal environment is essential to reduce the objective gap between the government and mining industry, while encouraging the whole business operation.

Generally, Mongolia has passed around 18 laws, rules, resolutions and orders to coordinate the mining sector and industry. Unfortunately the public and the community have a lack of knowledge about this legal environment, which causes problematic issues with the implementation of the legal actions. There are further challenges such as corruption in the bureaucracy, lack of transparency in regulatory and legislative processes become main indicators that affects the development of the mining industry in Mongolia (Arnold, 2004). The Law of Minerals was approved in June 1997 to regulate the relations for exploration, exploitation and production of mining minerals within the territory of Mongolia. Amendments were added in 2006 and January 2009 (Mineral Resource Authority of Mongolia, 2009). This law is considered to be best in the world, and provides investors with a clearly defined and stable legal environment (Richmond, 2005). Another important resolution is a Government Resolution that approves fifteen (15) strategically important deposits (Appendix 1) in Mongolia that could attract investors and among the best reserved deposits in the world. Other related laws that coordinate mining operations are General Taxation Law, Custom Law, Foreign Investment Law, Economic Entity and Organizational Income Tax Law and Customs Law and etc. (Mineral Resource Authority of Mongolia, 2009).

Additionally, the government of Mongolia has signed a production sharing agreement with oil exploration companies in which the government retains ownership of the natural resource and shares up to 55% of total income, while developers have benefits with taxation stability for up to 30 years as well as risk-sharing with the government (Arnold, 2004). Different agreements have been signed between the government of Mongolia and the mining companies in a move towards sustainable development of the country. Indeed, investors have to pay seven different taxes to the state budget, plus the mining royalty rate has been increased from 2.5% to 5%. Mining companies have been paying twenty different taxes, fees and charges to the state and local budgets and amount that paid by mining companies illustrated by year at Table 3. Looking at the numbers, we can say that it is highly affect to the standard of living, wages and social benefits of the country (Mattis, 2009). But eventually it was not contribute the huge influence to the country.

Table 3: Taxes Paid by Mining Companies to State Budget

Year	Payment for Exploration and Exploitation License Fee (million USD)
2002	2.1 USD
2003	2.4 USD
2004	5.7 USD
2005	19.2 USD
2006	80.2 USD
2007	189 USD

Source: World Bank Report, 2008

Contrariwise, the governments of foreign countries usually maintain a lower rate to encourage more investors (Shapiro, 2009a). Therefore, it is essential to increase the awareness of local communities and broaden the range of options to collect data for government decision-making, especially prior to approving the mining related laws, rules and regulations. Hence policy development and implementation will be effective in the long -run (Warlters, 2009).

Corollary 3: General international experiences will positively influence developing countries.

Theory and evidence suggest that developing countries need to follow fundamental policies and the regulation of developed countries not just a temporary measurement but a steady state (Eichengreen, 2000). The governments of the countries that concentrate on the mining industry seek to implement

public-private partnerships to mobilize the right development framework. Those units assess the main activities of the government agencies, and provide advisory support and guidance to the government (Walters, 2009). Foreign investors are the main contributors to mining industry development in any country that has rich mineral reserves. Therefore, each government considers strengthening the investment climate and tries to reduce any burdens to the investors.

DATA AND METHODOLOGY

The focus of this paper is an analysis of the mining industry and the elucidation of a useful solution for the Mongolian situation based on a literature review and the corollary.

Analysis 1: Mining industry of Mongolia

Mongolian geology is complex and its mineral potential is vast, with is over 1,000 mineral deposits and 8,000 occurrences of 80 different minerals known (Mineral Resource Authority of Mongolia, 2009). The main deposits are gold, silver, copper, tin, tungsten, molybdenum, coal, iron ore, uranium, limestone, lead, wolfram and crude oil. It is estimated that the country's gold and copper reserves are among the largest deposits in the world. In 1924, coal mining was the sole mining industry in Mongolia, which is the main supplier to electric power plants of Ulaanbaatar. Ulaanbaatar is the capital of Mongolia with a population of over 1 million as of December 2009 and divided into eight 8 districts. In the 1961 a major iron ore metallurgical plant was established in Darkhan province and in 1978, a copper and molybdenum processing factory was established in Erdenet province. In the late 1980s several coal mining sites were founded to supply the Power Plants of Ulaanbaatar. Meantime, limestone factories started their processing activities to be a major cement production center. Along with this, gold mining has been growing steady. In 1992 Mongolia exported 624 kg of gold, in 2001 were 14 tons of gold and in 2007 were 10.5 tons of gold. Currently 130 domestic and foreign companies engage in gold mining and exploration activities. In 2006 exploration expenditure for Mongolia reached 285.2 million USD, which accounts for 4% of the global exploration budget. This puts Mongolia on a par with Brazil, China, Russia and South Africa (United Nations Human Rights Team Group, 2006).

As of June 2009, the Mineral Resource Authority issued 6,171 mining exploration and exploitation licenses covering 71,107,888.66 hectares; more than 45% of the Mongolian territory. In 2008, throughout Mongolia, 2,269 licensed companies engaged in exploration and mining activities (Mineral Resource Authority of Mongolia, 2009). Currently, copper and molybdenum are exported to China, fluorspar to Russia, USA and Ukraine, and gold is exported to China, USA and Great Britain. China is the largest export market and accounts for more than 70% of total Mongolian exports, plus it is the main importer of Mongolian coal, copper and molybdenum concentrate. The volume of export of mineral resources increased from 2008 to 2009 as iron ore increased by 41%, coal by 65% and molybdenum concentrate by 73%; all to China. The Russian Federation is the third largest export market and accounts for 11% of total Mongolian exports and is the main importer of fluorspar concentrate (Ministry of Mineral Resource and Energy of Mongolia, 2009).

Erdenet was the main copper ore exploration and production factory in Mongolia from 1978 to 2000, and was a main contributor to the state budget and GDP. But, nowadays Oyu Tolgoi mining has become the largest reservoir of copper and gold mining and when operation once starts it will contribute 35% of the GDP. Therefore an appropriate use of Oyu Tolgoi mining will be essential to Mongolian economic growth. Oyu Tolgoi has copper and gold mines, which are located 80 km north of Mongolia's border with China. Recently, in October 2009, the Canada-based private company, Ivanhoe Mines, signed a fifty-year agreement with the Government of Mongolia. After Oyu Tolgoi Agreement, it will create at least 10,000 jobs, furthermore increase by 38,000 persons during first 35 years of its operation in open pit and underground mines. In addition to it, the project will generate long –term electrical power generation

in South –Gobi regions (Ivanhoe Mines Ltd, 2009). Another strategically important deposit is Tavan Tolgoi, which is the largest coal mining deposit in the world. Tavan Tolgoi coal mine is located near Oyu Tolgoi and has 6.5 billion metric tons of coking and thermal coal. The extraction will be 30 million tons a year for at least 30 years.

In 2008, Mongolia produced 129.4 thousand tons of copper, which is 0.6% of the 15.8 million tons of global copper production; 400 thousand tons fluorspar, which was ranked Mongolia third with 6.8% of global fluorspar production (global production 5.84 million tons); gold production was 15,184 kg, 0.6% of global gold production (global production 2,340 tons). In 2008, the mining sector produced a total of 1,292,047.32 USD, which became 64.6% of the total production of the country (Mineral Resource Authority of Mongolia, 2009).

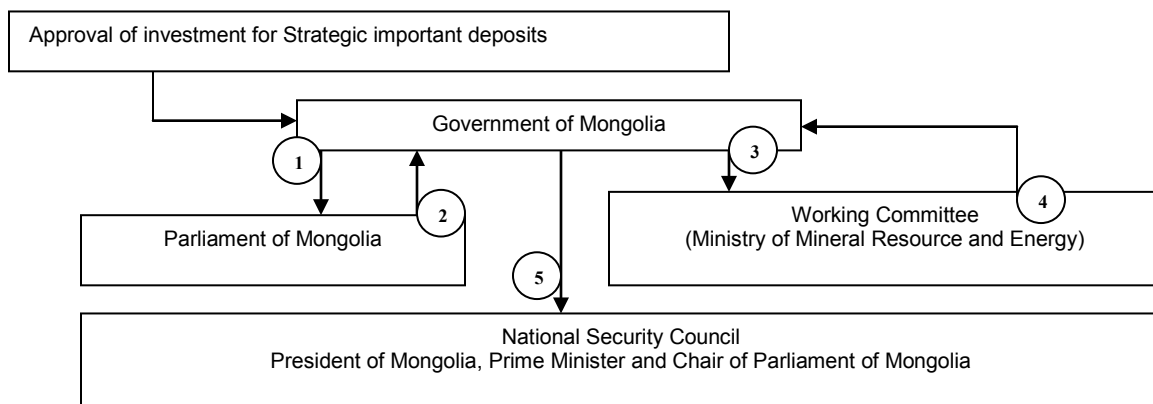
Analysis 2: Legal Environment

Mongolia is a young developing country with wealth of natural resources, thus it is necessary to formulate an appropriate legal environment for the mining industry. The Law of Minerals coordinates all the activities related to the mining industry, strengthens the environmental protection and rehabilitation issues; entitles more rights to local administrative bodies, increases license holders' duties and determines the strategically important deposits. The main legal process starts by obtaining an exploration license from the Mineral Resource Authority of Mongolia. This license is initially for three years duration and can be extended for another two years. If exploration indicates viable resources then an owner can transfer the exploration license to a mining license with 30 years duration and renewable up to 20 years. The mining industry is coordinated by two Government organizations. One is the Ministry of Mineral Resource and Energy, which is in charge of the research and information related to the mining industries, and has responsibility to develop the budget, to plan investments in the mining sector, to expand foreign cooperation, to develop partnerships among public and private companies, to coordinate the policies in the foreign financial markets and to review the regulations. The second is the Mineral Resource Authority of Mongolia, which was established in 1997 to be responsible for the implementation of the mineral laws, regulations and resolutions, serve customers and investors of the mining industry, and enhance the contribution of the mining sector to the Mongolian economy. At the same time, there are Mining Association to provide an appropriate support, analysis and research to show their interest to the global financial market for private mining industry.

The definition of the strategically important deposits are: a) they are able to impact on Mongolian national security, economy and social development; b) that are in strong international demand and c) annual mineral production will contribute at least 5% of country's GDP. If the deposit can be developed and identified with private funds then the government's participation in strategic deposits will be up to 50%.

The decision making process of an approval of investment for strategic important deposit has been drawn on Figure 2. According to it, (1) Government of Mongolia introduces to Parliament of Mongolia the proposal by investor for strategic important deposit; (2) Parliament of Mongolia allows/disallows a right to Government to complete an agreement: (a) If allows, Parliament will provide directions for further actions and goes to number (3); (b) If disallowed by Parliament, Government will work on it and try to re-introduce an improved version in the future; (3) Government establishes a Working Committee under the Ministry of Mineral Resource and Energy to work with investor and assess the proposal; (4) Working Committee will introduce the final proposal by the investor to the Government for approval; and (5) After approval by the Government, the proposal is introduced to the National Security Council of Mongolia. The National Security Council consists of the President, the Prime Minister and the Chair of the Parliament of Mongolia.

Figure 2: Flowchart of Approval of Investment for Strategic Important Deposits



In 2007, the Parliament of Mongolia approved a Windfall tax law, which imposed a 68% tax on profits from mineral sales when the price of copper reached 2,600 USD and that of gold reached 500 USD per ounce on the London Metal Exchange (Law on Windfall Tax of Mongolia, 2007). This law was criticized by investors and had a negative influence on mining development, even major foreign investors in gold withdrew from the country and almost all mining companies adjusted their business and strategic plans. Eventually it was found that both prior to and after this law was enacted there was no research carried out and there was no economic justification for its implementation (Narankhuu, 2009). But this law did not affect the companies who had a “stability agreement” with the Government of Mongolia and will be suspended by 2011 (Ochirbat, Bayasgalan, Byambajav & Jargalsaikhan, 2004). Considering a favorable legal and tax environment will have a critical effect on the future of foreign direct investment in the country (Shapiro, 2009b).

Analysis 3: Best Practices in Other Countries

From the 1970s, the Middle East countries have become economically the most promising part of the world as the economic, social and political development of those countries has been dominated by huge oil reserves. For instance, in 1980s Kuwait’s per capita GNP was higher than most European countries. Despite this, the income generation among the population was different; the rich people became richer than the mid and lower level of the population. The majority of the population survived in hard living conditions, which became a difficult issue in the early 1990s. The youth unemployment rate was 30% - 50%; therefore it was necessary to replace foreign workers by locals. In addition the price of oil was booming in 1970, but since the 1990s the price of oil has been declining (Gokay, 2006). Consideration of these problems led the Middle Eastern countries to take economic reforms that declared an independent private sector, direct taxation and related political reforms. In African countries, the mining sector contributes a powerful influence to the economy of a country. For example, in Zambia, investment rate is 20% of GDP and is spend most of the investment on improvement of the infrastructure and irrigation systems. Nevertheless, privatization has been encouraged in the long-term (Lundahl, 2001).

China established a “socialist market economy” and started economic development reform in 1978 based on the coal industry. The serious problems faced by the coal industry were; poor infrastructure, insufficient regulation and legal environment, even the available laws and regulations could not effectively coordinate all the activities. The government encouraged the development of coal mine companies through low entry barriers, flexible coal prices, low tax and advanced management solutions, plus high technologies introduced for exploration and production of the mines. The government has built an effective and efficient infrastructure system and encouraged foreign investment in the coal industry (Rui, 2005)

One of the ways that the British had successful economic growth was that the investment flow from mining was spent on research and development activities, such as new and innovative technology and industrial construction during the late 1980s. Those investment distributions gave an opportunity to increase the economic capacity; furthermore these actions maintained the country's income and employment equality (Smith, 1986).

Australia faced some problems concerning the mining industry in that foreign capital inflow anticipated the external debt crises and caused a high degree of foreign ownership; therefore in the 1970s the Australian government took action to limit foreign investment in the mining sector. But this restriction was removed and foreign investment became more relaxed in 1980s according to the financial reform of the country; however uranium mining remains with the ownership restriction rule of up to 50% (Meredith & Dyster, 1999).

RESULTS

It is understandable that Mongolia needs to improve its legal system and environment for mineral resource usage, however, according to the agreement with Ivanhoe Mines; the Parliament of Mongolia has included several amendments to the Law of Minerals that consider the investors' needs and requirements. If looked at from the viewpoint of a dispute, it shows that the Mongolian legal system is unstable, that the enforcement capability of the law is not strong enough, that state agencies do not work properly to raise public awareness of the related laws, and the obedience rate to the law is lower, compared to other countries. In a changing global economy, more legal effort needs to be put into the legal environment to create a more optimal system through high level research (Richmand, 2005).

Main Challenges That Have Arisen within the Mining Sector of Mongolia

Mongolia has very poor infrastructure, most areas in the countryside do not have paved roads, and the railway line only runs from Ulaanbaatar to the Chinese border in the south and to the Russia border in the north. A total distance is 1,100 km with 4 branches. These branches connect the main mine sites of the Erdenet copper mine, Darkhan metallurgical plant and Baganuur, Shivee Ovoo and Shariin Gol coal mines (Railway Development Research, 2008). In addition, there is a shortage of water resources and power plants reaching the mining sites (Shapiro, 2009b). Considering these circumstances, every mining company has to develop its own strategic programs to support the infrastructure in its region from their profits and cooperate with the local government administration.

As a consequence of the recent global financial crisis, demand and prices for commodities have declined and influenced the investment flow to Mongolia. If the copper price was to continue to decrease further, it would probably hurt the trade balance of Mongolia; fortunately, the copper price has rapidly increased on London Metal Exchange since August 2009 (Bloomberg.com, 2009). The Ninth International Fraser's survey announced that Mongolia has changed its rank from being in the top 10 to being in the bottom 10 within a one year period in 2007 due to its overnight change in regulatory environment (Law on Windfall Tax of Mongolia, 2007) in the mining sector. Corruption issues have also been worsening in the past several years and become the most difficult issue. The World Bank Investment Climate Survey found that to obtain mining and exploration licenses, the companies required paying bribes for government officials (World Bank, 2009).

Recommendation and Further Actions Shall Be Taken

The Government shall achieve a market-oriented policy to sustain economic efficiency while extending foreign direct investment targeting market-orientation, human capital and monetary policies (Dutta,

Hooley & Mahani, 1998). The long-term solution for growth of the country will be correct formulation and implementation of the trade, banking, industry, and population policies and renovation of the infrastructure (Meredith & Dyster, 1999). Next year, 2010, the Government's main priority will be signing a stability agreement with foreign mining companies on the Tavan Tolgoi (TT) mine; therefore it would be challenging in the same way as the Oyu Tolgoi mine.

It should be noted that mine resources are never recovered and the income has a limited term. Consequently, it is necessary to formulate a good strategy for accurate usage of foreign investment to strengthen other business sectors, especially to develop the proper macro-economic management strategies of the country. One government encouragement is "The Development Fund" in order to support the growth of the country by contributing to the mining industry income. Unfortunately, at the current stage, the framework has not been structured properly, but it is just in its formative period. In 2009, the World Bank allocated 9.3 million USD for improvement of the governance of the Mongolian mining sector through the mining sector technical assistance project (World Bank report, 2009).

The Government of Mongolia has formulated several country development policies to intensify the economic development of the country, create financial capacity and enhance mining production while adopting high level technologies. Another important issue that the Government of Mongolia has established is the "Erdenes MGL" state owned company to own the licenses of all strategically important deposits of Mongolia, and at the next stage the company is going to be listed on worldwide stock markets. This will impact both the transparency of deposits to the investors and the reliability of information.

CONCLUSION AND LIMITATION

The Oyu Tolgoi project has been approved by the Government of Mongolia after six years, two parliaments, three governments and an initial investment of one billion USD made by Ivanhoe Mines. After the signing ceremony between the Government of Mongolia and Ivanhoe Mines on the Oyu Tolgoi project, Fitch rating updated Mongolia's outlook from "Negative" to "Stable", at the same time the World Bank cautiously agreed that the Mongolian economy may stabilize in the future (Dale, 2009). Mongolia has huge undeveloped resources, yet has a small but open market economy. This agreement between the Government of Mongolia and a private mining company, Ivanhoe Mines, is establishing favourable economic circumstances in Mongolia.

But from another point, if a country will not pay attention to the development of sustainability of other businesses; as it continues only to rely on foreign investment, there is little guarantee of ensuring the country's economic sustainability. The growing economy is creating acute needs for the developing infrastructure sector, especially railroads, highways and power generation facilities. The current infrastructure is far from meeting the present industrial demands. If the Government of Mongolia can effectively manage those strategically important deposits, then we can quickly transfer from an agriculture based economy to a mining based economy. Still, Mongolia remains a difficult country in which investors can conduct a business, due to the under-developed infrastructure, un-paved roads, and high levels of poverty and weakness of technical professionals.

This is one reason why the Government distributing money to all citizens is completely wrong. Easing the life of the population, treating people with dignity and providing them proactive support are not promoting the quality of life; instead the government has to find a way of managing the economy.

It is remarkable that mining industry plays such an important role in the growth of the country, especially in developing countries although the importance of promoting them in economic activities is being increasingly realized. If we can assist the local mining companies by bringing them into the mainstream of development through improving their economic status, it will impact on poverty reduction, strengthen

the development of rural areas and infrastructure around area, improve the employment rate and influence the social and economic growth of the country. Additionally, mining industry is the most risky sector within economic factors.

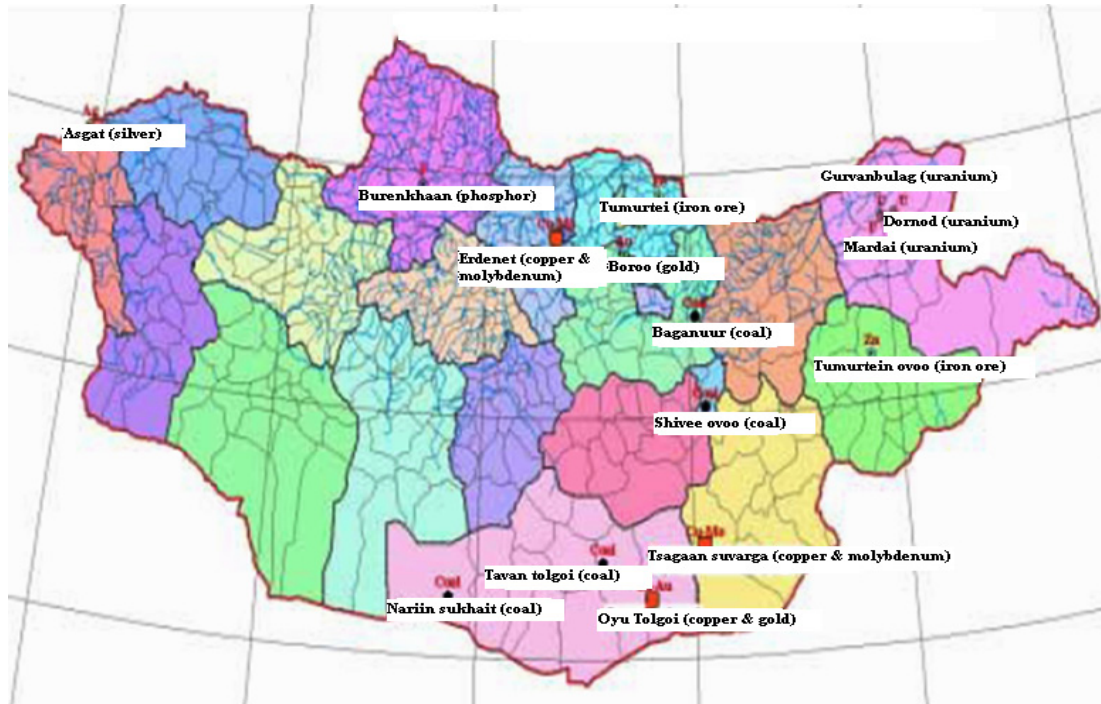
This paper does not automatically provide the answers; consequently, it remains open for researchers to investigate further. Mongolian government should execute a mining -management plan to avoid the negative impact of uncertain positions, which can respond to any raised problems. This mining-management plan will assess possible crises to offer protection from unpredictable circumstances.

APPENDIX

Appendix 1: List of Strategically Important Deposits of Mongolia

#	Name of Deposit	Mineral	Location (Name of aimag ⁶)	Remarks
1	Tavan tolgoi (TT)	Coking coal	Omnogobi aimag	Total deposit is 6.5 billion tones.
2	Nariin sukhait	Coal	Omnogobi aimag	Total deposit is 134 million tones.
3	Baganuur	Brown thermal coal	Ulaanbaatar, Baganuur district	Total reserves are 360 million tones. Operation generalized since 1978.
4	Shivee ovoo	Brown thermal coal	Gobisumber aimag	Total reserve is 642 million tones and has operated since 1984.
5	Mardai	Uranium	Dornod aimag	Total reserves are 49,000 tones.
6	Dornod	Uranium	Dornod aimag	
7	Gurvan bulag	Uranium	Dornod aimag	
8	Tomortei	Iron ore	Selenge aimag	Total reserves are 230 million tones
9	Oyu Tolgoi (OT)	Copper, molybdenum	Omnogobi aimag	Ivanhoe Mines Company signed a 50-year investment agreement with the Government of Mongolia. Reserves are 32 million tons of copper and 1,000 tons of gold.
10	Sagan suvraga	Copper molybdenum	Dornogobi aimag	240 million tons at 0.54% copper and 0.019% molybdenum
11	Erdenet	Copper molybdenum	Orkhon aimag	Total reserves are 1.5 billion tones. It contributes 27% of state budget and has operated since 1978.
12	Burenkhaan	Phosphorus	Khuvsgol aimag	Total reserves are 192.24 million tones and 4 th largest phosphorus reserve in the world.
13	Boroo	Gold	Selenge aimag	24,523 tones of gold reserve
14	Tomortein ovoo	Zinc, lead	Sukhbaatar aimag	7,689.4 thousand tones of 11.5% zinc
15	Asgat	Silver	Bayan-Ulgii aimag	Total reserves are 6402.6 thousand tones

Appendix 2. Map of Strategic Important Deposits



Source: 1. Mineral Resource Authority of Mongolia (2009), 2. Warlters, M. (2009) and 3. Erdenes MGL⁷ (2009)

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