Czech University of Life Science Prague

Faculty of Economics and Management

Department of Economics

Bachelor Thesis

The Role of Natural Resources in Mongolian Economy

Bolorchimeg Ganbaatar

CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

BACHELOR THESIS ASSIGNMENT

Bolorchimeg Ganbaatar

Economics and Management

Thesis title

The Role of Natural Resources in Mongolian Economy

Objectives of thesis

The aim of thesis is to explore and analyze the impact of the mining industry on the economic growth of Mongolia. Mongolia is richly endowed with natural resources. Today, mining is very important and risky question, there are examples of major mining projects, which are indispensable elements in the economy and have an extensive effect on rapid economic expansion. Objective is to determine the role of mining natural resources on GDP through scientific analysis and various methods to reach purposeful complete results.

Methodology

Comparative and descriptive methods will be used in the thesis.

The proposed extent of the thesis

40 – 60 pages

Keywords

Mongolia, Natural Resources, Economic growth,

Recommended information sources

BERRY, R A. – KANT, S. *Economics, sustainability, and natural resources : economics of sustainable forest management ; edited by Shashi Kant, R. Albert Berry.* Dordrecht: SPRINGER, 2005. ISBN 1-4020-3465-2.

KOUNDOURI, P. *Econometrics informing natural resources management : selected empirical analyses.* Cheltenham: Elgar, 2004. ISBN 1-84376-922-0.

NAMJIM, Tumur. Mongolian Economy. Volume 1. Ulaanbaatar: Academy of Mongolian Science, 2004. ISBN 99929 – 82 – 40 – 3

Expected date of thesis defence

2017/18 WS – FEM (February 2018)

The Bachelor Thesis Supervisor

doc. Ing. Mansoor Maitah, Ph.D. et Ph.D.

Supervising department

Department of Economics

Electronic approval: 25. 2. 2016

prof. Ing. Miroslav Svatoš, CSc.

Head of department

Electronic approval: 26. 2. 2016

Ing. Martin Pelikán, Ph.D.

Dean

Prague on 28. 11. 2017

Declaration

I hereby declare that I have worked on my bachelor thesis titled "The Role of Natural Resources in Mongolian Economy" and that all the sources I have used and quoted mentioned at the end of the thesis in the list of preferences.

In Prague, 30th of November, 2017 ……………………….

Bolorchimeg Ganbaatar

The Role of Natural Resources in Mongolian Economy

Abstract

This work contains background information on Mongolian Natural Resources especially land wealth benefits - mining industry and its impact on Mongolian nowadays economy.

First part briefly introduces some theoretical considerations and gives a first overview of classification of natural resources and its main representatives. This part includes actual examples of resource rich countries, advantages and disadvantages, real examples of countries rich in resources and describes graphically the differences between resource rich and non-resource rich countries. At the end, there is introduction of Mongolia, brief history over time and about Mongolian economic development.

Second part comprises Mongolian modern economy conditions based on mining industry, facing problems of increasing the efficiency of use of natural resources. Gold and copper mining represents Mongolian biggest mining corporation Oyu Tolgoi and coal mining represents corporation Tavan Tolgoi. Practical part analyses natural resources as a factor of economic development of the country, solutions for improvement the efficiency of using the natural resources in Mongolia through the key indicators of economic growth.

The collected research data were analyzed through qualitative and quantitative analysis. Comparative and descriptive methods will be used in the thesis.

Role Přírodních Zdrojů v Mongolské Ekonomice

Souhrn

Tato práce obsahuje základní informace o mongolských přírodních zdrojích, zejména výhodách půdního bohatství - těžebním průmyslu a jeho dopadu na mongolskou současnou ekonomiku.

První část stručně představí některé teoretické úvahy a poskytuje první přehled klasifikace přírodních zdrojů a jejích hlavních zástupců. Tato část obsahuje skutečné příklady zemí bohatých na přírodní zdroje, výhody a nevýhody, skutečné příklady zemí bohatých na přírodní zdroje a graficky popisuje rozdíly mezi zeměmi bohatými na zdroje a zeměmi bohatými na zdroje. Na závěr je zavedení Mongolska, krátká historie v průběhu času a mongolský hospodářský rozvoj.

Druhá část zahrnuje mongolské moderní ekonomické podmínky založené na důlním průmyslu, které čelí problémům zvyšování efektivnosti využívání přírodních zdrojů. Těžba zlata a mědi představuje mongolská největší báňská společnost Oyu Tolgoi a těžba uhlí reprezentuje společnost Tavan Tolgoi. Praktická část analyzuje přírodní zdroje jako faktor hospodářského rozvoje země, řešení pro zlepšení efektivity využívání přírodních zdrojů v Mongolsku prostřednictvím klíčových ukazatelů hospodářského růstu.

Shromážděné údaje z výzkumu byly analyzovány kvalitativně a kvantitativní analýzou. V práci budou použity srovnávací a popisné metody.

Klíčová slova:

Mongolsko, Přírodní Zdroje, Hospodářský růst, Těžba v Mongolsku, Oyu Tolgoi, Tavan Tolgoi

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1 Introduction

In everyday life we face with natural resource knowingly and unconsciously. Sometimes we are not aware of what we breathe eat, after all what we see, since everything is given by the mother of nature as resources and we take it as a matter of course. When it comes to wealth in the form of land that has the power to influence the world's economy growth, we look at natural resources from entirely different angle. Instinctively, countries with precious gifts from nature should have high economic development and are richer than other countries, unfortunately, it does not correspond with our notion, on the contrary, is the opposite. For the long term development these countries are less successful than the countries without wealth.

Mongolia is rich in mineral resources and its economic development is depending on the mining. Mining corporations, their licenses are often attracted by foreign investors and shares are valuable on the global markets. Nowadays there are three big mining deposits, Oyu Tolgoi – gold, copper mining, Tavan Tolgoi – coal mining and Erdenet – ore mining.

The thesis shows an important research analyses from mining sectors, its impact on the rise and fall of gross domestic product (GDP), foreign direct investment (FDI) and its position due to GDP and total exports, also shows the main products of exports and imports comparing them within time interval to show the influence of natural resources, respectively mining industry on Mongolian economy.

2 Objectives and Methodology

2.1 Objectives

The aim of this study is to provide a basic understanding of natural resources and their use throughout the world and to identify factors and assess how natural resources affect Mongolian economy, especially the mining industry and its influence on economic growth. Using collected information from different actual sources will be defined whether the natural resources, mining industry is essential or unessential part of the Mongolian economic development and its profitable stable condition.

2.2 Methodology

The thesis consists from two main parts, theoretical and practical. Theoretical part is based on study of scientific insight gained from professional literature theories, internet sources and other information sources. The analytical or practical part itself is based on the data obtained from the National Statistic Office of Mongolia, World Database Offices – World Bank Data and from other articles and reports. In this part will be used comparative and descriptive method to analyze whether natural resource has a positive or negative impact on Mongolian Economic growth.

3 Theoretical Part

3.1 The concept of Natural Resources

From the creation of humanity people seek the most pleasant environment to facilitate and appoint their space for living and use the natural resource as an inseparable part of their everyday life. The diversity of the environment affords social development. In today's world, ecological environment has become more important than geographical environment. It had a negative impact on the ecologic system, since mankind had consumed the resources they needed from the nature and omit the used land, sought a new resources of livelihood. Particularly, between 18th and 19th century, the use of natural resources was harshly strictly and dealt with no control, bringing many negative results, therefore consequence was shown in the middle of the 20th century. For instance, economic actions had affection to the geographical environment as a lack of natural resource, increase of a solid, liquid and gas waste, and air pollution caused from a radioactive and other toxic substances.

Natural resources or natural energies are the raw inputs, in other words, all kinds of resources that are not created by man. The raw inputs are used to manufacture and produce every single product in the whole world, which is an essential part of social development and human beings. For instance, there is water, oil, forests, rocks, minerals, soil, animals, sunlight and air, etc. The world population is about 7billion, therefore there will be an inescapable increase on demand of the world's natural resources. The most used natural resource is water and then continues with oil, natural gas, phosphorus, coal and rare earth elements etc.

People consume natural resources in two basic ways, directly and indirectly. Direct use is most obvious value category, as the economic benefits can be calculated by making use of market information (e.g. a forest may yield annually a certain amount of wood that can be sold or used for heating and construction, pastures provide space for some livestock). Indirect use of natural recourses relates to functional benefits, the outputs provide a social benefit from ecosystem functioning (e.g. water purification, erosion protection or carbon sequestration). (Jochem Jantzen, 2006)

3.2 Classification of Natural Resources

Natural resources may be classified in a number of ways. There is still a worldwide debate on the allocation of natural resources. The discussion focuses on the issue of increased scarcity – resource depletion and export of natural resources as a basis for many economies, especially developed countries. The vast majority of natural resources are exhausting, which means they are available in limited quantities and can be exhausted if they are not properly managed. Natural resource is divided according to its source of origin, the state of development and continual utility.

1. According to Continual utility

Obviously, some resources are exhausted, while others are continuing the environment despite of their use. So, on the basis of continuous use, resources are divided into two categories:

- Renewable resources

  In some writings it is mentioned as flow resources. Renewable resources are resources that can be restored along with their use and which can be always available for use exploitation. In other word, these resources are generally living resources and have a natural regeneration process. Some examples are forests, air, sunlight, wind etc.
  - ➢ Renewable but non-exhaustible resources – solar, wind, tides
  - ➢ Renewable but exhaustible resources – forests, biomass
- Non-renewable resources

  Non-renewable resources are resources that are in the finite quantities and cannot be restored together with their use. A resource is considered to be non-renewable when their rate of consumption exceeds the rate of recovery. These resources generate deeply slow. It means if these resources are used on a large scale, it will be soon exhausted. Some examples are coal, minerals, fossil fuels etc.
- Cyclic resources

  The resources which can be used again and again passing through some processes are known as cyclic resources. An example of cyclic resource is water.

2. According to the source of origin

The resources can also be classified according to their origin i.e., whether resource has biological origin or not.

- Biotic

  These resources originated from living organism and organic material, such as forests and animals, and include the materials that can be obtained from the biosphere. Biotic natural resources also include fossil fuels such as coal and petroleum which are formed from organic matter that has decayed. Some examples are coal, mineral oil, forest etc.

- Abiotic

  These resources originated from non-living organism and non-organic material. Some examples are land, fresh water, air, and heavy metals (gold, iron, copper, silver, etc.).

3. According to their stage of development

- Potential resources

  These are resources that exist in the region and can be used in the future. For example, if the earth has oil in sedimentary rocks, it is a potential source until it is actually thrown out of the rock and used.

- Actual resources

  These are resources that have been detected also their quantity and quality have been established and are currently being used. Actual resource development depends on technology.

- Reserve resources

  This is part of a real resource that can be profitable and are able to use them in the future.

- Stock Resources

  These are resources that have been identified but cannot be used due to a lack of technology. An example of this source is hydrogen. (Kumar, Environmental pollution)

3.2.1 Water, Water resources

The world seems to be full of water, but only 2.5% of it is fresh water, which is about 35 million km^3. Every next day demand of water is increasing and it could soon exceed supply of water and depletion occurring most prominently in Asia, South America and North

America. The reason is 70% of that fresh water is in the form of ice and permanent snow cover. Nowadays humanity faces the problem of safe drinking and use of potable water is scarce, we only have access to $200,000km^3$ of freshwater overall, meanwhile about 1 billion people have no access to water.

The Food and Agriculture Organization of the United Nations is predicting that by 2025, 1.8 billion people will be living with absolute water scarcity. Many countries and organizations are fighting against water scarcity by building water treatment plants. Unfortunately due to climate change, global warming the amount of rain and ice melts from winter has dropped off. The result is lowered reserve supplies of potable water.

Mostly we use water every day as an essential part of our lives i.e., requires fresh water. Water resources are the most widespread natural resource and have potential benefits, as agricultural, industrial, domestic and environmental activities. Fresh water is classified to the renewable resource. According to estimation by WBCSD (World Business Council for Sustainable Development) Water Facts & Trends, 70% of worldwide water is used for irrigation and 22% of it used in industry, but only 8% is used for domestic purposes. (HOWARD, Perlman, 2016)

Figure 1: Locations of water on Earth
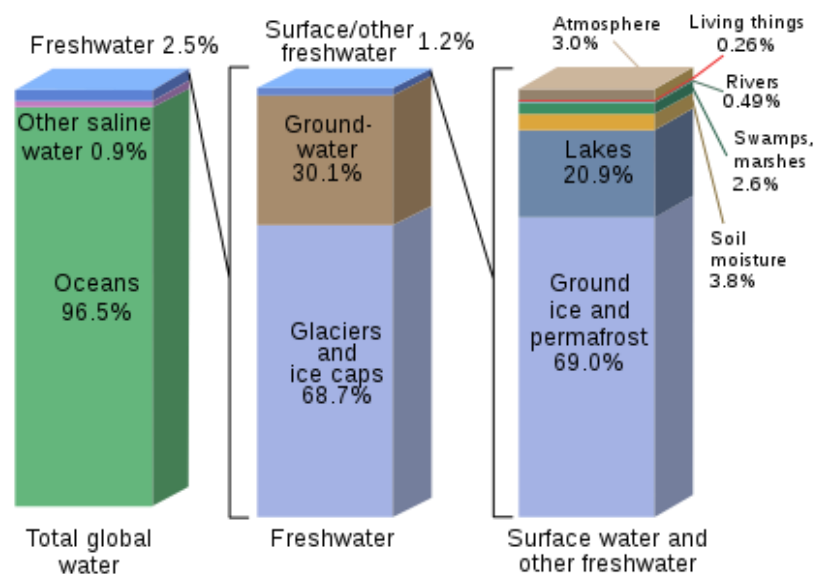
Source: Igor Shiklomanov's 1993, Oxford University Press, New York

3.2.2   Air flow, Wind resources

Air is as necessary as water for the existence of life on this planet. As well as water energy, wind has extensive roots in history. The important environmental task is reducing air pollution and health related problems are usually caused by the polluted air. There are many ways to eliminate air pollution to a large extend. Most general example is reducing use of car fuel.

Wind is an air natural movement, as that blows horizontally everywhere at any velocity along the earth's surface, they carry part of the energy we receive from the sun through the movement of air masses. Otherwise, wind is caused by an uneven heating of the earth's surface and changing air pressure differences i.e., depression and anticyclone. These winds can gather using the wind turbines which convert the kinetic energy of wind to electrical energy. The very first wind power use was in Persia about 500 -900 A.D. (Steven Cooper, 2008)

Wind itself is very extensively used on means of transport, especially wind-powered boats also we generate wind into electricity. The force and direction of wind rotates the wind turbine blades spin, and the energy generated by this act is transformed into electricity by a generator. Turbines also can transform wind energy into mechanical power as pumping water. Sizes of the turbines differ by their use. The smallest turbines are used such as power traffic warning signs, larger turbines or wind farms are getting more attention and it is an important renewable energy for making country´s strategy to reduce their reliance on fossil fuels. The biggest suppliers of wind power are Germany (Nordex, Siemens, Enercon), China (United power, Goldwind) and Denmark (Vestas). Vestas exists since 1898 and is the world's only global energy company dedicated entirely to wind power with more than 60 GW installed worldwide. Wind power produced the equivalent of 42.1% of Denmark's total electricity consumption in 2015.

On the Figure 2, statistic represents the market share of the world's largest wind turbine manufacturers in 2016. That year, Germany-based wind turbine manufacturer, Enercon, had a market share of approximately 7% and in the first placed Vestas Denmark 16%, following GE Energy USA had 12% and the third place was taken by Goldwind China with the same percent of market share as USA. (REN21, 2017)

Figure 2: Global market share of wind turbine manufacturers in 2016
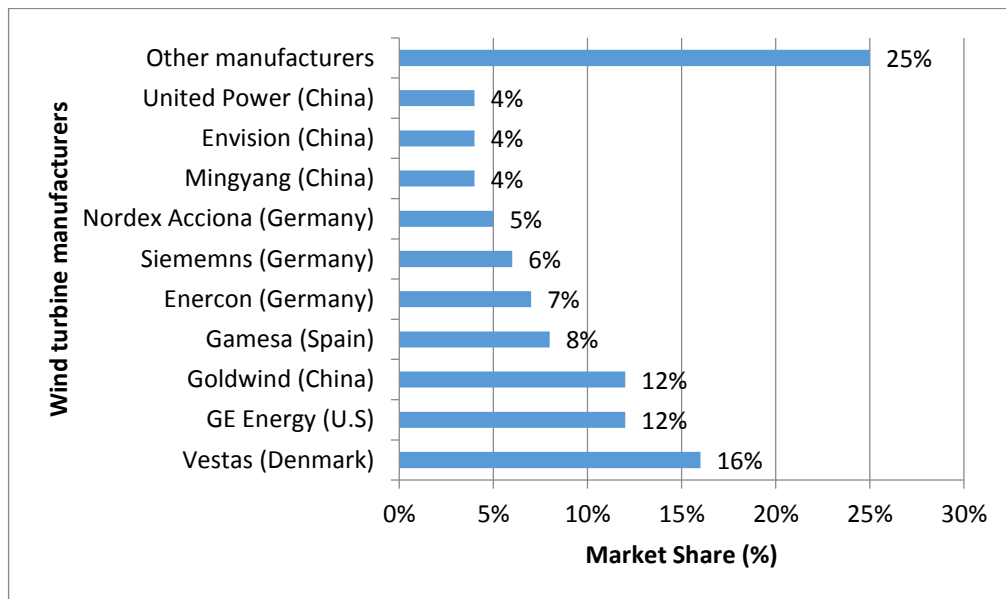
3.2.3   Minerals

Minerals are raw materials used to make mentionable products of society based on the industries, as roads, buildings, cars, electronic devices, computers, natural substance and so on. On the market demand for minerals is increasing in progressive worldwide as the modern usage of technologies increases and the consumption of individual people´s need increases.

"Minerals are naturally-occurring inorganic substances with a definite and predictable chemical composition and physical properties." (O' Donoghue, 1990)

In the world, there are more than two-thousand minerals (it is about 98.5% of the Earth's crust) have been found and most of them contain various combinations of these chemical elements (oxygen O, silicon Si, aluminum Al, iron Fe, calcium Ca, sodium Na, potassium K, and magnesium Mg). Few minerals consist of a single chemical element such as gold with symbol AU, silver Ag, diamond (carbon) C and Sulphur S.

A mineral deposit is the concentration of materials in or on the Earth's crust, occurring naturally in the form of solid, liquid or gaseous and the state or amount founded are profitable todays and futures economic growth positively but also negatively. Mineral

resources are non-renewable resources, and include metals (such as iron, copper and aluminum), non-metals (salt, plaster, clay, sand, phosphates) and fuels (coal, oil and natural gas). Fossil fuel minerals (died plants and animals, their bodies decomposed and were buried under layers of earth for millions of years) are crucial important factor, because they represent almost 87% of the value of mineral production, while metallic and non-metallic are 6 to 7%. (MINDAT, 2017)

3.2.4   Coal

Coal is one of the nonrenewable fossil fuel minerals, it is a sedimentary combustible rock found in nature usually in rock layers – coal seams. Throughout the history, coal is one of the world´s most important and common sources of energy for electricity and heat, fueling almost 40% of electricity worldwide, which is almost half the products. It used also for industrial and household purposes such as metal refining, not only providing electricity, but also used an essential fuel for steel and cement production, and other industrial activities. As an example, Poland relies on coal for over 94% of its electricity; South Africa for 92%; China for 77%; and Australia for 76%. Coal has been the world's fastest growing energy source in recent years – faster than gas, oil, nuclear, hydro and renewables. (World Coal Instite, 2009)

By the production of coal in 2017, China was ranked as highest with 2.62 thousand MTOE (Million tones Oil Equivalent) per year, accounts for more than 50% of the global total annual coal consumption and follows United States of America with 569 MTOE per year, see Figure 3. (World Energy Council, 2016)

According to estimation, there are over 984 billion tones proven coal reserves worldwide, which last us over 190 years, with the biggest reserves in the USA, Russia, China and India. (A.K.Ghose, 2003)

The consumption of the world total coal is about over 4050 Mt in a variety sectors, as power generation – electricity and heating, iron and cement production and as liquid fuel. (The Coal Institute, 2004)

Coal production has grown fastest in Asia, while Europe has actually seen a decline in production. Asia has 54% of the global coal market share in consumption, although the consumption is influenced by China with share 50.6%. (BP, 2017)

Figure 3: Top coal producing countries 2017 (MTOE per year)
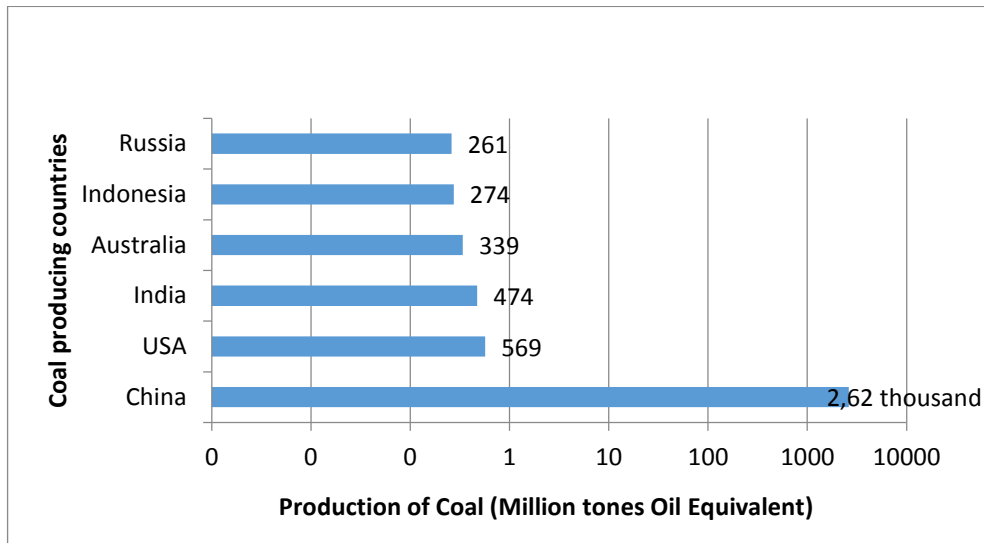
Not every country is able to cover its energy needs with natural energy resources. The solution leads to import energy to help meet their requirements. For example, Japan, Chinese Taipei and Korea import a huge amount of steam coal for electricity generation and coking coal for steel production. Global coal production is expected to reach 7 billion tones in 2030 – with China accounting for around half the increase over this period. (The Coal Institute, 2004)

3.2.5   Oil

It is assumed that oil has been created for several million years, by converting residues of microorganisms living in the sea into hydrocarbons by heat, pressure and catalytic effect. Oil in fractional distillation and further processing provides us with a range of products and by-products. Like other nonrenewable resources, oil or petroleum also occurs naturally. It is a yellow black liquid from the Earth's surface. The primary use of the fuel source is transportation. Most of the oil is pumped from underground tanks, but can also be found in slate and tar sands.

Russia is the biggest producer of oil with 10.51M bbl/day (bbl-barrel) for august 2017. (Energy Information Administration, 2017)

According to current estimates and the end of 2016, 81.5% of the world's proven crude oil reserves are located in OPEC Member Countries, it is 1216.78 billion barrels. (OPEC, 2016)

3.2.6 Natural gas

Natural gas is naturally occurring in the earth's surface. Its chemical consist is dominantly methane, carbon and hydrogen atoms, also contains a small amount of gaseous hydrocarbon gases and non-hydrogen gases. Consumption of natural gas is for fuel and we produce materials and chemicals. Raw natural gas is odorless, so companies that supply natural gas are adding artificial smell, like rotten egg, to let people know the presence of gas. The formation of the natural gas is the same as petroleum or oil.

World total consumption of natural gas in 2015 was 3468.6 billion m^3. United States ranked in first place with 778.0 billion m^3 of natural gas consumption, then follows European Union, Russia, Iran and China. (BP, 2016)

3.2.7 Copper

The very first metal ever manipulated by humans was copper, chemical element with symbol Cu. From antiquity to the present day it remains an important metal in industry and it is the third most consumed metal in world after iron and aluminum. Copper has many utility and has good several advantages. About three-quarters of that copper goes to make electrical wires, cables, because of its high ductility, malleability, thermal and electrical conductivity and resistance to corrosion. (Stephanie Pappas, 2014)

World total copper production by 2015 was 19.100 thousand tones, by copper smelter production in the first place ranked Chile 5760, followed China with 1710 and Peru with 1700 thousand tones of copper. (USGS, 2017)

3.3 Natural Resources in Global Economy

During the 19th century and the first half of the 20th, several countries with abundant natural resources grew remarkably fast. The most notable cases include Australia, Scandinavia, and the United States. However, in the second half of the 20th century many countries with abundant natural resources experienced slow growth. (Daniel Lederman, 2007)

Natural resource economics focuses on the supply, demand, and allocation of the Earth's natural resources. Learning about the role of natural resources allows for the sustainable development of more practical methods to manage resources and make sure that they are maintained for us and for our future generations. The goal of natural resource economics is to develop an efficient economy that is sustainable in the long-run.

Figure 4: Venn diagram of sustainable development
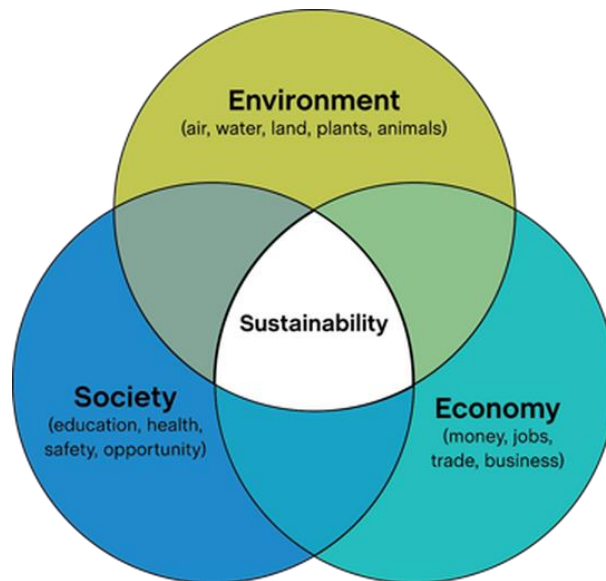
Source: Adams, W.M., 2006

On the Figure 4 is shown Venn diagram of sustainable development at the confluence of three constituent parts, the economy and society are shown as subsets of the environment. The both are stand dependently on the environment. Furthermore, natural resource economics focuses on understanding the role of natural resources in the economy in order to develop efficient and sustainable economy.

World is rich in natural resources. Generally natural resources are an important engine for the economy, as well as a significant source of fiscal revenue and foreign exchange.

3.3.1 Role of Natural Resources on Global Economy

The role of natural resources on global economy is relatively large and has positive and negative consequences.

The Figure 8 below shows econometric determinants in econometric tests in a comprehensive sample of countries. Consider the Figure 8, where portrays the relationship

between export of non-agricultural resources as part of total exports of goods and the average rate of economic growth over the last four decades. Typical suspects - China, Korea and Thailand - are remarkably high in growth and low in natural resources. Likewise, Liberia, Venezuela and Zambia are rich in raw materials but low in economic growth. Negative correlation is not very strong, as some countries - which Chile and Saudi Arabia think - have managed to have it both ways. However, the data certainly do not create any positive correlation between wealth of natural resources and economic growth. (Jeffrey Frankel, 2010)

Figure 5: Mineral exports and growth, 1970-2008
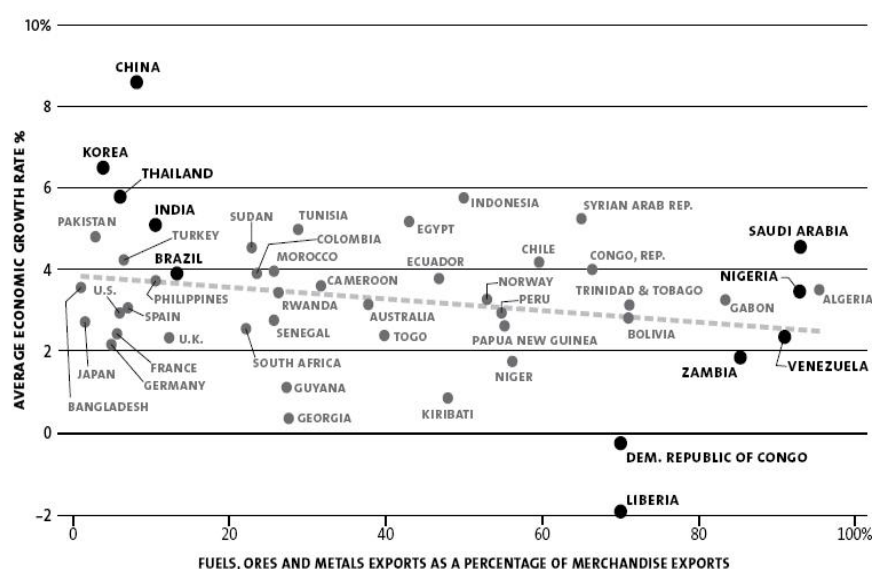
Source: World Development Indicators, World Bank

There are countries that have developed from natural wealth, but also others, where the forces of nature have not been influenced but are being well-developed. Natural resources have also negatively affected the country's sustainable development. For instance, in the 1960s Singapore, Sierra Leone and Botswana left the colonial power of the United Kingdom of Great Britain and Northern Ireland (United Kingdom) and with its announcement of independence were at the lowest level of economic development. Sierra Leone and Botswana were rich in natural resources, especially diamonds, while Singapore was an importer of natural resources and imported from potable water to sand to build new buildings.

When in 2009, the IMF released statistics among 182 countries, and the result after the comparison went as follows, according to the ability to buy GDP per capita Singapore took the third place, while Botswana 53 and Sierra Leone 175. With the proper use of human resources, Singapore has achieved this success without natural resources. Shortly after Botswana gained independence, in 1966 its capital were only twelve kilometers of paved road, 22 university graduates and 100 people with full secondary education. Sierra Leon, with access to the sea, was a British West African education center during the colonial era and in 1966 had two universities and the infrastructure was far from Botswana.

Figure 6: GDP in billion dolars from 1960 – 2016
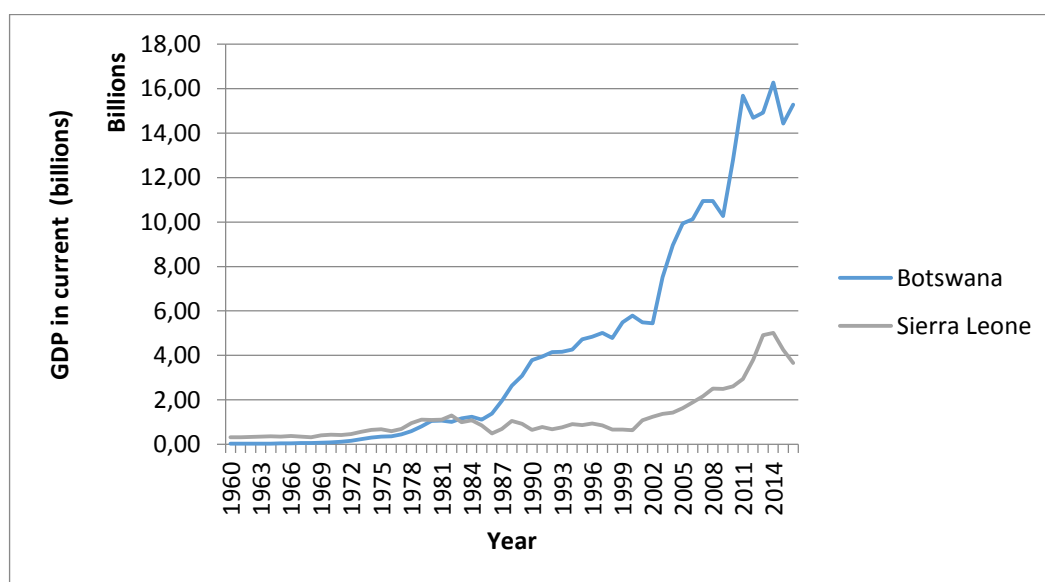
Nevertheless, today Botswana is considered the most advanced country in Africa, while Sierra Leon has a diamond-funded civil war, and cannot keep their own peace, so Sierra Leon seeks assistance from the United Nations and even Mongol soldiers are sent for peacekeeping. Figure 9 compares these countries' earnings per capita. (P. Avralt-Od, 2011)

In 2016 GDP of Sierra Leon was $3.669 billion, Botswana $15.275 billion and Singapore´s GDP was $296.966 billion.

3.3.2   Resource rich and Non-resource rich Developed countries

Economic development based on natural resources is unstable than countries without natural resources. Countries with natural resources (resource rich developed countries –

RRDCs) solve their current and future economic aspects by saving relatively few sources of their resources to create productive capital. Some countries have negative real savings, economies of scale adapted to the depletion of natural resources, and do not build up capital quickly enough to close large gaps in infrastructure.

Figure 7: Public investment in RRDCs and Non-RRDCs

**(Average: 1980 – 2011, median and interquartile range, in % of GDP)**
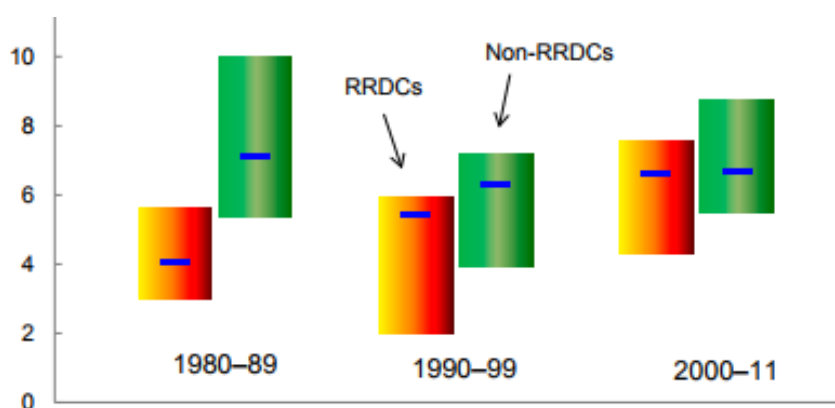
Source: World Economic Outlook, IMF staff estimates.

Figure 5 graphically shows the RRDCs (yellow bars) are lower than the Non-RRDCs (green bars) by each ten year decades. The public investment, its difference between RRDCs and Non-RRDCs was estimated. The result is RRDCs have relatively low public investment compared to Non-RRDCs. In order to have a lasting impact on the economic development of the countries, part of the income from natural resources must be saved or invested.

Economic performance in RRDCs has typically been weak, afflict by two recurrent mistakes, low savings rates and boom-bust cycles. While booms in revenues from exhaustible resources have been associated with increases in total savings and smaller increases in investment, these changes tend to be driven by the private sector. Until recently RRDCs had lower public investment rates than comparators.

Boom-bust cycles, the ramping up of sometimes disorganized spending after positive revenue shocks, and sudden expenditure decrease after contrary shocks, have been the norm. Until recently growth in RRDCs has been lower than in non-resource economies, despite the adverse resource wealth, see Figure 6.

Figure 8: Growth in Real GDP Per Capita for RRDCs and Non-RRDCs

(Averages for 1980-2011, median and interquartile range, in %)
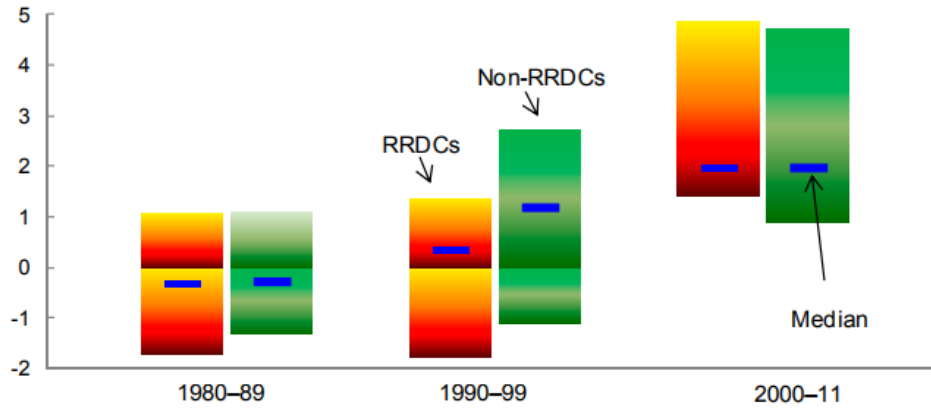
Sources: World Economic Outlook, IMF staff estimates.

With rising commodity prices and new discoveries, revenue from natural resources accounted for over half of government receipts in many natural resource-rich countries in 2011, see Figure 7. (TIWARI, Siddharth, 2012)

Figure 9: Revenue from natural resources selected countries 2011
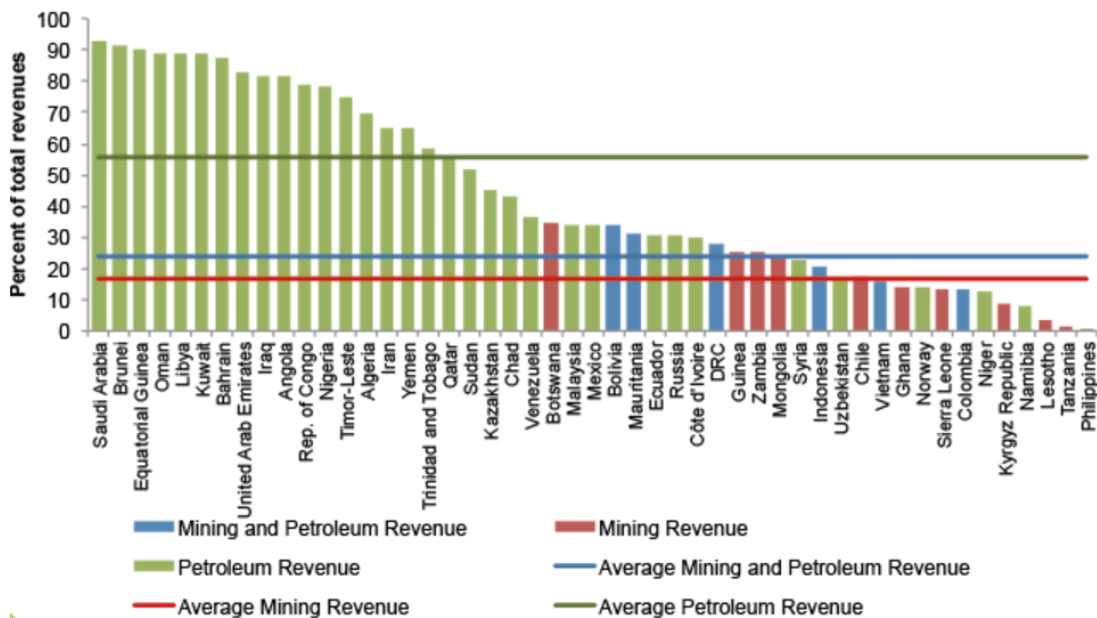
Source: IMF, 2012

3.3.3 Measures by Macroeconomic indicators

The relationship between economic growth and macroeconomic indicators has long been a popular issue of debate in the literature of economic development.

A macroeconomic factor is a factor that is pertinent to a broad economy at the regional or national level and affects a large population. Macroeconomic factors are gross domestic products (GDP), unemployment, inflation, savings and investment, which are key indicators of economic performance and are issued by governments, businesses and consumers. Every day, traders trying to understand the factors affecting grow and drops of the market. The reason of fluctuating market is the key indicators of macroeconomic factors are changing in every single second same as well, millions of investors make decisions. Gross domestic products (GDP): GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

- Inflation: (GDP deflator) Inflation as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.

- Foreign Direct Investment (FDI, net inflows): Foreign direct investment refers to direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy.

- Exports of goods and services: Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.

(World Development Indicators)

3.4 Natural resources in Mongolia

The course of Mongolian traditional economic activity is indefinitely based on natural and cultural factors such as cattle pasture, nomad family lifestyle, extreme climatic conditions and low population.

Mongolia belongs to resource-rich country and its mineral natural resources are oil, coal, copper, molybdenum, tungsten, phosphates, tin, nickel, zinc, fluorspar, gold, silver and iron.

Land use is shown below in Figure 11, from this 73% is agricultural land, 7% is forest and remained 20% is for other purpose. Irrigated land is 840sq km estimated in 2012. Agricultural land spreads to arable land 0.4%, permanent crops 0%, permanent pasture 72.6%.

Figure 10: Land use of Mongolia – 2011
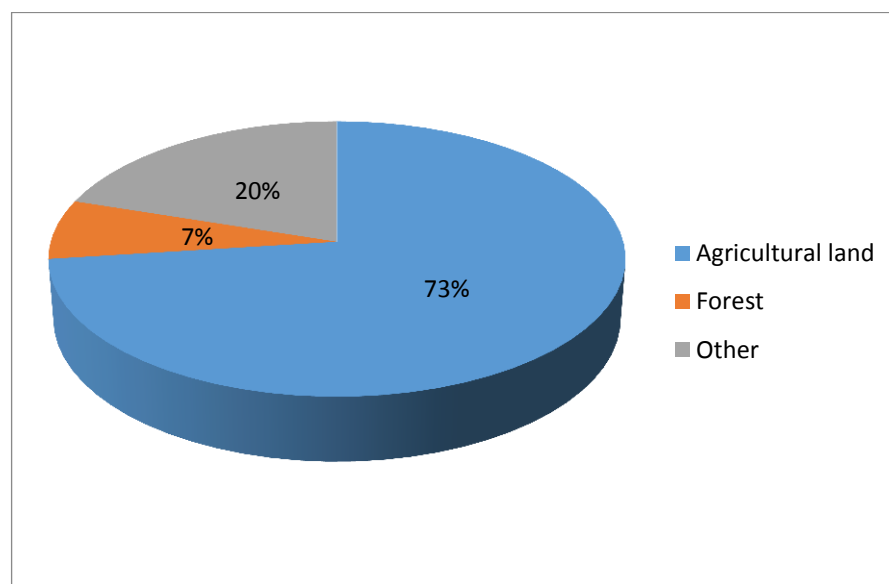
3.4.1 Background of the country

Mongolia is located in the Northern Asia, between China and Russia. Geographic coordinates – 46 00 N, 105 00 E. The land area is 1,582,339 km², which rates in 19th place in 2008. (CIA, 2017)

Mongolia is landlocked country and the eastern, western and southern regions border 4630 km with China and north 3452 km with Russia, see Figure 10. Average altitude is 1580

meters above the sea level. Country´s terrain is vast semi-desert and desert plains, mountains in west and southwest, Gobi Desert in southeast.

Compared to the size of country, Mongolia is not heavily populated. The current population Mongolia is 3,052,920 in July, 2016. The data is based on the latest United Nations estimates. The population density in Mongolia is 2 per km^2. (Worldometers, 2017) Capital city is Ulaanbaatar and about 60 % of the population lives in urban areas, and 40 % lives in rural areas, nomadic livestock husbandry. The main nation is Khalkha Mongols 86% Kazaks 6% and about a dozen other Mongolian ethnic groups.

The official language is Mongolian. The Russian language is widely used in Mongolia through the socialist system of the USSR (former name of today´s Russia) and its culture and education.

The official currency of Mongolia is the Mongolian tugrik (MNT). During the three year period to August 2016, the exchange rate varied from 1,390 - 2,150 MNT:USD.

The main religion is Tibetan Buddhism, and since the 1990s other types of religion have been freed. There are Christian churches in Ulaanbaatar and in rural areas. Kazakhs living in the western part of the country worship Islam. Today, many Mongols worship ancient shamanism, as their predecessors from the time of Genghis Khan (the first king, unified all Mongols).

Mongolian climate can be described, it has very continental climate with hot long summers, dry and very cold winters. Average summer temperature is +20°C, average winter temperature is -26°C, average rainfall is 200-220 mm. Known as the "The land of Blue Sky", Mongolia is a very sunny country in all four seasons and usually has about 250 sunny days a year. The average temperature in majority of country is below zero from November to March and virtually nil in April and October. Winter nights reach -40°C (minimum recorded -55°C C at Lake Uvs). Summer extremes reach as high as +40°C in the Gobi Desert and +33°C in the capital Ulaanbaatar.

Mongolia is parliamentary republic. President elected for four years. Present President Khaltmaagiin Battulga since 10 July 2017. Prime Minister appointed by State Great Khural for four years. (BAABAR, B, 1999)

Figure 11: Mongolian physical map

3.4.2 History of Mongolia

History of modern Mongolia is very short. The concept of the Mongolian state starts from the beginning of 13th century, when the Chingis Khaan (Genghis Khan) unified disparate nomadic tribes and started his Eurasian Mongol Empire through conquest. By the time he died, the empire stretched from Manchuria to the Caspian Sea. In many writings, the Mongol Empire is written as the greatest land empire of all time. It gradually fragmented until the 17th century, the power of the Mongol kings weakened and become vulnerable to invasion. In the middle of the 17th century Inner Mongolia (geographically divided to inner and outer) came under the power of the Qing (today´s China), end of the 17th century followed Outer Mongolia. In Inner Mongolia Autonomous Region in the People's Republic of China (nowadays name) live more ethnic Mongolians than in Mongolia. In 1924, Outer Mongolia formally announced its full independence as the Mongolian People´s Republic (MPR), allied with the Soviet Union becoming the communist state. The internal politics of the MPR were heavily influenced by Soviet Union during its membership. However it had many advantages, such as significant infrastructure was put in place, civilize and educate nomad Mongolians, build new today´s capital city Ulaanbaatar, levels of education, healthcare and the economic growth improved. This also included some negative impacts such as religious purges in the 1930. Many monks were murdered during this repression. In one word the Soviet Union completely changed the old Mongolian form

into a modern, developing state. Inner Mongolia remains a province of China today. The very first election of the parliament members was in July 1990 after Mongolia underwent a peaceful transition to democracy. In 1992, the new constitution was established and the first president election was in 1993. (BAABAR, B, 1999)

3.4.3   Mongolian Economy

First of all let's take a broader look at Mongolian past economic condition. From the beginning of socio-economic reforms in Mongolia have passed 20 years and still continuing the attempts to enter the new economic system.

Economists and scientists divide the development of Mongolian economic growth into three time intervals, see Figure 12:

- 1990-94, Transitional period

  The consequence of the transitions economies has both good and bad influences. Commonly it is usually absorption of emotions and disappointment. A transition or transitional economy is an economy, which changing from a centrally planned economy of the socialist system to the multi-party system with entry into democratic market economy.

- 1995-2003, Change and recovery period

  The second phase of transition between 1995-2003, the government implemented a restructuring program with the assistance of the International Monetary Fund (IMF) and the World Bank.

  Private sector development has also intensified as the financial sector becomes more competitive and more market-oriented.

- 2005-Present, Period of growth based on the mines

  The international market growing rapidly as a result of positive events such as rising mining prices, rising FDI and the launch of major projects such as copper and gold mine Oyu Tolgoi. (NAMJIM, Tumur, 2004)

3.4.4   Strategically sinificant Mineral deposits of Mongolia

Large mining deposits with much reverses are ore mining and ore processing factory – Erdenet, copper and gold mine – Oyu Tolgoi, coal mine – Tavan Tolgoi, gold mine – Gatsuurt, Zaamar and silver mine – Asgat and Tumurtei etc.

Mongolia has known occurrences over 80 different types of minerals and registered about 8000 mineral deposits, of these main minerals are gold copper, coal, iron and uranium. (Jargalan.S, 2012)

- Erdenet Mine: The Erdenet copper-molybdenium mine is the largest mine in Mongolia and has been operated by a state-owned Mongolia-Russian joint venture since 1978. Over 400 million tonnes of ore at an average head grade of 0.79% Cu have been mined.

- Oyu Tolgoi deposit: This copper-gold deposit has the potential to become the second largest mine in Mongolia. The deposit is geologically composed of Silurian-Devonian andesitic and basaltic rocks with interbeded terrigenous rocks. They are intruded by porphyry stocks and dykes that are syn- and late mineral in their emplacement.

  The Oyu Tolgoi mine (Turquoise Hill) is a combined open pit and underground mining project the south Gobi Desert. The mine has been operational f rom 2003, but the history behind has a long distance. First licence was reseived to BHP in 1997. After 2 years, BHP enters a joint venture with Ivanhoe Mines,Canadian miner. In 2005 the Hugo Dummett Deposit (one of the Highest-grade copper discoveries in the world) the biggest gold and copper porphyry systems. Project funding was part of the Rio Tinto Group project and an investment agreement between the Ivanhoe Mines and the Government of Mongolia. In 2009, an investment agreement signed between Government Mongolia,Ivanhoe Mines and Rio Tinto (goverrnment taking 34% interest). The mine started building from 2010 and in 2015 it delivered its first batch of copper, all 1.5 million tons. (OyuTolgoi)

- Tavan Tolgoi deposit: This is one of the world's largest untapped coking and thermal coal deposits, located in the Ömnögovi Province in southern Mongolia. It has a total estimated resource of 6.4 billion tonnes, one quarter of which is high quality coking coal.

  Tavan tolgoi has 7x109 t JORC compliant coal resources (3 billion coking coal and the remaining are good quality thermal coal) estimated. Out of the 6-7 known deposits and occurrences from 14 petroleum basins only the Zuunbayn and Tsagaan els deposits are in exploitation.

Tavan Tolgoi is the largest coal deposit in Mongolia, the administrative office opened in 1967. Between 1980 and 1986, Tavan Tolgoi became a large coal mine within the region (capable to explore and sale 120000 tones of coal/year) In 1990, mining sites expanded by order of Ministers Council to enhance the Tavan Tolgoi mine annual capacity. The Tavan Tolgoi mine was partially privatized in 1994. The first coal esporting was in 2004, agreements with Chinese companies signed. (TavanTolgoi)

4 Practical Part

The aim of the thesis is to analyze the importance of natural resources in the Mongolian economy. This section is based on analysis of the data obtained during collecting information on the given issue, whether what is the role of natural resources on Mongolian nowadays economy and what are the prospects for the future generation.

This work deals first and foremost with natural wealth throughout the territory of Mongolia. Subsequently, there is a brief introduction of some natural resources found in Mongolia. The collected data shows that Mongolia is a very rich country for mineral resources, and this brings certain advantages and disadvantages to the economy. The work also focuses on the current impacts on mining and related industries and its impact on the key economic indicators of the Mongolian economy, such as GDP, inflation rate, exports of products and FDI.

In the next part of practical part, where briefly introduced the reserve and mining of minerals such as gold, coal, copper and iron ore. The work focuses on the production of mineral resources. The aim of this part is to find out what effects have large mining deposits on the development of the Mongolian economy and how it affects economic growth.

4.1 Mining Industry

Mongolia is way much dependent on its mining industry. Pastureland is declining because mining activities are getting bigger and influential and 45% of the total territory of Mongolia can be used for mining purposes. (Lahiri-Dutt, KUNTALA, 2011)

Mining industry by itself produced 20% of GDP in 2005, however in 2012 and 2013 the percentage was decreased to 17.8% and 16.6%, which was affected by the new Minerals Law of Mongolia and stopped FDI inflows to the Oyu Tolgoi project. In 2014, the mining sector generated 17.6% of GDP and 68.7% of total industrial output.

Water consumption in the mining sector is very high and accounting for 13% of total water consumption in 2010. It is expected that this will continue to grow as result of the expanding mining sector and opening new deposits. Agriculture has also a huge influence

to the Mongolia's economy and accounts for 30% of GDP, 35% of the labor force and 7% of export income. (MRAM, 2016)

On the Figure 18 shows mining licenses by mineral type at the end of 2014. The most mining licenses in Mongolia have been issued for gold with 34.1%, follows various construction materials with 21.1% and coal with 17.6%.

Figure 12: Mining Licenses at the end of 2014, by mineral type
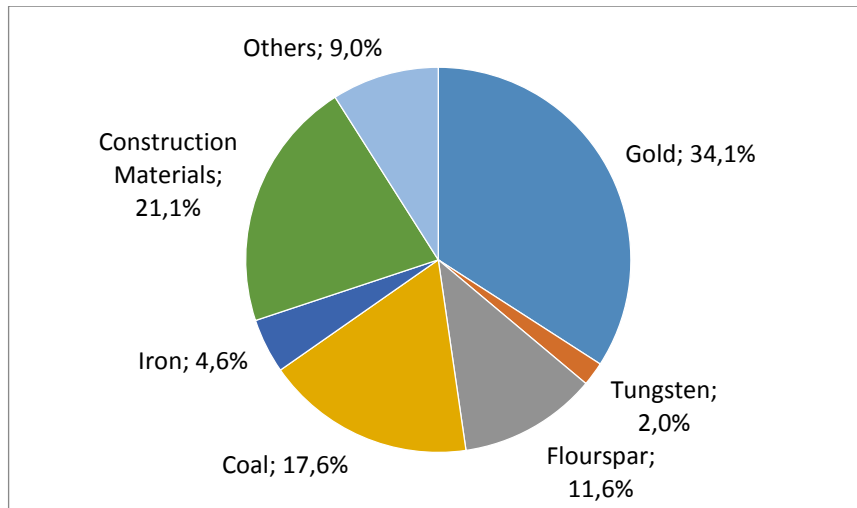
4.1.1 Coal

Mongolia has 160 coal deposits and 270 occurrences in 15 basins. About 85 percent of Mongolian coal exports are coking coal. Coking coal is shown differently than carbon. This is directly related to the steel industry. China represents more than 50% of steel production in the global market. (MRAM, 2016)

4.1.2 Gold

Since 2014, besides 664 deposits with registered and approved sources, there are 117 hard rock deposits. At present, 1763 gold deposits are registered in Mongolia. The deposits include 3.29 thousand tones of reserves. In 1991 began mining and processing of gold mining, when started transition from the centrally planned to a market economy. (MRAM, 2016)

4.1.3 Copper

Mongolia has an abundance of copper. There are currently 1180 copper occurrences and 57 deposits, which holding 60.7 million tones of reserve. At the end of 2014, there were 9 valid mining licenses of 39018.57 hectares, or 3.6% of the total licensed area.

Mongolian exports of copper concentrate in 2014 compared with a previous year, increased by 32.8% and revenues by 34.3%, or 29.8% of total exports or 61.8% of export growth. This growth had a direct impact on Oyu Tolgoi exports. (MRAM, 2016)

4.1.4 Iron

In September 2014, there were 71 iron deposits with approved resources and 500 occurrences in Mongolia. Approved iron resources are at 1.65 billion tonnes and will most likely increase for the future. By 2014, there were a total of 64 valid mining licenses, covering an area of 31848.01 hectares or 2.9% of the total licensed area. In 2013 a total of 13 companies mined iron ore in Mongolia. (MRAM, 2016)

4.2 Mongolian Growing Economy

Mongolia is heavily dependent on trade with its only two neighbors. Economic trading partners are Russia and China, both for imports and exports. Majority exports goes to China at 83.7% export balance, versus just 1.6% with Russia for 2015. Before the 1990s, it was exactly the opposite, when 81% of exports were to Russia and only 0.7% to China, as a result of the political changes of governance, from the communist regime became a democratic country in 1990.

As the market goes through, politicians promise that living standards, income and the environment will increase with visible effects, but poverty, unemployment and inequality are rising simultaneously with the market. Moreover Mongolia faces another tragedy that is common to other countries in the world. The problem is called a Resource Curse or Paradox. Interestingly, countries with natural resources such as oil, carbon and gold etc. are low placed by their GPD on the rating board. Exist very few countries in the world with natural resources wealth and are successful developed rich countries. The Resource Curse is a widespread problem.

The question of whether Mongolia has sustainable development is also a current urgent socio-economic and environmental issue. The Mongolian economy is primarily driven by natural resources therefore it is no wonder that attracts not only domestic but also foreign investors and shareholders.

According to international researchers, economic investigators, our country's natural resource was valued at about $1.3 trillion untapped mineral deposits, including coal, copper, iron ore, zinc and gold, beneath its vast deserts and steppes in 2013 and it is possible to support whole population in it, if used efficiently. But it's not always by expectations, shows most countries actual examples. In fact, the living condition of most people in Mongolian community is below the standard of living, below-average share of public sector employment and government spending, high level of public debt. The main cause of poverty is clearly dependent on such factors, unproductive spending revenue from natural resources unequal distribution of income, inaccurate management system, control weakness and political corruption. Therefore to eliminate these factors must be found a possible way to effectively and environmentally gently use of natural resources to maintain the economic growth of the country.

### 4.2.1   Macroeconomic indicators in Mining

Economic growth is an increase in the capacity of an economy to produce goods and services, in a certain time range, in other words it is how much more the economy produces than it did in the prior period. Macroeconomics examines a wide range of phenomena across the economy, such as inflation, price levels, growth rates, national incomes, gross domestic product, and changes in unemployment.

Mongolia's economy has been growing constantly since 2004, as copper and gold prices on the world market grew by 2-3 times, apart from the slowdown in 2009, as a result of the Global financial crisis. Rapid economic growth has occurred between 2004 and 2010, where Mongolia doubled its GDP per capita in 8 years. In 2009, as an influence of the Global financial crisis, the price of gold and copper dropped on the world market, and this resulted that Mongolian real GDP decreased. It is important to note that in winter 2009 during Dzud (Mongolian term for a severe winter in which large number of livestock die, primarily due to starvation due to being unable to graze, in other cases directly from the

cold) Mongolia lost 8.5 million livestock breeds, and this has affected the economic downturn, where GDP dropped to -1.27%.

Mongolia had the fastest growing GDP in the world in 2011 at 17.29% and the main driver of growth was FDI, which accounted for 45% of GDP, see Figure 12. (NSO, 2017)

Figure 13: Mongolia's GDP Growth (percentage) 2004 – 2016
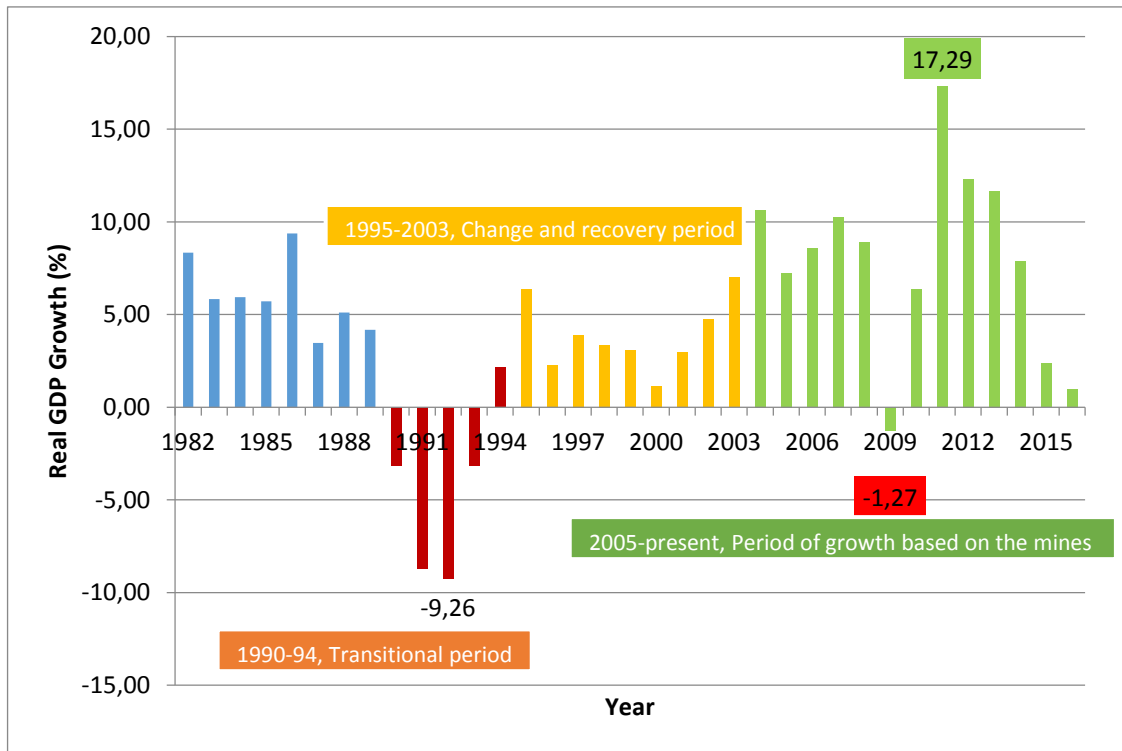
Between 2005-2014, Mongolia's economy grew 9.9% by year and main engine power was the mining sector, especially copper and coal.

Between 2010 and 2014 the real growth average reaches about 13.6%. In the end of 2013, GDP was about $12.58 billion and this high rise is directly influenced by the increased number of foreign direct investors to the mining sector and operating large mining deposits as Oyu Tolgoi and Tavan Tolgoi. Therefore, in 2011, FDI was $4.6 billion, highest value, of which 80% is directly related to the mining sector, see Figure 13 and 14. (IMF, 2015)

Figure 14: Mongolian GDP (in billion dollars) 1981-2016
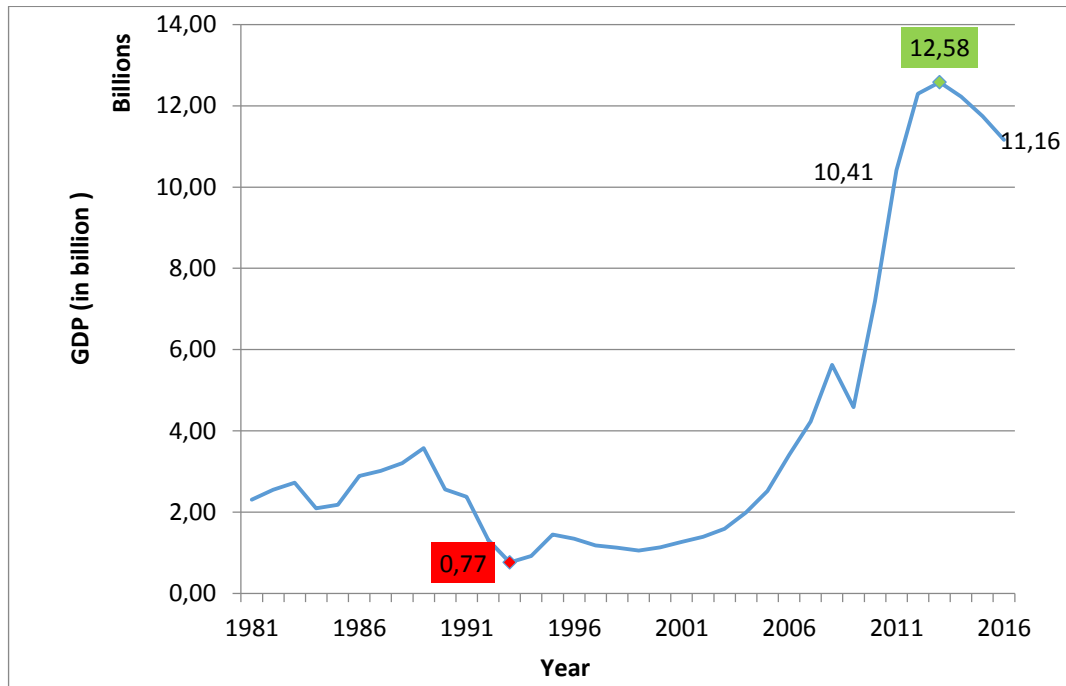
**Figure 15: FDI, net inflows (in billion dollars) 1991-2016**
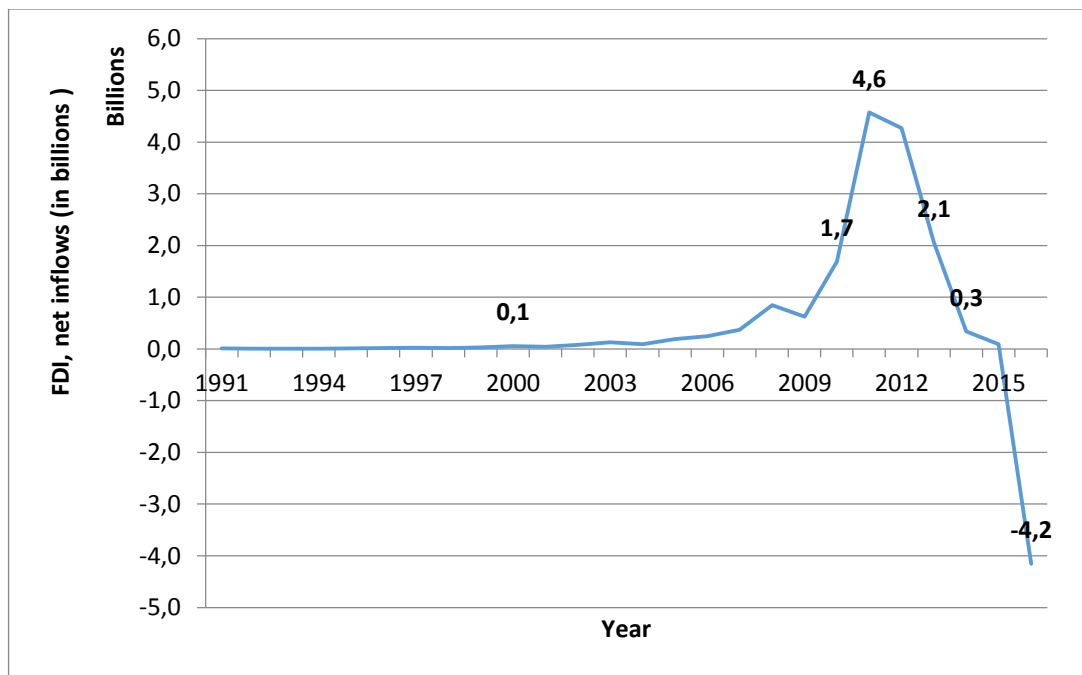
Between 2011 and 2015, prices of copper on world markets declined by 41% and coal prices by 40% and the demand for mineral products in China decreased during this period. It results, economic growth slowed down from 2012 due to slower economic growth in China, lower commodity prices on the international market, and reduced inflow of FDI to Mongolia.

Rapid economy growth took place till May 2012. The Mongolia's parliament after parliamentary election in 2012 did changes in Minerals Law of Mongolia and new laws were adopted. At the same time the main engine of economy, Oyu Tolgoi, because of its uncertain political agreement about underground mine, stopped flow of foreign investments to the Oyu Tolgoi project.

I noted down on Figure 17 the changes on inflation rate during 2010 and 2016. Inflation rate in 2011 was 15.1%, falling to 12.8% in 2012. In spite a lack of exports of raw materials, the agriculture sector has been revived, the construction and transport sectors have been steadily rising the output in the uneven sector has been high.

In 2013 the inflation decreased about 9.9%, but in 2014 it increased about 4.5%. The impacts of decreasing inflation rate in 2013 directly related with the untapped mineral deposits, which was valued at about $1.3 trillion. (IMF, 2015)

Figure 16: Inflation, GDP deflator (annual %) 2010- 2016
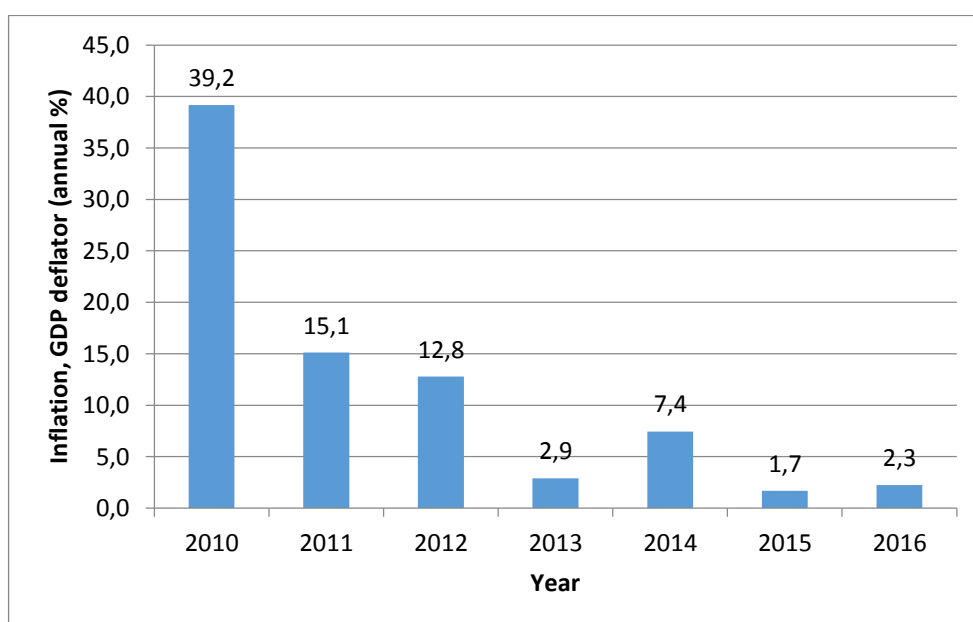
Source: World Bank Data

4.2.2 Foreign Direct Investment

As I mentioned before, Mongolian economic growth is increasing with 17.3% in growth domestic product (GDP) in 2011 and the amount of interests of foreign direct investment (FDI) is increasing at the speed of light. The news has spread that the interest of foreign investors has increased since start of the year 2011. Foreign investors already know the opportunity to make a huge profit from the Mongolian young economy, since Mongolians themselves are still unaware about the advantageous.

The shares have issued on the global markets of London, New York, Toronto and Hong Kong by the foreign companies operating in the mining sector in Mongolia, and have accumulate capital so high that the number cannot even imagined in the minds of Mongolians. The total market value of Ivanhoe Mines Company which operates with the Oyu Tolgoi mine (Oyu Tolgoi is financing partly from the Rio Tinto Group and an investment agreement – 2009 between Ivanhoe Mines and the government of Mongolia) amounts to $15 billion, double the GDP of Mongolia. Currently the mineral prices have skyrocketed, and Mongolia, which houses tremendous amount of natural wealth under its soil, has gone into fashion, attracting the attention of foreign investors.

Many foreign investors see Mongolia as a sea of a huge nature wealth. At the end of December 2014, 238 foreign owned businesses held 444 licenses of 3.1 million hectares. Table 3 shows foreign owned businesses, its number, held licences and covering area by hectare. At first glance, it is obvious that China has more than half of all licenses, which proves that China is a bigger partner in foreign trade with Mongolia.

Table 1: Mining Licenses by country of origin, 2014

| Country	Companies	Licenses	Licenses covering by area (hectare/thousand)
China	142	201	1170.4
Britiah Virgin Islands	46	145	638.8
Republic of Korea	13	19	33.3
Singapore	12	36	461.1
Canada	8	17	137.7
Russia	7	8	14.42

Source: MRAM, 2014

FDI played an important role in the expansion of economy and in 2011, GDP reached up to 45% growth. In 2012, FDI fell by 17% compared with the previous year, 47% in 2013 and 64% in the first half of 2014, which was the main reason for the economic downturn. With the decline in FDI, the inflow of foreign currencies into the market dropped, the balance of payments deficit increased and the external balance of the economy was lost. Decelerated flow of foreign investment into the mining industry causes delays in sectors dependent on mining.

The reason of the downturn of FDI in 2012 was participation of the government. The Mongolian Parliament approved a law on the coordination of foreign investment enterprises in the strategic business sector as a result of the dispute over the fair use of royalties. However, by reducing foreign investments in mining, in terms of national security, FDI decreased by 47% in 2013. Although the law was abolished next year and adopted a new investment law, the government has not resolved conflicts with Oyu Tolgoi's foreign investors for two years. As a result, FDI again fell by 64% in 2014 and the conflict was resolved by May 2015.

The decline in FDI shows that investors do not believe in Mongolian economic conditions and the macro policy. In 2014, mining industry held 41% of FDI and it increased to 44% by June 2015. Figure 18 shows FDI by industry between 2014 and June 2015. (NSO, 2017)

Figure 17: Mongolia's FDI by industry
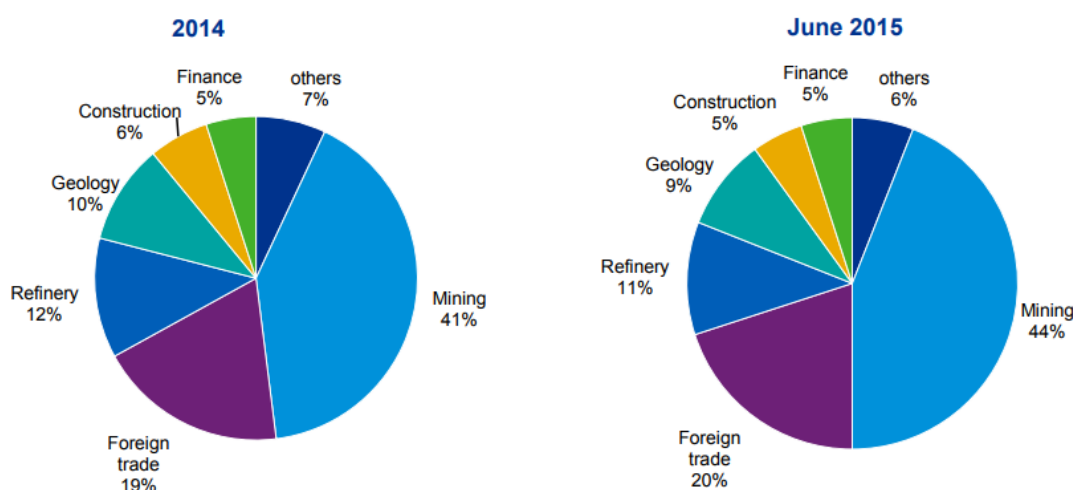
Source: Bank of Mongolia, Monetary Policy and Research department

4.2.3 Export and Import

Mongolia exports with the commodities as copper, coal, iron ore, crude oil and raw cashmere. The import balance was almost nearly in 2015 between the two neighbors, 26.9% for Russia 36.6% for China. There are other import partners, Japan, South Korea and the USA.

Imports come from also China in most but over 90% of Mongolia´s petroleum comes from Russia. Exports, which mainly include mining and agricultural commodities, amounted to $4.3 billion in 2013, four times higher than in 2005, but since 2005 imports have increased 5.3 times, further aggravating the trade deficit. External trade balance in 2013 was $2.1 billion, which is 18 times higher than the level in 2005.

Since 2014, Mongolia has traded with more than 130 countries from this trade with China at 61.8% or $6.7 billion and trade with Russia at 14.6% or $1.6 billion. In this regard, trade volume with China increased by 23.9%, while trade with Russia declined by 0.8%. Mongolian exports are to a large extent dependent on just a few commodities. The share of mineral products in total exports reached 89% at the end of 2014, which is 0.4% higher than the previous year.

As mentioned above, 89% of Mongolia's exports are from mineral products (remaining exports consist from wool and cashmere products) and to be dependent on the mining sector brings unstable economic growth and causes trade deficit. Mongolia's exports increased from $4.89 billion to $6.39 billion during 2013-2014, but most of them were mineral products. During the same period, imports fell from $6.6 billion to $5.2 billion. (MRAM, 2014)

The reason for the economic downturn in 2013 was Mongolia's main export market China and its slowdown in economic growth and decline of global market price of copper and coal, therefore, investments and business incomes have been reduced and revenues from the state budget are disturbed, see Figure 16 and 19.
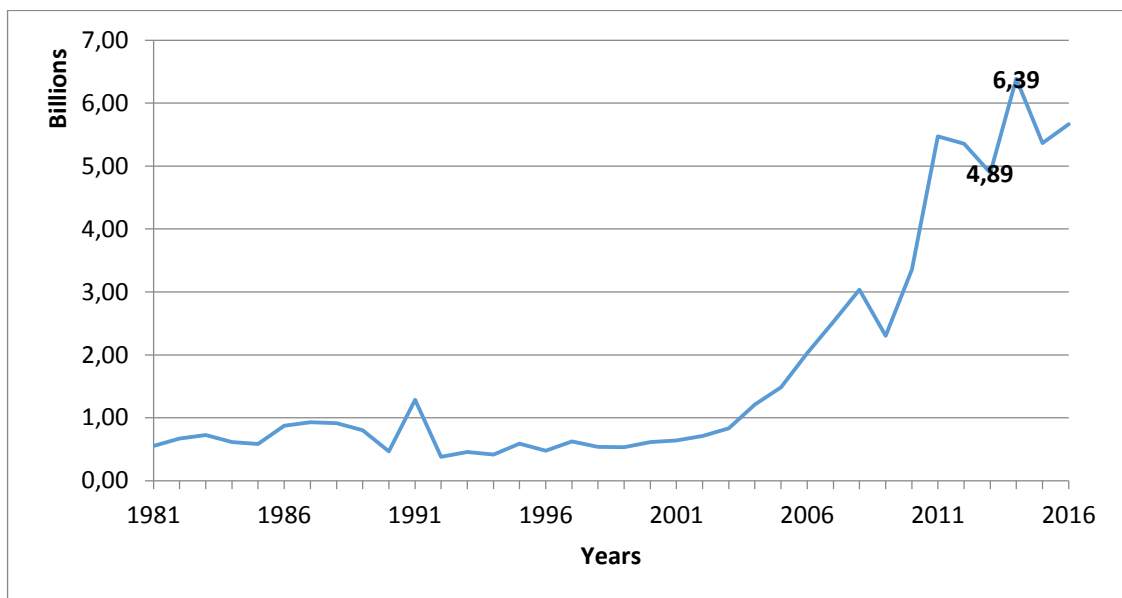
Figure 18: Exports of goods and services (% of GDP)
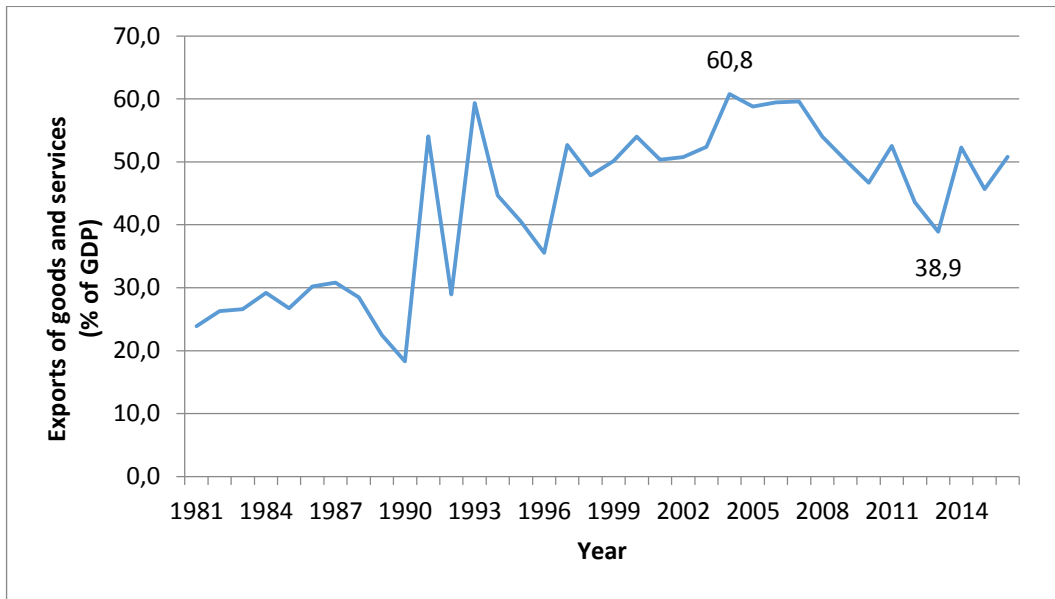
Source: World Data Bank

In 2013 Exports of goods and services were 38.9%, $4.89 billion.

Figure 19: Exports of goods and services (in billion dollars)

Source: World Data Bank

The foreign trade is directly linked to China. Demand for raw commodity from China is low, but supply from Mongolia is high, the reason is the continuing decline of Australian coal price and expects a further fall in prices, which has a negative impact on the foreign trade. On Figure 15 is shown minerals exported by country in 2014.

Figure 20: Minerals exported by country in 2014
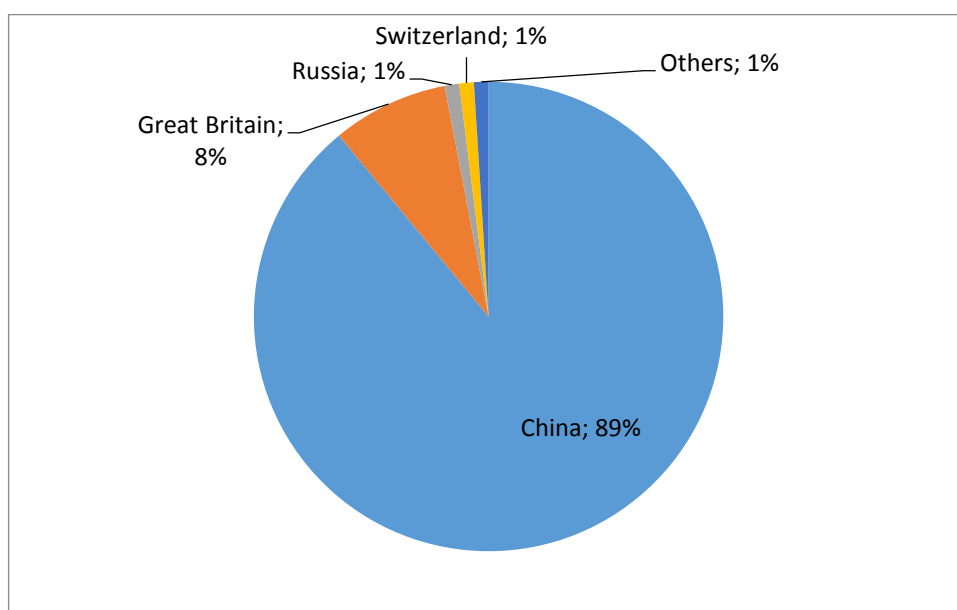
Mining has become the dominant commodity of foreign trade in Mongolia, accounting for 89% of total exports, of which 89% of exports went to China, and represented 2/3 of total tax revenue in 2016. The share of mining sector within exports is still increasing since 2006. In 2001, exports of sewing products accounted for 60%, but in 2012 it dropped to 5% of total exports. (NSO, 2017)

5   Conclusion

The aim of this study was to determine the role of natural resources on Mongolian economy, especially mining industry its influence on economic growth. Based on collected data and the quantitative indicators, this analysis shows that the Mongolian economic fundamentals are limited, the exports of the mineral resources is fully associated with trade with a single partner China, causes the economic vulnerability of Mongolia to be increasingly sensitive, and the fluctuation of the economy is deeply connected with foreign investment flows.

During the analyse I found out main influential external factors, which are operating large mining deposits Oyu Tolgoi and Tavan Tolgoi, uncertain political agreement of Oyu Tolgoi, decelerated flow of foreign investment, China´s slowdown in economic growth, it results decrease in exports, winter with the Dzud, and changes in prices with the raw commodities on the global market etc. This lack of economic diversification presents an unpleasant and unstable macroeconomic environment, which causes the Mongolian economy to be prone to external changes. Changes in key macroeconomic indicators have a significant impact on economic growth, suggesting the impact of large-scale projects or large-scale investments in the overall economy. Despite the decline in poverty and rising per capita income, the state of the economy is extremely dependent on the mining sector. Unpleasant and unstable macroeconomic environment is one of the factors directly limiting Mongolian economic growth.

According to this study, it is obvious that there is no way to finance exploit of reserves Mongolia by itself. For foreign investors it seems to be catching a Big Fish. Mongolia had to make a choice whether to stay poor sitting on the gold or to develop its stock market. Each day has built new tall buildings in Ulaanbaatar. Most of these glass towers are rented as offices of foreign mining companies. The number of workforce get to work at foreign investment companies is multiplying along with the growth of mining construction. The result is the wage growth among Mongolians.

The study shows, Mongolia has the potential to make a tremendous profit from the extraction of coal and other mineral resources. However, an extremely continental climate and repeated natural disaster Dzud during winter are catching up in the agricultural sector and speeding up migration to Ulaanbaatar from nomad lifestyle.

The sum of the net financial wealth and wealth of natural resources is called the Wealth of the State.

(Kh.Ykhanbai, 2005)

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7 Appendix

Picture 1: Oyu Tolgoi copper gold mining Deposit

Picture 2: Tavantolgoi coal mining Deposit