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Economic Analysis of Oil Production in Kazakhstan

Bachelor Thesis

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BACHELOR THESIS ASSIGNMENT

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Agricultural Economics and Management

Thesis title

Economic Analysis of Oil Production in Kazakhstan

Objectives of thesis

The aim of diploma thesis is to evaluate oil industry (oil production) in Kazakhstan,particularly evaluate cost of product in Kazakhstan,assets,possibilities of oil in Kazakhstan.
In accordance with the purpose of the work were as follows:
- Reviewed in the pages of the theoretical aspects of history,global oil production,common demand,comodyty supply,comodyty boom, formation of oil prices in a market economy, and the main factors determining them;
- Identify the main groups of factors that impact on system of oil production;
- Assess the level of the global market on the economy of Kazakhstan;
- Explore the major trends and directions of development of Kazakhstan and the world oil market and to predict its impact on Kazakhstan's economy.

The subject of study is defined as a relationship betweenthe factors of economic development of the state with the dynamics of world oil prices.
The object of study chosen world and Kazakhstan market

Methodology

Synthesis,induction and deduction from available literature resources,quantitative analysis of data (cost production,export...etc).
In the study of the questions I used data on developments carried out abroad, statistical information, reference materials and data from the Ministry of Economy, Ministry of Natural Resources, methodical development of other specialists, as well as statistical methods were applied and economic analysis.

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January/2012 -Analysis
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Crude oil,cost of production,commodity,reserve oil, Kazakhstan

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1.Oil economics and Policy. European Secretariant for Scientific Publications.2010
2.Program develoment of etrochemical industry of the Republic of Kazakhstan for 2004-2010,approved by Decree of the Goverment of the Republic of Kazahkstan dated January 29,2004 N101.
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Declaration

I declare that I have worked on this bachelor thesis titled “Economic Analysis of Oil Production in Kazakhstan” on my own with the use of only those literature resources which are listed at the end of this work.

In Prague on…….. ……

signature

Acknowledgement

I would like to express my heartfelt gratitude to my supervisor Ing. Petr Prochazka, MSc, PhD, for his useful suggestions, providing materials and encouragement throughout.

Ekonomická analýza produkce ropy v Kazachstánu

Souhrn

Tato bakalářská prace na téma "Ekonomická analýza produkce ropy v Kazachstáně" se zaměřuje na ropný průmysl v Kazachstánu, na produkci, poptávku a nabídku ropných produktů v Kazachstánu. Bakalářská práce rozebírá problematiku ropného průmyslu v kontextu světových tendenci v ropném průmyslu: cenu ropy, největší státy – dodavatele ropy a plynu, největší odběratele. V práci se zkoumá konkurence Kazachstánu v ropném průmyslu, tj. státy, které tyto produkty nabízejí celosvětově.

Práce též obsahuje popis Kazachstánu jako země, která vykázala dynamický ekonomický vývoj v posledních letech. V práci je analyzována politická, ekonomická a geopolitická situace obecně, a ve vztahu k těžbě ropy a produkci ropných produktů.

Téma je velmi aktuální, protože ropný průmysl patří k těm nejvýnosnějším a nejvzácnějším průmyslům, které jsou na světě.

Klíčové pojmy: ropný průmysl, plyn, Kazachstán, rafinérie, poptávky po ropě, nabídka ropy, geopolitická a ekonomická situace, cena ropy, producenti ropy, exportéři ropy.

Economic Analysis of Oil Production in Kazakhstan

Summary

The bachelor's thesis „Economic Analysis of Oil Production in Kazakhstan" is dedicated to the oil and gas industry in the Republic of Kazakhstan. Kazakhstan is one of the world's largest exporters of oil and gas, it is interesting to see which countries are its partners and are somehow dependent on the refinery business in Kazakhstan.

The thesis deals with the comparison of the oil and gas consumption in the world and in Kazakhstan particularly. The main aim is to show that Kazakhstan is a big refinery power and has the industry demanded in the whole world. Besides, the thesis contains the description of Kazakhstan as political, economic and geographical unit for better orientation.

The thesis includes the world and Kazakhstan's statistics on oil and gas production, export, consumption and import. There is an analysis of Kazakhstan' significant relations within the CIS area and the EU area, as well as its share in the world's refinery production.

Key words: Oil and gas production, refinery, Almaty, manufacturer, oil and gas business, oil routes, oil infrastructure, hydrocarbon, crude oil, cost of production, commodity, reserve oil, Kazakhstan.

CONTENTS

I. INTRODUCTION

Since 2000, Kazakhstan has experienced a significant economic growth. Two of the main catalysts for this growth have been economic reforms and foreign investment, much of which has been concentrated in the energy sector. Exports of crude oil have grown significantly and Kazakhstan is the second largest oil producer (after Russia) among the former Soviet republics.

The situation on the world oil market is changing rapidly, and the international problems for the possession of this unique strategic commodity always cause wide response worldwide.

The study of the impact of the oil factor on global economic and political processes is essential for understanding the nature and direction of global development as a whole and for individual countries.

The present work research subject is the state and peculiarities of the global oil market and development of the Republic of Kazakhstan's oil activities for the last few years.

II. AIMS AND METHODOLOGY

The main aim of the thesis is to define, describe and provide proper analysis of the Kazakhstan refinery business in the context of global refinery trends: consumption, production and exportation. The thesis is dedicated to evaluation of oil industry (oil production) in Kazakhstan particularly evaluation of the cost of product in Kazakhstan, assets, possibilities of oil in Kazakhstan. **The hypothesis of the thesis** is that Kazakhstan is a country fully dependent on its natural resources, especially oil and gas industry, and that this is the reason of dynamic economic development and growth of the country**.**

To reach the foregoing aim, it is needed to solve the following tasks:

- review the geographic, political and geopolitical situation in the Republic of Kazakhstan,
- search for competition peculiarities in the oil sector: prices dynamics, oil production and consumption, export tendencies,
- analyze the development of Kazakhstan's international position in oil production,
- define the role of international investments in the Republic of Kazakhstan's oil products market development,
- analyze the directions of export and transit capacities of Kazakhstan on the stage of international oil market development,
- define the relations of Kazakhstan and international investors on the oil market at the present stage.

Methodological and theoretical base of the research analysis are the dialectical method and basic works of native and foreign researchers. During the work, the author has been leaning on the known regulations of production costs theory and a number of new suggestions, which are well known for the present time. The other methods are: synthesis, induction and deduction from available literature resources, quantitative analysis of data (cost production, export etc.). In the study of the question the data on development carried out abroad, statistical information, reference materials, and data from the Ministry of Economy, Ministry of Natural Resources , methodical development of other specialists have been used, as well as statistical methods were applied and economic analysis was carried.

Monographs and publications of Kazakh researchers and scientists, such as Nysanbek, Nursultanova, Namazbekov, Kembaeva and publications in the Kazakh mass medias. The researches and publications of Kazakh authors have been very helpful, as they represent the current situation and statistics about Kazakhstan's refinery and oil production. Sources and references are a part of the thesis.

The thesis consists of two main parts, which are divided into a theoretical part and a practical part, and at the end there will be a conclusion with the final comments and researches. It was not very easy to understand which chapters are theoretical and which of them are practical. However, the chapters have been divided into introduction, methodological and research parts.

The thesis is of great value for readers and researches of the refinery and the global situation in this field. It is very helpful for students of the International relations specialization, as well as for the geographers and political scientists. It is of great value for tutors and teachers, as it provides actual information about Kazakhstan and its industries.

CHAPTER I – THEORETICAL BACKGROUND

1 Kazakhstan country profile

It is necessary to introduce Kazakhstan, as it is a very specific and interesting country. It is a former Soviet Union country, but has rapid development and is one of the developed countries on the Commonwealth of Independent States (CIS) territory. First of all, general information about Kazakhstan has been represented, its political, demographical, geographical and economic situation. Economy is one of the stress factors, as it directly depends on the oil and refinery industry.

1.1 General information

Kazakhstan is a large country located in the Central Asia. Officially, its name is the Republic of Kazakhstan. It is the second biggest country of the Common Wealth of Independent States (CIS) and ninth largest country in the world. Kazakhstan´s land neighbors are China in the east, Kyrgyzstan in the south, Turkmenistan in the west, Uzbekistan in the south and Russia in the north, and also a part of the Caspian Sea from the west. (The Almaty Expat site, 2012)

Picture 1: Map of Kazakhstan

Source: https://www.cia.gov/library/publications/the-world-factbook/geos/kz.html

The capital city is Astana, with 528 000 inhabitants, and the largest city is Almaty. Kazakhstan is divided into 14 administrative parts, 84 cities, 159 districts, 241 towns and 2 042 rural villages. Around 17 million people live in Kazakhstan, and the density is just 5,5 people per 1 km^2. It has a big ethnical diversification, where Kazakhs are more than half of the population, Russians are around 1/3 of the whole population, and there are also some minorities of Uzbeks, Koreans,

Chechens and others. The main religion is the Islam (47%), Russian Orthodox (44%), Protestant (2%) and other (7%). (The Almaty Expat site, 2012)

The state language is Kazakh and the official one is Russian, and it is used everywhere (state institutions, in everyday business). The currency is the Tenge (equal to 100 tyins). The Republic of Kazakhstan is a Presidential Republic and the name of the president is Nursultan Nazarbayev, in office since 1991. (The Almaty Expat site, 2012)

2 Economy of Kazakhstan

Kazakhstan is a very attractive country because it has a lot of natural resources. The economy of Kazakhstan is has been very quickly growing during the last years. It has two sides – one is a developed business and another one is a non-developed agriculture side.

Kazakhstan is rich in mineral resoursces (oil, gas, uranium, iron, zinc, silver, gold, lead, etc.). A big amount of raw materials attract investors from the whole world mostly in oil, natural gas, coal and metallurgy. In 2009, it won the first place in the world in the mining of uranium ores, where it had more than Canada and Australia; Kazakhstan´s uranium production is equal to more than 10 000 tons per year. (Economy Watch, 2010)

The GDP of the country is growing by 8-10 % per year, besides the year 2008, where there was only an increase of 3 % and 2009 (1.2 %) caused by the economic crisis. The crisis had its largest impact on the banking sector, production and construction sector. In 2010, the economy was growing. (Kazakhstanskaya pravda, 2011)

The GDP is equal to 168 billion USD, and the largest income is coming from the export of raw materials. Energy is the richest economic sector. Kazakhstan has around 5.3 billion tons of proven recoverable oil reserves, which is around 2.7 % of the global reserves, and 1.9 trillion cubic meteres of gas. In 2009, the country extracted 76.4 milion tons of oil and 12.1 milion tons of condensate gas. The same year, they exported around 67.3 milion tons of oil and gas condensate. In 2010, oil production increased and achieved a level of 79 milion tons and 11.6 milion tons of gas condensate. That year, Kazakhstan made 1.75 milion barrels of oil a day (2.1 world production). Until 2020, Kazakhstan is expecting exporting 100 milion tonnes of oil a year. (Kazakhstanskaya pravda, 2011)

The banking system has been improving rapidly in the last years. Kazakhstan is also exporting wheat, textiles, livestock. It is a global leader in the production of aluminium. It has big resources of salt and construction materials. So, the main sectors of Kazakhstan are infrastructure, sectors of oil and gas, metallurgy, pharmaceutical, defense industry, food processing, energy, building materials, transport and telecommunications. (Solozobov, 2009)

The total agricultural production is amouting around 9 bilion USD per year and is equal to 5.82 of the GDP. The agricultural lands occupy 220 milion hectares, and they are in a very good condition, because of the good geographical location of Kazakhstan.

The major trading partners of Kazakhstan are Italy, Switzerland, China, Russia, France, Netherlands and Iran. (Solozobov, 2009)

The brief introduction into the economy of Kazakhstan economy can show, that despite the belief that post Soviet Union countries are undeveloped and less progressive than the European countries, it is clear that Kazakhstan is a good example of strong economy, which has great perspectives and is not dependent on any external factors: state, politics etc. The neighbor countries (Uzbekistan, Turkmenistan) are well known because of the military situation and political conflicts, but Kazakhstan is a country without any kind of conflict, thus very strong.

3 Literature review of the development and the oil production in the Republic of Kazakhstan

3.1 Introduction to the oil and gas industry in Kazakhstan

The oil and gas industry of Kazakhstan occupies a significant position within the country's industrial structure. Kazakhstan is well known for its oil and gas reserves. They are believed to provide a reliable basis for the development of the oil-and-gas complex, and for the replenishment and increase of Kazakhstan's wealth. (Nysanbek, 2008)

There are more than 200 oil and gas fields in the Republic. The predicted extractable resources of oil are estimated to be 7.8 billion tons, and those of natural gas - 7.1 billions m3. About 70% of these reserves are massed in the western part of Kazakhstan, and the overwhelming part of the resources are associated with salt fields and lie at the depths of over five thousand meters. (Nysanbek, 2008)

The predicted resources of the Kazakh sector of the Caspian shelf are estimated to be around 13.0 billion tons of standard fuel, however the successful development of the Caspian fields requires a significant volume of investment. According to foreign experts, the required cumulative investment could be as much as $160 billion, of which about $10 billion would be for the initial stage of exploration, including field appraisal. So far, western companies have invested more than $7 billion. (Tarnavsky, 2010)

One of the constraints for obtaining investment for exploring the Caspian shelf is the lack of solution to the status of the Caspian Sea. This issue may have been resolved however with the agreement between Kazakhstan and Russia related to the partition of the seafloor of the Caspian along the midline between the two countries. Similar agreements have been concluded between Kazakhstan and Azerbaijan, and Azerbaijan and Russia.

From 1961, oil production in Kazakhstan has been growing. By 1965, the Uzen and Zhetybaj fields had been put into commercial operation. The same year saw the start of construction of the 142 km long Uzen - Shevchenko oil pipeline, which was put into operation in April 1966. Further, oil was still delivered by railroad to the Gurjevsky refinery. In total, in 1961-65, around 11,000 km of pipelines were built, and by the end of 1965, the total length of the pipelines accounted for 28.5 thousand km. (Tarnavsky, 2010)

The eighth five-year-plan period saw the construction of the Uzen - Guriev – Kujbyshev pipeline for pumping an extra-heavy crude oil from the Kazakhstan fields. The Mangyshlak highly

paraffinic crude oil (chilling temperature 30...32 °C) was pumped along the 1,020 mm heated pipeline. 18 heating stations were built for that purpose. The timely commissioning of this pipeline had allowed to boost the oil production more than 10-fold and reach 20 million tons by 1975. In 1970, construction of the third line of the 820 mm, 580 km Almetjevsk – Gorky line was completed. The pipeline now went from Gorky to Yaroslavl and further on to Kirishi. (Tarnavsky, 2010)

Between 1999 and 2004, Kazakhstan oil production has grown by about 15 percent every year, resulting in nearly a doubling (roughly) of oil production. Most recently, the first six months of 2005 have shown a slower, 10 percent production growth year-over-year. The slower rate of growth may be attributed to the government restrictions on associated gas flaring or to new restrictions on production-sharing agreements (PSAs). (Nysanbek, 2008)

An increased oil production in Kzakhstan in the recent years has been the result of an influx of foreign investment into the Kazakh oil sector. Kazakhstan expects the majority of the growth to come from four enormous fields: Tengiz, Karachaganak, Kurmangazy and Kashagan.

The majority of Kazakhstan oil is exported via pipeline through Russia and other neighboring countries. Connections with ports on the Black Sea and the Persian Gulf have allowed some Kazakhstan oil (or proxy oil from Iran) to be traded on the world market. Efforts are underway to expand Kazakhstan's oil export infrastructure (especially to the east), as over the next decade, Kazakhstan's oil production is expected to increase. (KZ National Bank report, 2009)

Also, there is a proposal to build an export pipeline from Kazakhstan to Iran via Turkmenistan, but the proposal has yet to gain support from the western investors. Kazakhstan has also taken a heightened interest in sending oil over the Black Sea to the reversed Odessa-Brody pipeline.

In the recent years, the Kazakh oil and gas industry has been involved in a number of collaborative and developmental projects with its Indian counterpart. Much of these efforts have been possible because there have been plenty of oil and gas reserves in Kazakhstan for past 75 years. (KZ National Bank report, 2009)

3.2 Development and history of the oil market in the Republic of Kazakhstan

The economic development basis of the Republic of Kazakhstan lies in its oil market products as one of the main branches of industrial production, and it determines the economical independence of the country.

The beginning of the oil history has started at Atyrau hydrocarbon region. Its citizens have known about the places of oil accumulation, about its nature many years ago. They have used it in medicine. It is natural, that the source of this raw material with such useful characteristics, was noticed by people. In 1890, an expedition of G. Grum-Grzhimaylo made detailed geological characteristics of Kara-Chungulsky array. In 1899, oil bearing areas were sold to the Russian entrepreneurs Lemapu Dopelmaer and Grum-Grzhimaylo, who created the "Emba-Kaspian partnership". The 21st borehole cavity with the depth from 38 to 275 meters was drilled at the oilfield Karachunul. In November 1899, an oil gusher with the daily volume of production of about 25 tons from borehole № 7 with the depth 40 meters, was created. This event was admitted as the beginning of the Emba oil production history and Kazakh oil industry development. (Oil industry of Kazakhsta, 2012).

In 1911, the oilfield of commercial significance Dossor was opened, and in 1913, the second oilfield Makat was opened by the well-known company Nobel. In 1914, about 200 tons of oil were produced from these two oilfields.

In 1961, the Mangyshlak oilfield Zhetybay had been discovered, which was put into operation in 1969, and in 1966 – the oilfield Uzen. A real breakthrough in the oil industry development in Kazakhstan was the oilfield Tengiz in Atyrau region in the end of 1979, one of the greatest oil fields of the world, and also a huge oil-gas condensate field Karachaganak in the West Kazakhstan region. (Oil industry of Kazakhstan, 2012)

Market transformation has changed the structure of the oil industry In Kazakhstan, during the years of independence, the Caspian shelf has been developed, in that years Kazakhstan did not have appropriate technologies and experience. That is why in 1997, The Government of Kazakhstan decided to sign an Agreement of Production division (APD) with foreign oil companies on exploring and developing the shelf in the northern part of the Caspian sea. After three years four gas condensate oilfields: Kashagan, Kayran, Kalamkas and Aktoty were discovered as a result of exploration works. The last three oilfields are very slight in terms of production, but Kashagan was attributed to the leaders of the greatest oilfields, opened for the last 30 years.

According to the Ministry of energy and natural resources of the RK, the preliminary valuation of the Caspian sea sector of Kazakhstan has shown that theexpected reserves volume is 102.2

bill. barrels (14 bill. tons) of reference fuel, and mineable reserves – 40 bill. barrels (5.2 bill. tons).

The 16th of May 2003 the State Program related to the exploitation of the Caspian sea sector of Kazakhstan was stated decree number 1095 of the President of the Republic of Kazakhstan. (Tarnavsky, 2010)

The period of exploitation of the Kazakhstan sector of the Caspian sea is subdivided into three stages, differing by the content of activities and works: (Analytical center of Prudent Solutions, 2009)

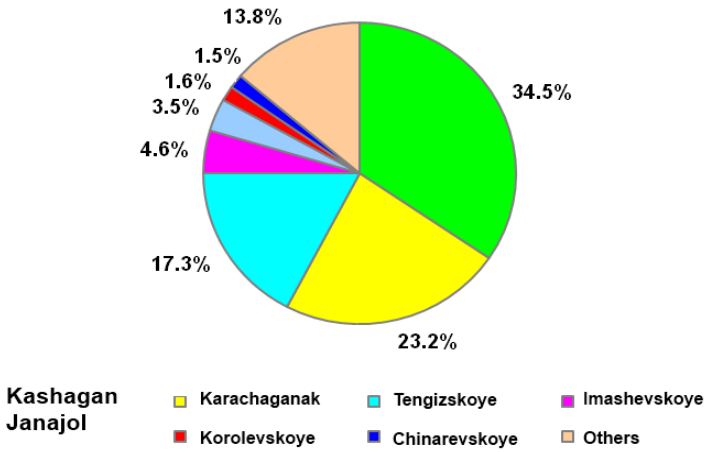
1) First stage (2003-2005) – arrangement of conditions of complex exploitation;
2) Second stage (2006-2010) – fast exploitation;
3) Third stage (2011-2015) – stability of production.

3.3 Current situation

For the present day, it is difficult to judge the State hydrocarbon production volumes, because intensive exploration works are still continuing. However, it is known that Kazakhstan occupies the second place (after Russia) among the States of the CIS by hydrocarbon reserves. The oil-gas production regions of the State take the area of about 1.7 mln.sq. km, and it is almost 62% of territory of the Republic of Kazakhstan. (Nysanbek, 2008)

The oil-gas production regions of the state, which has 172 oil and 42 condensate oilfields (including more than 80 in state of developing), take the area for about 62% of the territory of Kazakhstan. The main oil reserves in Kazakhstan (more than 90%) are concentrated in the largest 15 oilfields – Tengiz, Kashagan, Karachaganak, Uzen, Zhetybay, Zhanazhol, Kalamkas, Kenkiyak, Karazhanbas, Kumkol, Buzachi Severny, Alibekmola, Prorva Tsentralny and Vostochny, Kenbay, Korolevskoye, a half – in two huge oilfields Kashagan and Tengiz (graph 1).

Graph 1: Withdrawn gas and oil reserves in the Republic of Kazakhstan in percentage subdivision according to oilfields.



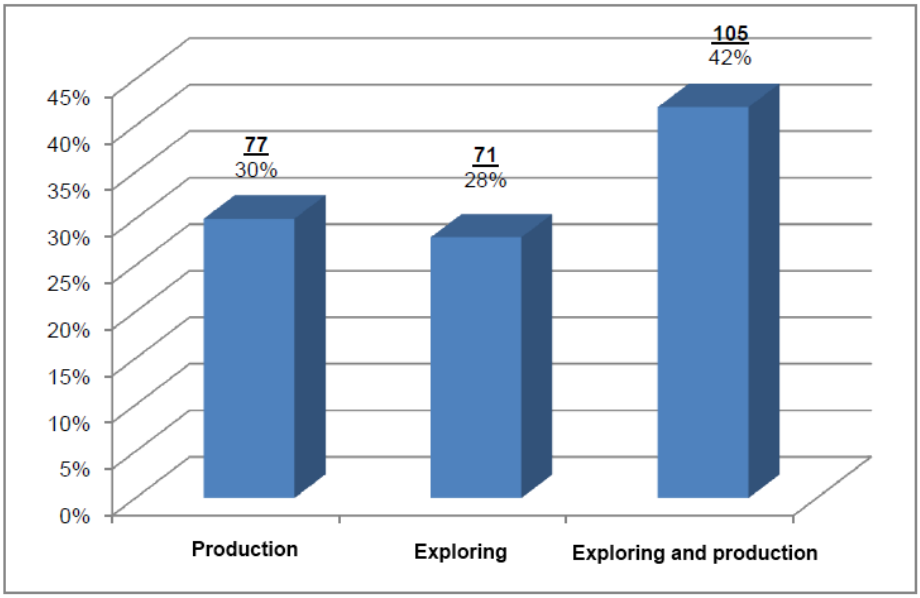
Source: the RK statistic agency

The oilfields are located in the 6 out of 14 regions of the Kazakhstan territory. They are Altyubinsk, Atyrau, West-Kazakhstan, Karaganda, Kyzylorda, Mangystau regions. For about 70% hydrocarbon reserves are concentrated on the west of Kazakhstan. Atyrauskaya region has the most developed oil reserves, where more than 75 oilfields have been opened, with 930 mln. tons of industrial category reserves. (Nysanbek, 2008)

The oil production on the territory of the RK territory includes about 8050 earth bowels based on subsoil licenses issued by the competent authorities. According to The Ministry of oil and gas, only 334 licenses were issued, 8151 of which were withdrawn. Hydrocarbons production objects distribution is presented in the following scheme (Graph 2).

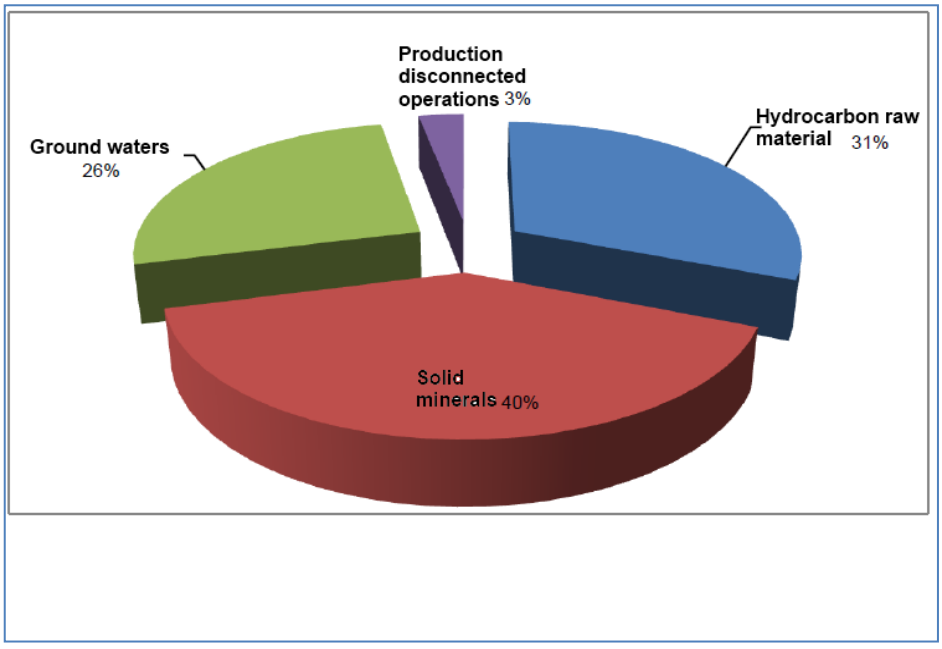
It is clear, that the percentage of exploring and production of hydrocarobon as raw material is almost the same. However, the total value of hydrocarbon processing (meaning exploring and production) is 42 percents. The Government of Kazakhstan and the Prezident of Kazakhstan Nazarbayev mark this sphere as of very high importance. In the next two years, the new infrastructure is going to be built to increase the production of hydrocarbons and provide all the territory of Kazakhstan with its products.

Graph 2: Hydrocarbon raw material production in RK



Source: RK Ministry of energy and gas official site, RA RFCA

Graph 3: Raw production sectors distribution in Kazakhstan



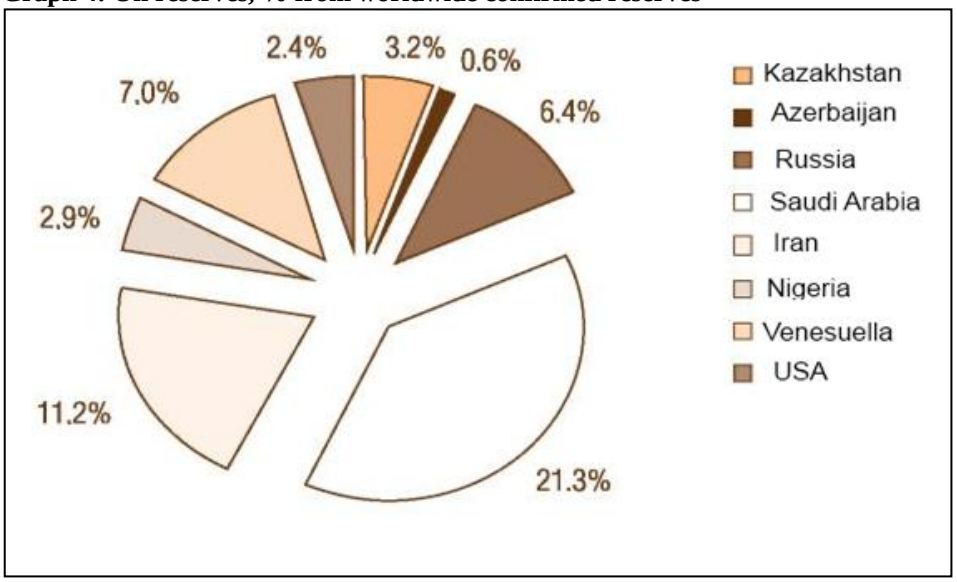
Source: Ministry of oil and gas of RK official site, RA RFCA

3.4 Global position of Kazakhstan

Global statistics are showing different valuations of the oil-gas reserves in Kazakhstan (graph 2). According to the data of the World energy statistical review for 2008 of BP3 company, 39.8 bill. barrels (5.9 bill. tons) of oil volume and 1.9 trl. gas cubic meters in Kazakhstan reserves.

However, it should be noted that several companies are giving other reserve valuations, which, cannot match The Government valuations. The thing is that, it is difficult to make such valuation: annual new information, that is making to see the situation with hydrocarbon material reserves of the world in a different way. (World energy statistical review, 2008)

Graph 4: Oil reserves, % from worldwide confirmed reserves



Source: RK statistic agency, 2010

According to the results as of the end of 2010, the hydrocarbon production in Kazakhstan was: - oil with gas condensate – 76.3 mln. tons/year - gas – 35.6 bill. sq. meters (table 1).

Table 1 – Hydrocarbon material production in Kazakhstan, mln. tons

Year	Oil production (mln. tons)	Gas condensate production (mln. tons)
2006	50.9	10.7
2007	54.3	10.7
2008	55.3	11.9
2009	58.7	12.0
2010	64.2	12.1

Source: RK statistic agency, 2011

According to the Britain oil-gas data, Kazakhstan takes the 9th place in the world by the oil reserves to the present day. If the temps of oil production will be as in 2009, these reserves

would be enough for 70 years. Reserves of "Blue Petroleum" make 1.7% of the worldwide gas reserves and if the level of annual average production will be 30 bill. cubic meters it would be enough for 100 years. (Economy Watch, 2010)

However, as it was noticed, the development of the majority of State large oilfields is considered to be complicated, in addition, hydrocarbons by their chemical composition are level "problematic" (high sulfur, hydrogen-sulphidous composition and etc.). The large-scale energy projects realization, which is being implemented and planned in Kazakhstan, can demand not only considerable million investments, but special technological decisions. (Economy Watch, 2010)

That is why it is very important to cooperate with foreign companies for Kazakhstan both after the Soviet Union dissolution and today. Kazakhstan is planning to attract foreign investments for capital-intensive projects in the future in the sphere of development of petrochemistry and petrochemical industry, creation of joint companies of oil-gas equipment production. The government of Kazakhstan is seeking to attract maximum Kazakhstan companies and specialists for joint projects, for small and middle entrepreneurship providing stimulation. (Economy Watch, 2010)

For about 50 companies produce oil in the state, and only 11 of them have annual indications with volume more than 1 mln. tons oil, including gas condensate at the present time. They produce almost 90% of all Kazakhstan oil production. The leader of oil production is JV "Tengizshevroil" with the annual production of 22.5 mln. tons (in 2010). The second and the third places are taken by "Karachaganak Petroleum Operating" and "KazMunayGas Exploration and Production" (branch company of NC "KazMunayGas") with almost similar volumes (9.6 and 9.45 mln. tons) of 15% state production. (Nursultanova, 2008)

Rapid development and impressive perspectives of oil production sphere of Kazakhstan are forming favorable conditions for powerful processing industry creation, which would be able to satisfy the internal needs in oil processing and petrochemistry production and also to deliver it to the external markets. In the last years, more attention has been paid to oil processing and petrochemistry problems in the Republic of Kazakhstan. This is a good basis for further development.

3.5 The main oil producing companies in Kazakhstan

In the previous text, it was mentioned that the oil production in Kazakhstan is provided and operated by several companies. It is interesting to see, whether those companies are competitors or partners, what are their data about oil production and the characteristics of each company. Those are the main participants of the rafinery sphere in Kazakhstan, it is very important to include this part in the thesis.

Main oil producers in the Republic of Kazakhstan are presented in the following table 2:

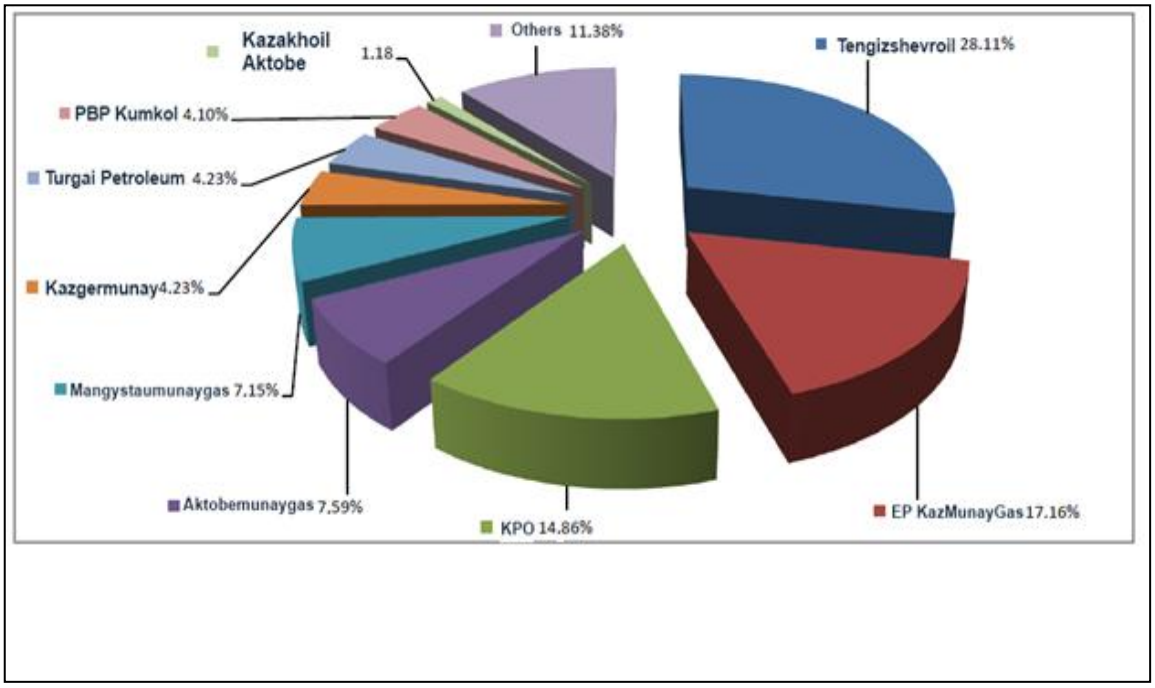
Table 2: The list of Kazakhstan oil producing companies, thous.tons per day

Name	2008	2009	2010
Tengizshevroil	346	452	525
EP KazMunayGas	240	276	320
KPO	233	239	251
AktobeMunayGas	117	122	125
MangystauMunayG	113	115	115
Kazger MunayG	63	68	67
Turgay Petroleum	65	68	67
PBP Kumkol	64	66	62
KarazhanbasMunay	37	34	33
Kazakhoil Aktobe	15	19	16
Kazakhturk Munay	n/o	n/o	4.5
Other	173	183	186.5

Source: JSC EP KazMunayGas presenting material, Ministry of oil and gas of the RK

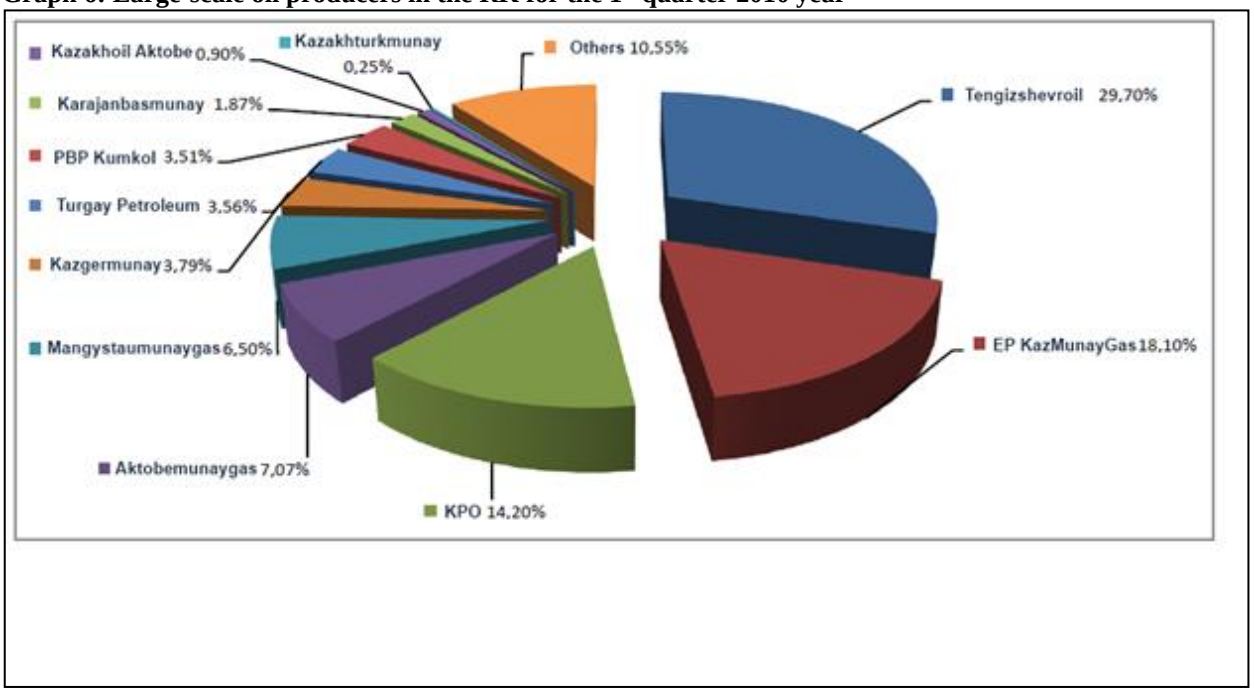
The grapf shows that only a few companies are at the first postitions in producing oil and gas. This can be explained because the refinery business is very hard to participate in. There are very high barriers on the entrance, a lot of legal requirements, high prices and a need in modern and safe technologies. All these factors make this business impossible for common businessmen ,and also for foreign companies, as they have to prove their knowledge of the Kazakhstan legal system. The following graph shows the situation more clearly: power distribution in State oil refinery sector is rather concentrated (graph 5 and 6).

Graph 5: Large-scale oil producers in the RK in 2009



Source: JSC «EP KazMunayGas» presentation material, Ministry of oil and gas of the RK, RA RFCA

Graph 6: Large-scale oil producers in the RK for the 1st quarter 2010 year



Source: JSC «EP KazMunayGas» presentation material from 19.07.2010 year, Ministry of oil and gas of the RK, RA RFCA

High concentration of producers' power is being observed on the oil resources market. The three greatest companies are providing 62% form the total oil production in the RK. LLP Tengizshevroil, takes the third part of hydrocarbon material market, after which goes JSC EP

KazMunayGas, takes for about 18.10%. On the third place, is the company Karachaganak Petroleum Operating B.V. (KPO) with the market share equal to 14.20%. It should be noted, that in comparison with 2006, in 2010, JSC «EP KazMunayGas increased the production volumes by 1.7 times at the expense of aggressive investment policy, providing Market Share purchasing in oil rafinery companies (graph 8).

However, it is interesting to slow down at this point and describe the main manufacturers on the market of Kazakhstan.

3.5.1 Three main companies

The oil processing branch of Kazakhstan is reresented by three great companies - "Atyrausky OR" JSC, PetroKazakhstan Oil Products (earlier "Shymkentnefteorgsyntez" JSC) and "Pavlodar petrochemical plant" JSC. Their total production powers can be equal up to 18.5 mln. tons of oil.

It should be noted that the oil refinery of Kazakhstan has been annually increasing raw oil processing volumes for the last time (Table 3):

Table 3 – Several oil products production (in thousands. tons)

Oil products	2006	2007	2008	2009	2010
Engine fuel	2359.2	2345.3	2633.3	2506.2	2613
Kerosene	248.7	313.6	385	400.4	376
Diesel fuel	3704.7	3887.5	4294.5	4369.3	4258
Residual oil	3549	3333.1	2583.8	3191.1	3256

Source: Tarnavsky, 2010

In the future, the three oil refineries of Kazakhstan will be modernized. The total amount of investments for the modernization and reconstruction of "Atyrausky OR" will be almost $1 bill. for "Shymkent OR" -$600 mln. and for "Pavlodar petrochemical plant" – about $100 mln. (Kembaeva, 2010)

The administration of Atyrau and Shymkent plants has made a decision on the construction of catalytic cracking setting with the help of which it would be able to reach the best oil processing and addition volumes of refined oil products. That is why such significant amount of investment is demanded for two oil refineries. To 2014 year the three Kazakhstan oil refineries plan go to the Euro-3 standard of oil production. (Kembaeva, 2010)

Kazakhstan has developed infrastructure for oil and gas transportation from production regions. Main, export leads for oil and gas has been constructed in the years of Kazakhstan independence.

One of the reasons is the fast increase in hydrocarbon production (since 1996, it has been about 12.5% oil average annually), other – export route diversity, which has been actively discussed in Europe recently. (Kembaeva, 2010)

Kazakhstan has close policy-economical ties with Russia (including the transportation of oil, oil products and gas), conducts balance policy in the sphere of energy resources delivery diversification at the same time. In that plan, it has almost reached the aim – Kazakhstan will be able to organize stable volumes of oil delivery without Russia, directed to China, Azerbaijan (by the Baku-Tbilicy-Jeikhan pipeline) and Iran from the ‘20s of the present year. (Nysanbek, 2008)

Besides, one of the greatest pipelines of the region is lying through the territory of Kazakhstan, used for Turkmen and Uzbek gas pumping in the direction of Russia. In 2008, the Agreement at the presidential level between Turkmenistan, Kazakhstan and Russia has been signed about the Caspian gas pipeline realization. By virtue of its geographical location, Kazakhstan soon will be a transit State and for export of Turkmen gas to China, in spite of planning a gas pipeline construction in the direction of the Celestial Empire by the Republic. (Nysanbek, 2008)

The general capacity of export of the Kazakhstan oil pipelines is more than 310 mln. barrels per year. Moreover, KazTransOil (JSC NC KazMunayGas branch company by oil transportation), oil-trunk pipeline extent is 5286.7 km according to official data. It should be noted that export (and transit) pipelines of Kazakhstan bandwidth capacity is 110 bill. sq. m.

Table 4 – Oil and gas condensate export to the world markets

Indicator	2006	2007	2008	2009	2010
Oil and gas condensate export (mln. tons)	52.4	54.8	60.3	62.4	68.1

Source: the RK statistic agency, 2011

The largest volume of Kazakhstan oil in 2010 was exported by the pipeline KTK – 27.5 mln. tons and Atyrau-Samara – 17.5 mln. tons. 7.7 mln. tons, were transported in the direction of China, where 6.2 mln.tons was the Kazakh oil. The sea export was equal to 11.1 mln. tons, railway export 4 mln. tons. 1.8 mln. tons gas condensate were transported to Orenburgsky OR. In 2010 year the Russian oil transit through the territory of Kazakhstan to the PRC was equal to 1.5 mln.tons, for 2011, it will be 2.0 mln.ton (Tarnavsky, 2010)

Oil products are exported from Kazakhstan to the nearest CIS States (Kyrgyzstan, Tajikistan, Ukraine and Uzbekistan) and the states of the near and far abroad.

Secondary oil products export (heavy gas oil, i.e. vacuum gas oil, oil gas composite for the process of catalytic and thermal cracking and other) is rising alongside with the main oil products export.

In whole, Kazakhstan's political administration has aimed: to be on the first "ten" of the oil production states and "50" of producers of the most competitive world goods to 2015 year. The administration plans not to cover regions, but the whole world. Attaining the aim is oil production increasing (stable income inflow providing, with the help of which competitive goods will be produced) and oil export (transited infrastructure creation, in four directions – Russia, China, Azerbaijan and Iran). (Tarnavsky, 2010).

3.6 Analysis of oil production - large companies' competitive advantages.

In this subchapter, the main producers of oil and gas products are represented. This is an analysis of competitiveness of every significant member of the oil and gas sector in Kazakhstan. The analysis is needed in order to understand the rules of making refinery business, the main members of the sector and, of course, their history. As it has already benn mentioned about those companies in the previous paragraph, it is already known that they are some kind of oligopoly companies.

LLP Tengizshevroil (TSO)

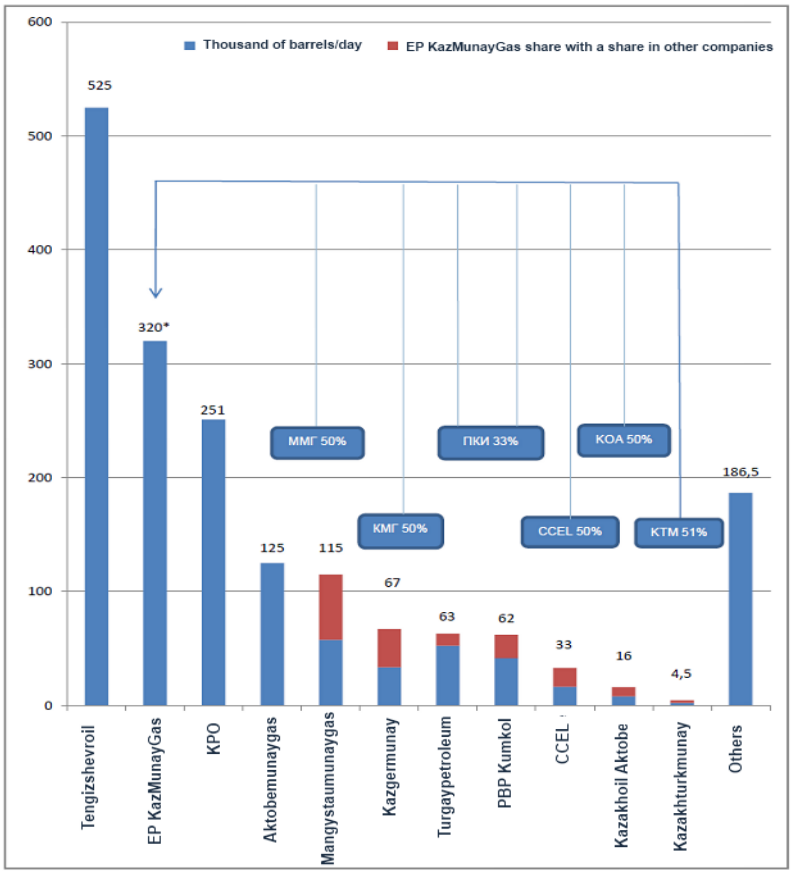
LLP Tengizshevroil (TSO) was created on 06.04.1993 on the basis of an Agreement between The Republic of Kazakhstan and the Chevron company. Nowadays, TSO owners are: Chevron - 50%, JSC NC KazMunayGas - 20%, ExxonMobil Kazakhstan Ventures Inc. –25% and JV LookArco - 5%. Direct payments TSO made to Kazakhstan in January – June 2010 were equal to 4.6 bill. doll USA. For 1993 till 06.2010 year, the working period direct financial payments TSO to the State budget were 4034 bill. doll. USA. Technological availability of the equipment is the main TSO advantage. The second advantage is the participation of foreign capital and assets in the company, as it has enough investments and sources for further growth and prosperity. This company is also well

known for its distribution ability. At the beginning of tis activities, it had a rough price policy, thus gained a lot of clients and partners all over the world. Nowadays this company is very well known for good flexibility in process, oil and gas distribution conditions and large network of their partners and own points of distribution of products. These factors make this company the first in the list. (Tengizshevroil, 2012).

The main point in the issue of TSO business development is connected with production power expansion and oil production advanced manufacturing sciences introduction. TSO is working on the production expansion, within the bounds of the «Future expansion project» with applying the unstripped gas inverse pumping technology, which provides appropriate pressure maintenance in layer and making for greater oil productive capacity. That technology is the most ecological one and allows to continue the oilfield operation life. (Tengizshevroil, 2012).

JSC EP KazMunayGas

Graph 7: Investment projects, realized by EP KMG



Source: JSC EP KazMunayGas - official site,
*size of producing oil includes the portion of JSC EP KazMunayGas to КГМ (50%), ПКИ (33%), CCEL (50%) and ММГ (50%) and does not includes portion in Turgay Petroleum production.

JSC EP KazMunayGas is a branch of the company JSC NC KazMunayGas. It was created in March 2004 year by the merger JSC UzenMunayGas and JSC EmbaMunayGas. In 2006, the assets of EP KMG were offered on the Kazakhstan share market, consequently more than 2 bill.doll USA were mobilized.

The main competitive advantage of the company is guaranteed economical and political support of the RK Government. The Government legislative regulations in established conditions allow EP KMG to have more rights in alienable territories purchasing of oil and gas area. This regulation provides EP KMG to realize the company development strategy related with the assets portfolio increasing by the way of oil field purchasing (picture 8). In 2010 – 2014 years JSC EP KazMunayGas plans to invest about 20 bill. doll. USA. (JSC EP KazMunayGas, 2012)

The presence of secured access to the main oil track is also not the least of the aspects of competitive advantage of EP KMG. The company has made several agreements, whose conditions guarantee to EP KMG the access to the pipeline Uzen-Atyrau-Samara, by means of which the greater part of export is conducting to the near and far abroad and Caspian Pipeline Consortium (CPC) pipeline. (JSC EP KazMunayGas, 2012)

Karachaganak Petroleum Operating B. V. (KPO)

Karachaganak Petroleum Operating B.V. (KPO) company was created in 1997, with the participation of foreign companies: BG Group - 32.5%, Eni - 32.5%, Chevron - 20% and Lucoil - 15%. The total amount of investment, allocated to Kaganak oilfield development project by the company KPO, for the present day is 14 bill. doll. USA. Oil production and processing is conducted on Karachaganak oil field at three technological arrangements. (Karachaganak, 2012)

The production principle allows the company to response flexibly to the changing market structure annd market conjunccture in oil and gas export. The technological availability of equipment is an important aspect of the benefits of the Company as compared to the competitors. Besides, the company has an experience in drilling deep and technologically sophisticated multibarrelled in the RK. KPO has been useing a new fiber-optic technology that can respond to fluctuations in the soil around the export pipelines and inform

the operator service companies and significantly reduce the legal frame availability. (Karachaganak, 2012)

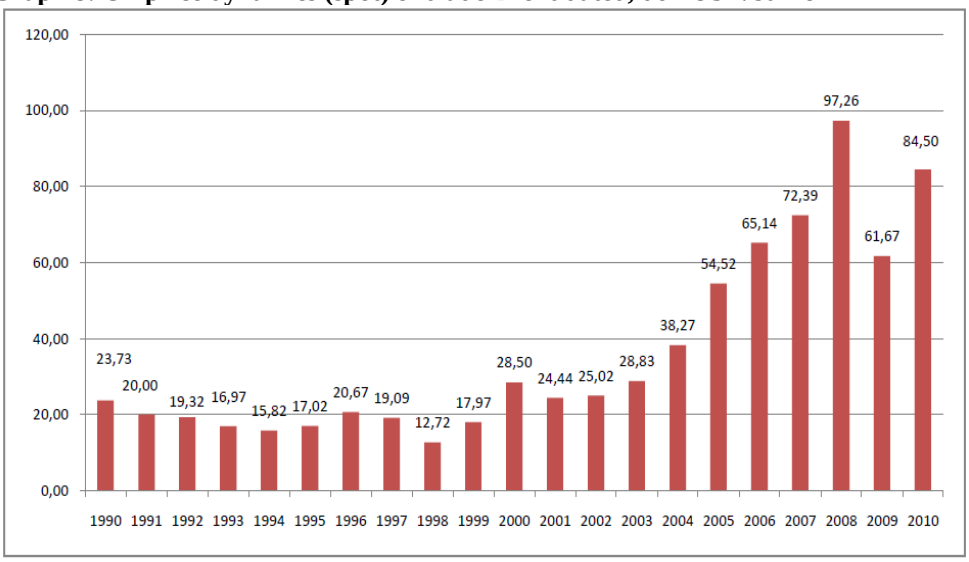
The main direction of oil exports is the Western Europe. For the most part, oil is exported through the CPC pipeline to the port and South Ozereevka- Uzen -Atyrau – Samara to the Primorsk port for the further implementation of sudden European destinations. (Karachaganak, 2012)

Taking into account the dynamics of companies in the oil sphere, a conclusion can be made that the competitors environment will increase. In the current conditions, competitive benefits will be determined by the readiness of companies to carry out investments projects and develop oil and gas deposits. In addition, technical equipment and human resources capacity can be a key aspect of the development of companies in the RK. (Karachaganak, 2012).

3.7 Oil refinery sphere competition: price movement, main players

3.7.1 Price movement

Graph 8: Oil price dynamics (spot) of trade Brent dated, doll USA/barrel



Source: Platt's agency, BP Statistical Review 2009, valuation data for 2010 – Societe Generale, RA RFCA

The oil market has been demonstrating rather significant tendency during 20 years. According to picture 3, top of the prices was 97.26 dollars USA for barrel of oil of standard sort Brent in 2008, 1998 demonstrated considerable fall till the level of 12.72 USA dollars for barrel. In 2009 average of annual oil price indicator was on the level of

61.67 USA dollars for barrel of Brent. In 2010, the average price indicator was on the level of USD 84.50 doll. for barrel.

There are several factors, which influence the oil pricing dynamics and they can be divided into macro and micro economical.

One of the fundamental macroeconomic factors, influencing the oil price changings all over the world, is the US dollar rate. In many ways, it is connected with oil exporters – country national budget formation. The thing is that, with the decreasing of the US dollar rate, the countries' income – oil exporters, while the main part of import and current costs of the country are being paying in the rate of USA dollars or other converting currency.

Besides, the situation on the financing markets is reflected on the instability oil prices. The thing is that many investors prefer converting their capital into financing instruments, connected with the market of energy resources, for instant futures contracts of oil. Besides, influence on energy resource pricing in leaps and bounds increasing developing countries economics, first of all China and India, and strategic resources formed by them. A substantial aspect is the economic and financial situation in the USA, providing 21,71% from the total oil consumption in the world. The Asian markets are starting to consume energy resources.

Standards for the market price formation on export Kazakhstan oil are of 3 sorts: Brent dtd (Severomorsky dated), Urals (REBKO) and admixture CPC. Standard price of sort Urals (REBKO) is being calculated from the Brent quotation of Severomorsky dated sort (published by the Platt's) and differential CIF August (Urals the Mediterranean) or CIF Rotterdam (Urals North-West Europe). Differential calculation difference depends on the oil delivery port. In case of calculation of price for Kazakhstan oil, a standard Urals The Mediterranean price is used.

The issue of pricing the for exported sorts of Kazakhstan oil (CPC, Tengis, Kumkol, BTD) the price calculation is based on the Brent dtd sorts quotation –Severomorsky dated or Urals, published by the Platt's (table 4).

Table 5: Oil price setting

Sort	Transition coefficient barrel into tons	Basis of delivery	Period of delivery	Delivery volume, thous.tons
Admixture CPC	7.77	CIFAugusta, Italy	10-30 days.	80-140
Tengiz	7.92	CIFAugusta, Italy	10-30 days.	80
Kumkol	7.62	CIFAugusta, Italy	10-30 days.	50-80
Kumkol China (admixture Dostyk)	7.62	DDU Alashankou, China	Current month balance	30
Admixture BTD	7.44	CIF Augusta, Italy	10-25 days.	80-140

Source: Argus market of Caspy methodics and certification, 2009

In realization traders (mediator) negotiate about differential value – and calculate Kazakhstan oil price. Kazakhstan oil market price can be expressed in several formulas (Argus market of Caspy methodics and certification, March 2009):

Price = Severomorsky dated (standard) +/- market differential and Price = Urals (standard) +/- market differential

The differential is a summary valuation of all costs, incurred during transportation, delivery, insurance and realization of energy resources to the customer at a rate of 1 barrel or ton. The market differential is not a constant valuation, and is updated on an everyday basis.

In most cases oil is realized under long term contracts, on terms FOB or CIF on market. Oil, delivered via the KKT pipeline is realized on terms DAF Alashankou. It is necessary to take into account the price dependence from acting standard sorts of region – importer, while export price determination trading oil on the international markets. Thus, oil, delivering to the ports of Mediterranean/Black seas or to China, it is realized with tie quotation of Severomorsky standard sort or Urals. In case of oil delivery to Iran through the Caspian Sea, by the Iran oil replacement scheme in the Persian Gulf, the realization is conducted with the tie of energy resources cost to the sorts Oman and Dubai. (Argus market of Caspy methodics and certification, March 2009)

It should be noted that there is no standard approach to the pricing right methods determination on condition when oil is exported according to a long term vendor contract. In that case, differentials as discounts for export product, are determined by means of negotiations between the seller and the customer on condition with fact incurring charges of exporter.

Table 6: Oil price (data is actual for 22.06.2010)

Oil sort. doll./barrel.	Price	Differencial CIFAyrycта (according to the cost of Severomorsk admixture)
Severomorsky dated	78.10	-
Urals (The Mediterranean)	77.35	-0.75
Admixture CPC (CPC Blend)	79.10	1
Tengiz	79.10	1
Kumkol	78.9	0.8
Kumkol China	71.4	-6.7
Admixture BTD	80.35	2.25

Source: Argus Market Caspy – oil market and oil products everyday review of Caspian and Middle Asia countries, output III, №24 from 23.06.2010.

To calculate the quotes for Tengiz admixture on loading terminal, the cost calculation method similar to exports admixture calculation CPC (Price = Severomorsky dated (standard) + / - market differential (CIF Augusta)) is used. According to FOB terms of delivery Odessa by rail through the port of Odessa on The Mediterranean sea market (Port Augusta), the quotation does not include the costs of transportation losses, ballast, demurrage at the port, brokers' commission and other costs. The insurance cost is calculated based on the cost of the transported oil. (Argus market of Caspy methodics and certification, March 2009)

To determine the price of the BTD admixture, delivered via the Baku - Tbilisi-Ceyhan oil pipeline, and Kumkol, a calculation system is used, similar to the onr in the previous cases. The quotation for the Dostyk admixture (Kumkol - DAF Alashankou), supplied via the pipeline KCP Atassu-Alashankou, is calculated with reference to the cost of standard mixtures Urals or Severomorsky dated + / - market differential for the Umkol admixture. The differential rate varies and depends on the seasonality of supply. In view of the high paraffin content of oil produced in Kumkol, from May to October the local oil content is going from pipeline, while in October - November to April – Kumkol admixture in 60/40 (60% of Kazakhstan oil, 40% of the West - Siberian content). (Argus market of Caspy methodics and certification, March 2009)

The calculation of JCS EP KMG export prices is based on the data of world oil Urals sorts selling quotation and the CPC (CPC Blend). JCS EP KMG oil quotations binding to the Urals quotation is specified by the admixture status in the region.

Energy resources pricing is an important aspect in the context of State budget formation. The above pricing formula for energy resources is correct for tax burden calculation in terms of CIF Augusta.

However, using the same data as in the case of taxes in terms of FOB Novorossiysk or FOB Odessa is not correct, because in the case of delivery FOB Novorossiysk, the cost of energy sources is calculated without the CIF Augusta. Consequently, in the part of August final destination spread the cost of oil the CIF exports is increased.

For a correct tax burden calculation, it is essential to take into account the contract oil realization terms sources. The difference in the official information data used for the base cost of exported oil, and therefore the stated tax rate, often leads to problems. First of all, it is connected with the RK Ministry of Finance Tax Committee the debt, fines and oil companies tax penalties. Second, this aspect can in negative way affect the quality of the planning of the future tax revenues to the country budget.

The market price of the Kazakhstan oil depends on several underlying factors, which can be divided into fixed and variable ones. Variable factors, such as consumption of petroleum and petroleum products in appropriate period are regulated in terms of quantity in markets, terms of delivery, number of traders in great degree influence the fluctuation of the oil prices. Moreover, the quality of exported oil (density, sulfur and waxes content, etc.) has an impact on the market prices level, as well as maintenance of quality, stability, production and supply and cost of oil production in a particular region. (Argus market of Caspy methodics and certification, March 2009)

In addition, another important aspect of Kazakhstan's oil prices determination is the norms of legislative regulation, the presence/absence of export taxes on energy and the amount of insurance payments. Particularly, in 2009, due to the market oil prices being lower than 40 dollars/ton, a temporary measure for resetting the rate of duty for oil production stimulation in the country was introduced by the Government of the RK . However, from 21.07.2011, the rate for Kazakh oil export was increased to 20 doll/ ton. This measure is aimed at the increase of payments income to the state budget. (RK Law about sources and their exploitation, 2009)

This fee is obligatory for all energy resources exporters, except for the companies that have special agreements providing fixed custom duties and export rates. Since 01.01.2011, it is planned to increase the rates for Kazakhstan crude oil export to 40 USA dollars/ton. The decrease or increase in export custom duties for oil and petroleum products will depend on the price for energy. Under the condition of relative stability of oil prices, the rate can gradually be increased to 100 doll / ton- The RK government is reviewing the right of duty rate one time per quarter. (RK Law about sources and their exploitation, 2009)

The rate is relatively low, taking into account the fact that in January 2009 it was 203 doll./ton 48 (in Russia - 263.849 USD/ton), even with the planned measures to increase the oil export duties. It is obvious that this measure will not influence the volumes of Kazakhstan oil exports abroad or the deterioration of the creditworthiness of the oil companies. However, with the increase of export duties, the free money flows volume of export-oriented companies are expected to be reduced.

3.8 Factors influencing the refinery business in Kazakhstan

Kazakhstan is not the only country that produces and distributes oil and gas products. It has been shown on the graphs above that there are very strong competitors of this country. That is why this chapter is dedicated to the main competitors of Kazakhstan.

Particularly, it is China, who for the last 10 years has increased oil consumption twice – from 209.6 mln. tons per year in 1999 to 404.6 mln. tons in 2009. Japan and India, being on the third and fourth places, consume 197.6 and 148.5 mln. tons of oil per year. In that condition, the supply and demand balance on American and Asian markets is going to be one of the main factors of the current conjuncture on the world market. It should be noted, that the Nearer and the Far East political situation, which is exporting oil mainly to the USA, geopolitical situation and intensity increasing in the present region, can promote oil delivery disbalance and influence the global price for energy resources. The US Government demands revision of oil drilling exploration in the Gulf of Mexico, the Atlantic coast and the Alaska oil shelf, it can change the USA policy in pricing towards the increasing and decreasing, depending on the final decision of the US Congress. (Kaukenova, 2009)

Besides microeconomic factors, there are also macroeconomic – production factors, influencing the global price dynamics. The example of that can be the insufficient volumes of investments, demanded in the oil producing sphere. In many ways, the world oil producing complexes are working on the limits of producing powers. Oil production powers construction, oil production technologies modernity, new oil fields introduction and reserves creation are demanding large financial investments. However, because of the crisis and the liquidity squeeze, many oil producing companies have reviewed their financial policy and decreased costs. (Scientific library, 2009)

Besides, the recent events in the Gulf of Mexico, have led to expenditures related to the overcoming of the ecological catastrophe in the region, which can provoke a cut in investments. After the present events, it is possible to expect series of economic and ecological sanctions from the countries-exporters of oil toughened demands to oil producing companies, which will be reflected on their investment capacity.

The approach to pricing in oil realization, used in the world practice, influences the standard oil sort used as the basis for the determination of prices for energy resources. Depending on the region – oil export, the standard sort can be diversified. For the European markets, the oil standard sort is BFO – (Brent, Forties and Oseberg). As BFO pricing basis, its use can be explained by the high liquidity of the physical goods market, its sufficient openness and the number of buying and selling deals, made by independent market participations. (Scientific library, 2009)

It should be noted the important quotation of the sort admixture Brent on the world market. This is caused by the fact that the volume of future and forward deals on Brent considerably exceeds the real delivery market volumes. That is why, the admixture Brent is beginning to be physical providing of made "paper" deals. It should be noted, that transfer pricing of 65% deals, made while oil buying and selling in the world is going relative to Brent (Dated, dtd), admixture cost, published by the Platt's. Being a standard sort, Brent makes a tendency for the global oil price. That is why the range of other sorts of exported oil from various regions, offered on the markets, whose standard is Brent dtd, is realized with bonus and discounts to the admixture Brent dtd.

3.9 Export routes of Kazakhstan oil

In general, the oil produced in the Middle East is exported to the US, Asia and Europe. The main importer (and consumer simultaneously) of oil is the US. Then go the Asian States – the developing China and India, and huge economies, scanty of oil, Japan and South Korea. In the second part, tens of the largest importing States are the European States. Hereby, for about 70% of the global base oil import go to the foregoing States.

Picture 2: Export routes of the Kazakh oil

Source: European Energy Policy Observatory, 2011

List of existing export routes	**Planned export routes:**
1 – Atyrau-Samara 1a – Baltic pipeline system 1b – Friendship (Druzhba) 1c – through Odessa 1d – through Novorossiysk 2 – Caspian pipeline consortium 3 – Atasu-Alashankow 4 – Aktau port - Baku - Makhachkala - Neka 5 – Atasu-Alashankow 6 – Baku-Tbilisi-Dzheykhan	6 Kazakhstan Caspian system of transportation (Yeskene-Kuryk-Baku-Tbilisi-Dzheykhan) 7 Kazakhstan-Turkmenistan-Iran 8 Turkey channels departure routes: 8.1 – Burgas-Alexandroupolis 8.2 – Samsun-Dzheykhan 8.3 – Odessa-Brody

(European Energy Policy Observatory, 2011)

4 PRACTICAL PART

It is known that Kazakhstan has significant hydrocarbonaceous resources, the greatest part of which is connected with the Kazakhstan sector of the Caspian Sea. The guarantee of the further attraction of investments into the Republic's oil and gas sector are the global tendencies of increase in the oil prices, the current and planned routes of hydrocarbon transportation to the markets of the South Europe and Asia, also the Kazakhstan participation in the oil production projects of large foreign companies.

Today, the state balance of Kazakhstan contains the reserves of 256 hydrocarbon oilfields, among them oilfields – 223, condensate - 58 and free gas - 202 oilfields. It is one of the leading places of explored reserves of hydrocarbon in the world, conceding only to the Middle East States, the Latin America, Russia and the USA. The Kazakhstan part of the explored reserves of hydrocarbon in the world is 3.2% of oil (for about 5 bln t), and gas – 1.5% (for about 2 trln m^3). Moreover, probable oil resources make up 9.3 bln t, gas – 6 trln m^3 and condensate – 1.8 bln t.

Basic oil resources made up 77.5 mln. tons in 2010, where 68.1 mln. tons were for the Republic production and 6.0 mln. tons – for import. From the total effort of resources on the internal market, the use made up 14.2 mln. tons and for export 52.9 mln. tons.

4.1 Share value of Kazakhstan on the global market

Kazakhstan is interacting with many states and many Unions. Our task is to calculate the share of Kazakhstan in different Unions regarding oil and gas reserves.

Recently, it has been a very discussable topic, which coutry has enough reserves for further consumption and distribution. The prognoses prdict, that there are reserves only for the next 70 years - this is also the reason why all governments are searching for some adequate solution, for some alternative energy sources. The scale of this thesis does not leave much space for calculating all the shares and proportions with all the reserves of gas and oil. However, it is interesting in comparison with the CIS and Europe.

The next step is to calculate the part of Kazakhstan on the market of the European States, the CIS States and the global market of oil reserves.

Table 7: Confirmed base oil reserves, mln. tons

	2006	**2007**	**2008**	**2009**	**2010**
Kazakhstan	3240	4180	5120	5260	5540
Europe	2345.6	2417.5	2139.6	2063.5	2014.3
CIS	18140	17652	18969,7	20456	23912
World reserves	**184567**	**198253.7**	**202996.4**	**171591**	**170800**
Kaz/CIS (%)	**17.8%**	**23.7%**	**26.9%**	**25.7%**	**23.2%**
Kaz/world (%)	**1.8%**	**2.1%**	**2.5%**	**3.1%**	**3.2%**

Sources: own calculations

Kazakhstan's share in the CIS States oil reserves market

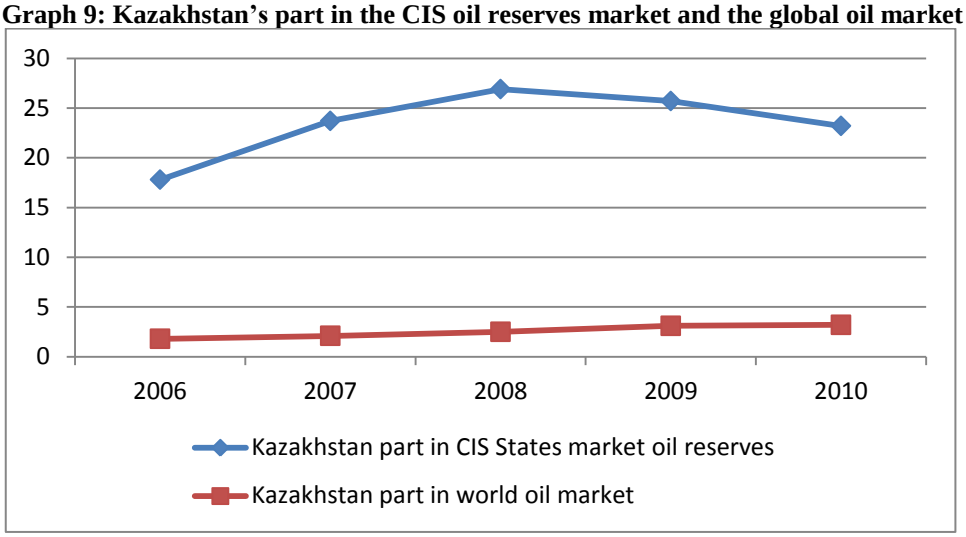
The calculation shows that Kazakhstan provides very valuable reserves of oil and gas on the territory of the CIS countries. In all mentioned years, the significance of Kazakhstan's reserves was not less than 17%, moreover, the significance of Kazakhstan has been constantly growing, and the total reserves have been growing too. The greatest significance of Kazakhstan's oil and gas reserves was in 2008.

Kazakhstan' share in the global oil reserves market

As Kazakhstan is a large country and a bid producer of oil and gas products, then it might have visible significance on the world's reserves. It is clear, that the significance will be much less than in case of the CIS, because there are a lot of other large oil and gas refineries in the world: Russia, USA, Canada, Asia and so on.

The significance of Kazakhstan on the world reserves equals to 1% to 3%. Unlike the previous example, the global reserves are constantly decreasing (Kazakhstan's reserves are increasing). This percentage may seem very low, but naturally it is quite sufficient for one single country to have several percentages of the global reserves. The next graph demonstrates the previous data graphically:

Graph 9: Kazakhstan's part in the CIS oil reserves market and the global oil market



Source: own calculations

The total volume of increment oil reserves in 1996–2010 has been forestalling the volume of production almost 3 times for the same period, and stable annual increase of gas reserves will allow to develop production and refinery during the future ten years (provision of sphere is for 70–80 years). It should be noted that in the first ten years of the XXI century, the huge oilfield of Kazakhstan in the Caspian water area (2002) was opened, its resources increased the State reserves twice.

Then, the oilfields increase of Korolevskoye, Akshabulak, Alibek South, Kenlyk (2004 year), Karamandybas, Karakuduk (2005 year), Tolkyn and Chinarevskoye (2006 year), Alibekmola, Kenlyk and Tengiz (2007-2008 years), Kyzylkiya, S.Nurzhanov and Aryskum (2010 year). In reference to the further perspectives, it is expectied that the oil reserves increase will be about 40 mln, tons till 2014 year, and the gas reserves increase will be for about 30 bln m3.

Totally, 15 sedimentation tanks were allocated on the territory of Kazakhstan, besides, the production base of hydrocarbon is in five of them: Pricaspian, South-Mangyshlaksky, Ustyurt-Buzashynsky, South-Torgaysky, Shu-Sarysuysky.

Within the range of these areas, more than 100 oilfields of hydrocarbon are designed, and more than 65% of produced oil reserves are exploited, and more than 70% of free gas, as considered by the State balance.

The production of oil reserves is concentrated on 13 big oilfields (91%), in general, among them two large oilfields (69%) – Tengiz and Kashagan. Moreover, the proven oilfields are

distributed unevenly on the territory of the Republic. All large oilfields (with small and middle ones) are located in the west of the Republic, and the greatest part of south oilfields belongs to the small and middle ones. Hereby, east, north and central regions of Kazakhstan don't have hydrocarbon resources.

It should be noted that many oilfields of the Pricaspian south part, explored in the '30–40s years of the last century, are on the last development stage. Their effort is has reached 75,6–98,9%, and such industries as PS "Embamunaygas" and PS "Uzenmunaygas" (whose activities have a great social-economic matter for the region) should perform exploration works to strengthen their mineral-raw material base.

Besides, more than 4% (0.23 bln t) of the Kazakh oil reserves are related to hard-to-explore extra heavy oil, and more than 40% are sulfur and sour oil, which increases the oil production prime cost.

The main deposits of hydrocarbon are focused in the Caspian region on the west of the State (70% reserves). The first Kazakhstan oil production year was November 1899, in the Karashungul oilfield. Nowadays, 172 oil and 42 condensate oilfields are located in the Republic's oil and gas production region.

4.2 Analysis of Kazakstan´s oil production

The production of oil in 2010 in Kazakhstan was equal to 209,6 thous. t./day. – it's 67.2 ml.t. of oil, where 50 mln.t. are being aimed for export

Table 8: Oil production dynamics, mln t

	2006	2007	2008	2009	2010	10/06, %
Russia	421.38	458.81	469.99	480.53	491.31	102.2
Europe	293.55	292.64	275.62	250.59	231.71	92.5
CIS	510.98	555.75	574.87	598.57	632.85	929.9
Byelorussia	1.75	1.8	1.77	1.78	1.7	95.5
Ukraine	3.98	4.07	4.25	4.51	4.43	98.2
Azerbaijan	15.38	15.6	22.2	32.26	42.6	132.1
Kazakhstan	51.3	59.2	61.4	64.9	78	103.5
Kirgizia	0.07	0.07	0.07	0.05	0.05	100
Tajikistan	0.02	0.02	0.02	0.01	0.01	100
Turkmenistan	10	9.6	9.52	9	9,8	108.9
Uzbekistan	7.1	6.58	5.65	5.53	4.95	89.5
Total	**3472.27**	**3651.76**	**3720.69**	**3726.43**	**3719.54**	**99.8**
Kaz/CIS	**10.0%**	**10.7%**	**10.7%**	**10.8%**	**12.3%**	**x**
Kaz/world	**1.5%**	**1.6%**	**1.7%**	**1.7%**	**2.1%**	**x**
Kaz/Europe	**17.5%**	**20.2%**	**22.3%**	**25.9%**	**33.7%**	

Source: own calculations

Kazakhstan's share in the CIS market of oil production

As in the previous text, it is interesting to calculate the significance of Kazakhstan in the global production of gas and oil. It was already found out that it is a very significant country regarding gas and oil reserves.

Kazakhstan's share in the CIS market of oil production

After the calculations, it is clear, that Kazakhstan is a very significant oil and gas producer, however, its share on the CIS market is lower than its share in the global reserves. However the tendencies are athe same: Kazakhstan has been increasing its oil production since 2006. The world's oil production has increased as well.

Kazakhstan's part in the global market of oil production

The share of Kazakhstan in the global oil production is comparable with its share in the global reserves. In all the years (2006-2010) its share has benn higher than 1%. The tendencies of Kazakhstan's share in the global market are increasing, thus the highest share was in 2010.

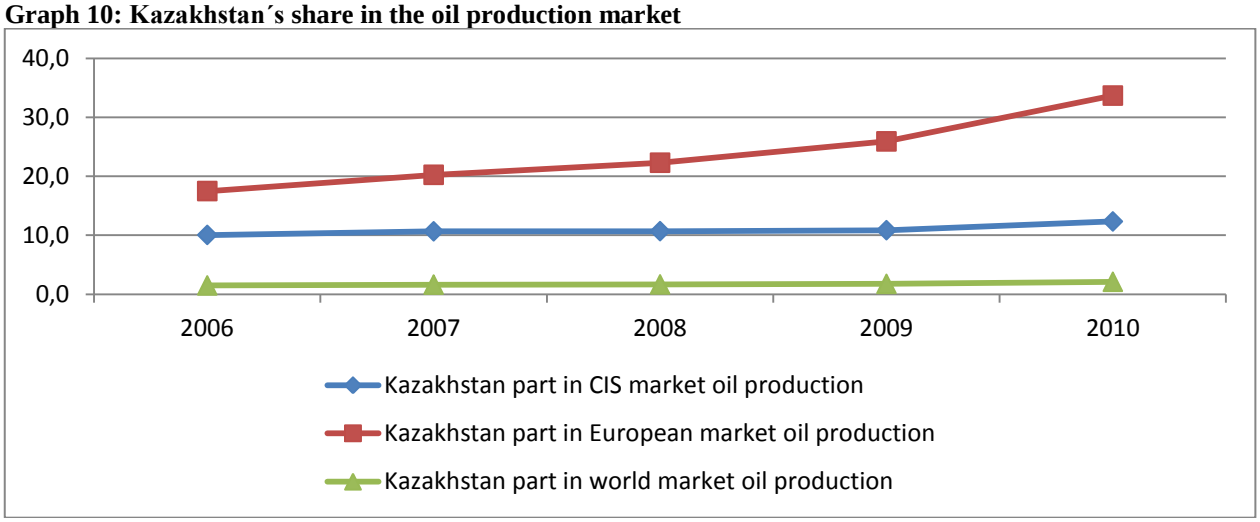
Kazakhstan's part in the European market of oil production

While comparing the Kazakh oil production with the European oil production, it is clear that Kazakhstan's share is very significant. Averagely, Kazakhstan produces 20% of all European production, and still this is the comparison with the Union of states, not with one

particular state. Thus it is clear that there is no country in Europe which can be compared with Kazakhstan in oil and gas production.

The data will be demonstrated by the following graph:

Graph 10: Kazakhstan´s share in the oil production market



Source: own calculation

4.3 Oil and gas consumption – production, demand and supply

Table 9: Oil production and consumption dynamics, mln t

Exporters	Net oil exports	Consumers	Total oil consumption	Importers	Net oil imports
1. Saudi Arabia	8.65	1. United States	20.59	1. United States	12.22
2. Russia	6.57	2. China	7.27	2. Japan	5.10
3. Norway	2.54	3. Japan	5.22	3. China	3.44
4. Iran	2.52	4. Russia	3.10	4. Germany	2.48
5. United Arab Emirates	2.52	5. Germany	2.63	5. South Korea	2.15
6. Venezuela	2.20	6. India	2.53	6. France	1.89
7. Kuwait	2.15	7. Canada	2.22	7. India	1.69
8. Nigeria	2.15	8. Brazil	2.12	8. Italy	1.56
9. Algeria	1.85	9. South Korea	2.12	9. Spain	1.56
10. Mexico	1.68	10. Saudi Arabia	2.07	10. Taiwan	0.94
11. Libya	1.52	11. Mexico	2.03		
12. Iraq	1.43	12. France	1.97		
13. Angola	1.36	13. United Kingdom	1.82		
14. Kazakhstan	**1.11**	14. Italy	1.71		

Source: own calculations

According to Infoplease, 2010, the main exporters of oil and gas are Saudi Arabia, Russia and Norway. Kazakhstan is on the 14th place. Looking at the world's biggest consumers, they are most of the Asian and Pacific countries (China, India, South Korea) and the

European countries (the UK, France, Italy). Kazakhstan is not on this list, which means that most part of produced oil and gas is exported to the mentioned countries.

In the third column, there are the largest importers of oil and gas. The US is a very significant importer, as the amount of oil imported is twice higher than to Japan. It is natural, that Kazakhstan is not on this list, as it provides itself with the necessary reserves of oil and gas.

According to OPEC BP, oil consuming in China to 2030 year would be increased to 8-8.5 mln barrels per day, and the State would get USA ahead, being the biggest world oil consumer. In general the demand increase is being provided by transport and production (essentially petrochemical industry).

Totally, in the global economy, the increase in oil will not be as fast as in China. In the other states, the structure of demand for energy will move in the direction of gas and renewable energy sources (including biofuel), and the oil share will be decreasing in all industries.

4.3.1 Analysis of oil consumption dynamics - demand

Table 10: Oil consumption dynamics, mln. t

Country	2006	2007	2008	2009	2010	10/09 %
Russia	123.5	123.4	124.1	123.3	128.5	104.2
Europe	747.29	760.65	772.33	779.6	779.28	100
CIS	168.32	176.68	181.17	181.19	184.28	101.7
Byelorussia	7.1	7.4	7.5	6.7	6.55	97,8
Ukraine	12.4	15.4	17.4	18.28	14.23	77.8
Azerbaijan	3.6	6.3	6.4	7.4	7.5	101.4
Armenia	1.93	1.99	2.06	2	2	100
Kazakhstan	**7.8**	**8.8**	**9.4**	**11.15**	**11.7**	**104.9**
Kirgizia	0.5	0.48	0.61	0.7	0.7	100
Tajikistan	1.27	1.37	1.47	1.55	1.6	103.2
Turkmenistan	3.92	4.34	4.73	4.9	6.4	130.6
Uzbekistan	6,.3	7.2	7.5	5.21	5.1	97.9
Total	3599.39	3682.99	3831.93	3874.51	3872.5	99.9

Source: own calculations

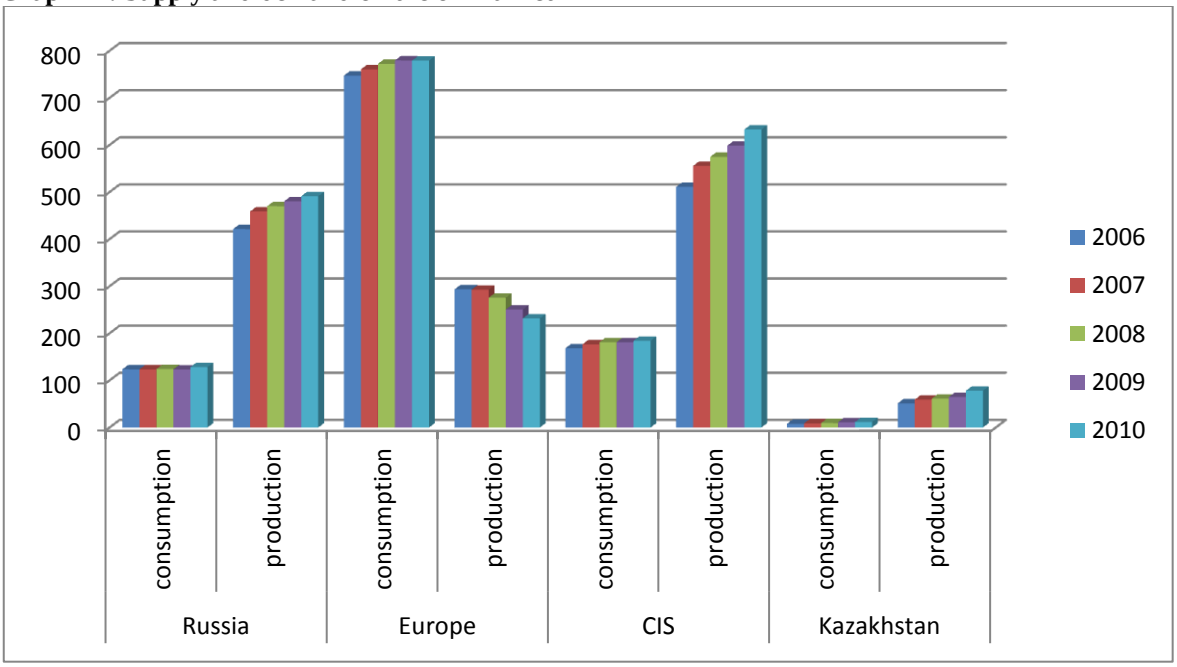
According to the table, oil consumption in Kazakhstan has increased from 7.8 mln.t. in 2006 year to 11.7 mln.t. in 2010 year for the analyzed period. The consumption in Kazakhstan in fact is the demand of population for oil and gas products. If it rises, it means that other industrial spheres are developing as well, as oil and gas production is the raw material and energetic source for other manufacturers.

The biggest change is in the years 2009/2010 – the increase of oil and gas consumption was more than hundred percents. It can be explained by the economic growth after the financial and economic crisis in the years 2007-2010. Kazakhstan was one of the countries strongly stroken by these economic changes.

It is also interesting that the dynamics of oil consumption in Kazakhstan in the years 2009/2010 were the same as in Russia. However, for Kazakhstan, it was the increase dynamics, and for Russia, it was the decreasing dynamics. This could mean that industry in the Russian Federation is also decreasing or there are alternative sources of energy, which are used by Russian manufacturers.

As it is already presented in graph 9, let's analyze the production and consumption dynamics once again shown on graph 14.

Graph 11: Supply and demand on the oil market



Source: own calculations

As the graph data show, the European States consume oil several times more than they produce, the main volume of oil in the European States being imported from Russia and Saudi Arabia.

The largest consumer of oil is Europe. The problem of Europe is that it hasn´t got enough oil resources and the oil has to be imported there. The main supplier of Europe is Russia and the countries of the Commonwealth of Independent States, which include also

Kazakhstan. So, that makes oil the main subsistence in Kazakhstan. From the graph, it is possible to see that each year, the production in Kazakhstan is increasing. The consumption is staying every year in the same position. The only problem in Kazakhstan is that it doesn´t have direct access to the open sea, because the Caspian Sea is landlocked. The oil industry of Kazakhstan depends on the pipelines to the other countries for better transportation of oil. China has invested a lot to the construction of pipelines across Kazakhstan to transport more oil to China. The biggest part of oil is refined in Russia because of lack of refineries. Kazakhstan also needs bigger number of skilled workers who understand the oil industry. Kazakhstan should administer the political, technical and financial risks. Kazakhstan´s oil production is around 1.54 barrels in a day.

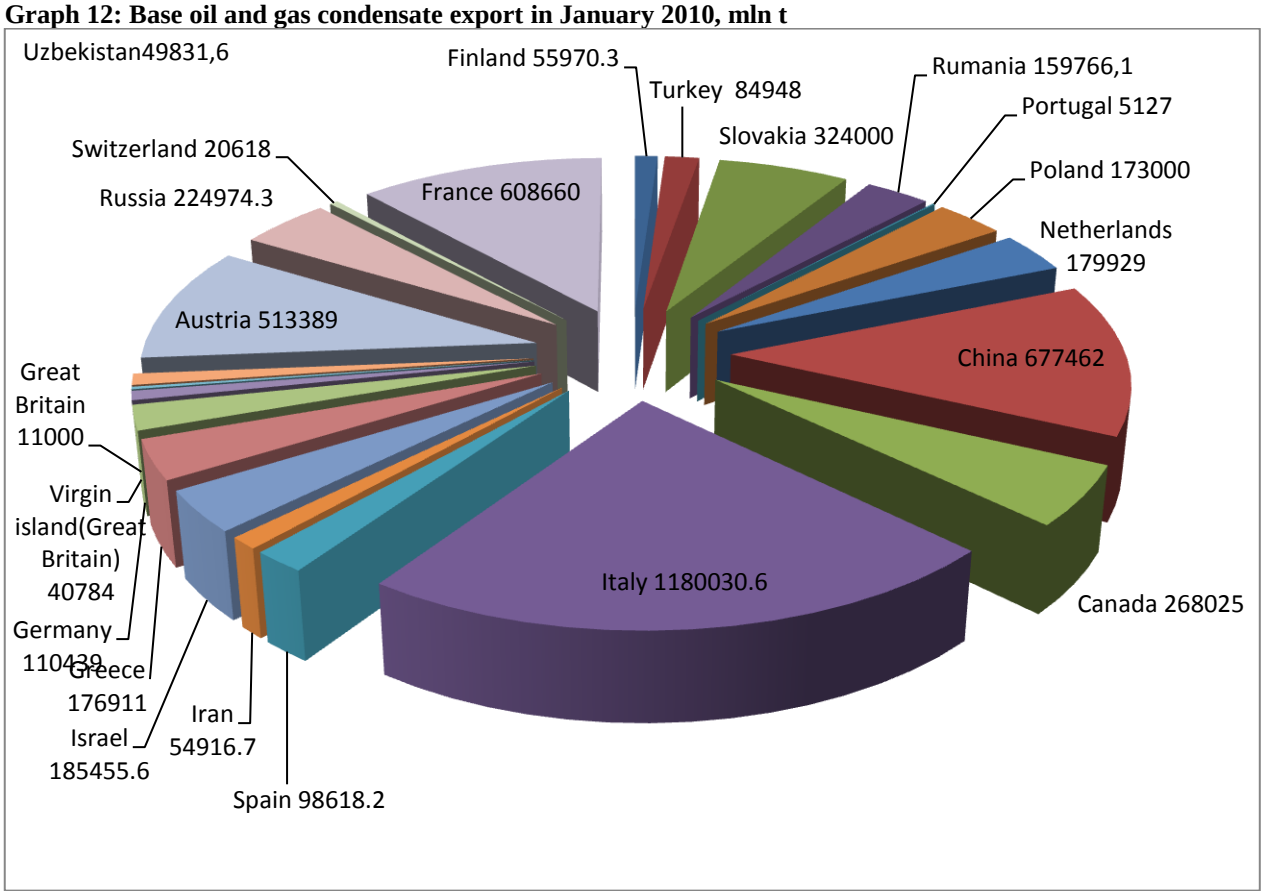
The production of Europe is more than two times smaller than its consumption, so the European countries have to use other suppliers. Production in Europe is decreasing every year and the consumption is increasing each year. Europe can choose from many countries and it is choosing by the best conditions of the country. It is also the main indicator of choosing the price of the oil. Russia has also a lot of oil that it doesn´t need. The consumption in Russia is almost three times smaller than its production.

4.3.2 Oil and gas export in Kazakhstan

Oil is the main branch of the Kazakh export, according to the data of the Kazakhstan´s Industry and Trade Ministry for 2010, consisting of 64.7 % of export in money terms (with oil products — 68 %). It should be noted that 70% of the total oil production volume in Kazakhstan oil production is made by the foreign investors (from Russia, the US and the European states), represented by transnational companies, among them ExxonMobil, Chevron, Agip, BG, BP/Statoil, Shell, Total, INPEKS, Philips, Lukoil, Eni and others.

In the previous text, there are chapters dedicated to the consumption and production of oil and gas in the world. After analyzing statistics of global export and import, the task is to see what the main partners of Kazakhstan in terms of export.

Graph 12: Base oil and gas condensate export in January 2010, mln t



Source: own calculations

As it is seen from graph 15, the main exporter of oil and gas from Kazakhstan is Italy. It is one of the European countries, which are the main consumers of refinery products. China is in the second place, as there is a well built infrastructure between Kazakhstan and China. The second European export partner is France.

It is very surprising that the Russian Federation is not the main export partner of Kazakhstan; those countries are very independent in the sphere of export and imports, as they have very different price politics and different partners.

We can say that the main territory, which is provided with the Kazakh oil and gas, is the European Union and its leading countries. This is good to know, because it means that Kazakhstan is in good political and economic relations and cooperation with the EU.

It should be noted that the current potential of oil production in Kazakhstan is provided at the expense of explored and developing oilfields and to the least degree is influenced by the probability of development of new carbohydrates oilfields.

In spite of high capital intensity of the oil production sector, the growth of potential remains sufficiently high. It is connected with the increasing consumption of developing States. First of all, the demand will be provided from China and India, which would account for 45% of the global oil consumption the next year, according to the informational analytical agencies. In connection with that, the buildup of export in the RK and the development sector depends on the demand for oil from the main consumers of energy resources with the rate of the current dynamics of demand for oil in Europe.

In the middle of the last century, active geological exploration and exploration of gigantic oilfields have led to the appearance of an excess in the supply of oil, competition and price abatement. The organization of oil exporting States was created in 1960 for coordination of situation on the market and provision of stable income. Today, it consist of 12 states, which have 85% of theapproved oil reserves, more than 40% of oil production, and about 60% of export.

4.3.3 STEP Analysis of the Kazakh oil sector

After all discussions, it is necessary to provide proper understanding of the situation in Kazakhstan. As described in the previous text, Kazakhstan is a very strong competitor for the foreign countries-producers of oil and gas. That is why foreign investors should hold proper analysis while choosing one country for their financial investments. STEP analysis is one of the basic analyses held on this stage, so it must be represented in the thesis as well. The objective of this analysis is to understand the situation in four spheres: social, technological, economic and political.

Social

The social sphere in Kazakhstan is very stable. The citizens of Kazakhstan are very proud to be Kazakhs, and they enjoy living in their country. The conditions of living (as in many European countries) differ in different parts of Kazakhstan, but in fact, they are not worse than in the Russian Federation (it is very difficult to compare Kazakhstan with any European state, as this is a very specifc country with a completely different mentality than the European one).

The Government of Kazakhstan can be called wealthy, as it provides its citizens with good social conditions and very strong hope for the secured and rich future. That is why migration processes in Kazakhstan are slowing down, as many migrants come back after high schools or post gradual education.

Generally, it can be assumed that Kazakhstan in comparison with the former Soviet states is taking care of its citizens and tries to provide them with a very worthy future.

Technological

There is a big problem as regards to the Soviet past of Kazakhstan. In the years of Soviet Union, it has been developing very slowly, and in the opposite direction from Europe and the rest of the world. Thus, necessary technologies to produce and exploit oil and other mineral resources have only been discovered in the recent years. So, the modern time is the era of rapid technological development and improvement. The amount of foreign and domestic investments in Kazakhstan can provide it with all necessary resources for further technological growth.

It can be assumed that there is a big gap in the technologic sphere, but there is a hope that this gap will disappear in the next years.

Economic

There are several mentions about the global economic crisis and its impact on the Kazakh economy. However, it is necessary to add that this impact was not as strong as in many of the European States, as the price of natural resources, particularly oil products, has risen, thus providing Kazakhstan with additional profits. Other industrial spheres were influenced by crisis, but not that badly. Economic recession has lasted for one and a half year, and then all economic sectors started to recover and be profitable again. Probably, this happened because of the structure of the banking system and a very low rate of debts.

Political

It is mentioned in the previous text, that Kazakhstan is a very favorable country for its citizens, and this is partly explained by the good Government. The president of Kazakhstan Nazarbaev is a honorable man and a talented politician. He guarantees proper and

transparent policy in the state and provides all necessary conditions for the development of the oil and gas industry. Thus, foreign investors are encouraged by low tax rates and other indulgencies from the state. There are laws and contracts providing the investors and entrepreneurs with calm and mild political climate, and they can have no fear about military or revolutionary future.

Conclusion

Oil, being a unique nature mineral, has a wide application in the economy and influences the global cooperation in general. Oil resources limitation should the basic problem in the process of their application direction choice – gradual transition to alternative types of petroleum and oil application in the electro energetic all-round refusal should lead to that oil would be used in the industries, which do not have real alternatives (for example, petrochemical industry).

Kazakhstan is one the largest exporters of gas and oil, succeeding in the refinery industry. This country has grown from the economic and geopolitical point of view, as it is known from the world's oil and gas maps. Kazakhstan is a very rich country as regards to the natural resources, raw materials and rare minerals, that is why it has all the possibilities and perspectives to be one of the richest countries in the world.

The bachelor's thesis deals with the problematic of the oil industry in Kazakhstan, considering the gas industry, as well as a part of Kazakhstan's natural resources. The main aim of the thesis was "to define, describe and provide proper analysis of the Kazakhstan refinery business in the context of global refinery trends: consumption, production and exportation". Let's see whether the aim of the thesis has been reached.

First of all, the thesis includes the presentation of Kazakhstan, its geographic, political and economical review. The results are up-to-date, as the information was gathered from the official state websites and different prospects and brochures on the topic. After Kazakhstan's presentation, it was interesting to see the global statistics of refinery and Kazakhstan's impact on the whole world refinery industry. As it has been shown, Kazakhstan has one of the leading positions in the world in the context of oil production, however, it is not in the list of the leading oil producers of the world.

Comparing the Kazakh production with its consumption, most of the production has been reserved in Kazakhstan or exported. There are two points of view about reserving oil and making it state's resource: first, oil reserving makes state more independent for the further years, and provides with necessary stability for the long-term future. On the other hand, oil reservation means additional costs for the state, moreover means losses, because it was not

sold and exported. But Kazakhstan has a proper strategy. As its proportion of oil reservation and exports is diversifying all the risks.

Then, the thesis contains comparison of the world's largest exporters and importers of oil and gas products, and among them are primarily the European states. The thesis also contains the calculation of percentage share of Kazakhstan in the world oil industry, in the CIS oil industry and in Europe. The tendencies are increasing in all cases, which means that Kazakhstan is on the right way to prosperity and state power as one of the biggest exporters of oil and gas.

The hypothesis in the introduction of the thesis was that Kazakhstan is a country fully dependent on its natural resources, especially oil and gas industry, and that this is the reason of dynamic economic development and growth of the country. After holding and evaluating all researches it is clear that the hypothesis has been approved and the aims of the thesis have been reached.

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List of pictures, graphs and tables

List of pictures

List of graphs

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List of Acronyms

CIS - Commonwealth of Independent States
USD – United States Dollar
GDP – Gross Domestic Product
EU – European Union
PSA – Product-sharing agreement
RK – Republic of Kazakhstan
KZ – Kazakhstan
APD - Agreement of Production Division
RFCA - Ministry of energy and gas RK
TSO - LLP Tengizshevroil
KPO - Karachaganak Petroleum Operating B.V.
USA – United States of America
FOB – free on board, delivery term
CPC Blend – the group of oil exporters
UK – United Kingdom
OPEC - The Organization of the Petroleum Exporting Countries
BP – British Petroleum
CPC – Caspian Pipeline Consortium
CIF Augusta - daily spot price assessment
JCS EP KMG - KazMunaiGas Exploration Production
KKT – Kazakh- Chinese Pipeline
DAF - Dostyk admixture

Appendices

Appendix 1

Table 11: 240 oil and gas oilfields registered in Kazakhstan

	Oilfield	Year of exploring	Expected reserves, mln. t.	Development operator
1.	Kashagan: West and East	2000	6400	NCOC
2.	Tengiz	1979	3100	Tengyzshevroil
3.	Uzen	1961	1100	Kazmunaygas
4.	Karachaganak	1979	1000	Karachaganak Petroleum Operating B.V.
5.	Kalamkas	1976	510	Mangistaumunaygas
6.	Zhanazhol	1978	500	CNPC-Aktobemunaygas
7.	Zhetybay	1961	330	Mangustaumunaygas
8.	Aktoty	2003	269	NCOC
9.	Kalamkas-sea	2002	156	NCOC
10.	Kayran	2003	150	NCOC
11.	Kenkiyak undersalt	1959	150	CNPC-Atobemunaygas
12.	Kumkol	1984	90	Turgay Petroleum, PetroKazakhstan Kumkol Resources
13.	North Buzachi (including Zhalgyztyube)	1975	70	Buzachi Operating Ltd, Zhalgystyubemunaygas
14.	Karazhanbas	1974	50	Karazhanbasmunay
15.	Karakuduk	1971	40	Karakudukmunay
16.	Asar	1969	30	Mangistaumunaygas

Source: http: World refinery statistics. [online]. Available at: www.mineral.ru/Facts/stat/124/214/index.html. Access 3.3.2012

Appendix 2

Table 12: oil and rafinery statistics

Ten of the largest oil consuming States (mln barrels per day)	**Largest oil importing States in 2010 year**
1. Canada 2. South Korea 3. Germany 4. Brazil 5. Saudi Arabia 6. Russia 7. India 8. Japan 9. USA 10. China	1. Japan 2. India 3. South Korea 4. Germany 5. Italy 6. France 7. Spain 8. Holland

Source: Infopedia.com. [online]. Oil consumption: Top Oil Consuming Countries In The World. Available at: http://www.einfopedia.com/oil-consumption-top-oil-consuming-countries.php. Access 3.3.2012

Appendix 3

Table 13: Oil export dynamics, mln t.

Country	2006	2007	2008	2009	2010	10/09, %
Australia	17.09	14.1	14.45	11.5	11.73	102
Austria	0.05[r]	0[r]	0[r]	0[r]	0[r]	...
Azerbaijan	8.92	8.72	10.55	13.87	24[r]	173
Algeria	28.31	37.05	44.46	48.51	47.36	97.6
Angola	34.88	41.15	42.6	47.34	50.51	106.7
Argentina	14.34	14.55[r]	14.78	14.5[r]	14[r]	96.6
Barbados	0.06	0.06	0.01	0.01	0.01[r]	100
Bahrain	2[r]	2[r]	1.95	1.7	2[r]	117.6
Byelorussia	0.6	0.78	0.6[r]	0.6[r]	0.6[r]	100
Belgium an Luxemburg	2.32	0.3[r]	0.3[r]	0[r]	0[r]	...
Benin	0.05	0.04	0.05[r]	0[r]	0[r]	...
Bolivia	0.37	0.12	0.6	0.02	0.02[r]	100
Brazil	11.75	12.09	11.54	13.72	18.4	134.1
Brunei	8.86	8.85	8.86[r]	8.9[r]	9.7[r]	109
Great Britain	87.14	75.9	64.5	54.1	54.52	100.8
Venezuela	100	76.75	78.31	89.39	86.75	97
Vietnam	16.88	17.14	19.5	17.97	17.5[x]	97.4
Gabon	15.74	15.63	10.7	10.2	10.2	100
Guatemala	1.29	1.1	1[r]	0.9[r]	1[r]	111.1
Germany	0.66	0.65	0.6[r]	0.6[r]	0.5[r]	83.3
Greece	0[r]	0[r]	0[r]	0[r]	0[r]	...
Georgia	0.01	0.07	0[r]	0[r]	0[r]	...
Denmark	13.07	13.54	13.6[r]	135[r]	13[r]	96.3
Dem.republ.Congo	1.15	1.15	1.05	0.95	0.85[r]	89.5
Egypt	2.83	2.82	2.82	2.85	2.85	100
India	2[r]	0.5[r]	0.5[r]	0.5[r]	0.5[r]	100
Indonesia	30.49	21.65	20.63	18.72	15.06	80.4
Iraq	74.73	19.43	72.5	73.61	73.39	99.7
Iran	104.68	119.81	134.2	119.72	118.96	99.4
Italy	0.87	0.3[r]	0.3[r]	0.3[r]	0.3[r]	100
Yemen	17	17.51	18.5[r]	18.5[r]	17[r]	91.9
Kazakhstan	**39.3**	**43.49**	**52.4**	**50.15**	**54.6**	**108.9**
Cameroon	6.08	6.03	5.5	4.71	4.71	100
Canada	71.3	77.35	80.55	81.8	88.5	108.2
Qatar	29.04	27.03	27.13	33.86	31.01	91.6
China	7.21	7.8	5.49	6.7	9.6	143.3
Columbia	14.34	11.49	11.38	11.56	11.69	101.1
Congo	12.8	12.67	11.47	10.8	10.8	100
Cote d'Ivoire	...	1.38	1.4[r]	1.4[r]	4.7[r]	335.7
Kuwait	56.9	62.14	70.74	82.54	86.17	104.4
Libya	49.18	56.32	64.22	65.31	71.28	109.1
Lithuania	0[r]	0[r]	0[r]	0[r]	0[r]	...
Malaysia	20.08	19.89	18.77	19.13	19.53	102.1
Mexico	85.81	92.19	93.51	90.85	89.63	98.7
Mongolia	0.25[r]	0.2[r]	0.2[r]	0.2[r]	0.2[r]	100
Nigeria	89.91	108.17	117.8	116.3	112.42	96,7
Neth.Antilles	0.5[r]	0.3[r]	0.3[r]	0.2[r]	0.2[r]	100
Netherlands	0	132	0[r]	0[r]	0[r]	...
New Zeeland	10.7	0.9	0.8	0.75	0.7[r]	93.3
Norway	135.54	127.01	124.38	108.66	115.7	106.5

UAE	80.7	102.4	108.6	109.75	121.01	110.3
Oman	45.4	45.09	38.26	38.6	38.6	100
Papua New.Guinea	2.5	2.44	1.95	1.6	2[r]	125
Pakistan	0.42	0.11	0.4[r]	0.4	0.4[r]	100
Peru	1.17	1.35	1[r]	1.1[r]	1.3[r]	118.2
Poland	0.45	0.1	0.1[r]	0.1[r]	0[r]	0
Russia	167.87	192.63	222.87	238.25	211.04	88.6
Saudi Arabia	264.23	326.14	340.65	360.44	351.47	97.5
Syria	18.88	15.85	11.41	11.45	11.45	100
Slovakia	0.01	0.01	0[r]	0[r]	0[r]	...
Sudan	9.75	9.85	12.6	11.8	13.5[r]	114.4
Surinam	0.09	0.1	0.06	0.06	0.06[r]	100
USA	0.43	0.6	1.35	1.6	1.15[x]	71.9
Thailand	2.39	2.97	2.83	3[r]	3.3	110
Trinidad and Tobago	2.4	4.33	2.92	2.96	3.02	102
Tunisia	3.3	2.82	3.22	3.15	3.1[r]	98.4
Turkmenistan	0.58	2.92	2.9[r]	2.8[r]	2.8[r]	100
Uzbekistan	0.9	0	0	0	0	...
Ukraine	0[r]	0[r]	0[r]	0[r]	0[r]	...
France	0.09	0.05[r]	0.05[r]	0.05[r]	0.05[r]	100
Croatia	0[r]	0[r]	0[r]	0[r]	0[r]	...
Chad	...	0.9[r]	8.65	9	7.7[r]	85.6
Czech Republic	**0.1[r]**	**0.12**	**0.06**	**0.05**	**0.04**	**80**
Ecuador	11.79	13.28	19.64	20.09	20.58	102.4
Equator. Guinea	...	10.3	16[r]	16.5[r]	17.4[r]	105.5
Estonia	...	0.16	0.15[r]	0.15[r]	0.15[r]	100
RSA	0.3[r]	0.3[r]	0.3[r]	0.3[r]	0.3[r]	100
Japan	0	0	0	0	0	...
Total	**1831.21**	**1914.26**	**2071.47**	**2100.6**	**2112.57**	**100.6**

Source: NationalMaster.com [online]. Oil export. Available at: http://www.nationmaster.com/graph/ene_oil_pro-energy-oil-production. Access 3.3.2012

Appendix 4

Table 14: Oil import dynamics, mln. t

Country	2006	2007	2008	2009	2010	10/09, %
Australia	19.1	18.89	19.92	27.6	29[r]	105.1
Austria	8.13	8.1[r]	7.61	13.25	14.05	106
Albania	0.9[r]	0.5[r]	0.5[r]	0.5[r]	1.35[r]	270
Algeria	0.2[r]	0.39	0.33	0.3[r]	0[r]	0
Argentina	0.45	1.63	0.52	1.6	1.5[r]	93.8
Armenia	2.5	0	0[r]	0[r]	2[r]	...
Aruba	...	11.44	11.41	1145[r]	11.5[r]	100.4
Bangladesh	3.9	3.95	4	4.05	4.1[r]	101.2
Bahrain	11.26	11.25	10.82	10.8[r]	10.8[r]	100
Byelorussia	13.9	14.88	17.26	19.01	20.5	107.8
Belgium an Luxemburg	31.6	33.85	32.6	32.95	32.9	99.8
Bulgaria	5.99	5.79	5.84	5.8[r]	5.7[r]	98.3
Brazil	19.02	17.56	23.63	18.99	18.07	95.2
Great Britain	56.97	54.18	62.52	58.89	59[r]	100.2
Hungary	5.03	5.25	4.65	5.75	5.8	100.9
Virgin islands USA	22.15	22.18	22.35	22.45[r]	22.5[r]	100.2
Ghana	1.9[r]	1.16	1.61	1.8[r]	2[r]	111.1
Germany	125.45	127.2	122.95	124.25	121.3	97.6
Honduras	1.8	1.8[r]	0	0[r]	0.65[r]	...
Hong Kong	14.25	14.35	17.05	15.95	16[r]	100.3
Greece	18.65	19.86	21.6	20.15	21.25	105.5
Georgia	1.8[r]	0.01	0.01	0[r]	0[r]	...
Denmark	3.19	3.65	3.76	3.75[r]	3.8[r]	101.3
Dem.republ.Congo	6.35	2.09	2.19	6.4[r]	5.8[r]	90.6
Egypt	2.85	2.8[r]	0	0[r]	0[r]	...
Israel	13.5[r]	10.55	10.51	11[r]	12.5[r]	113.6
India	81.99	90.43	97.12	98.5	89[r]	90.4
Indonesia	16.38	15.33	16.5	17[r]	16.8[r]	98.8
Jordan	3.87	4.02	4.24	5.1[r]	5.5[r]	107.8
Iran	1.2	0	0[r]	0[r]	0[r]	...
Ireland	9.15	8.75	8.95	9.5	9.15	96.3
Iceland	0.8	0.75	0.85	0.85	0.75	88.2
Spain	74.35	75.3	76.85	79.5	79.2	99.6
Italy	84.1	84.31	83.55	80,9	80,55	99.6
Kazakhstan	**2.63**	**2.69**	**3.15**	**3,72**	**5,72**	**153.8**
Cameroon	0.25	3.15	3.15	3,1[r]	3,1[r]	100
Canada	44.5	45.6	48.15	46,5	42,3	91
Kenya	1.79	1.81	1.85	1,9[r]	3,2[r]	168.4
Cyprus	1.14	0.97	1	1,1	1,1	100
Kirgizia	0.9[r]	0.9[r]	0.9[r]	0,8[r]	0,7[r]	87.5
China	100.4	91.02	122.72	127,1	145,8	114.7
Columbia	0.17	0.06	0.18	0[r]	0[r]	...
North Korea	1.25	0.56	1.2	1,2	1,5[r]	125
South Korea	108.8	112.8	110.05	108,1	108,55	100.4
Cote d'Ivoire	3.58	3.62	3.65	3,68[r]	1[r]	27.2
Cuba	0.71	0.72	0.73	0,75[r]	6,1[r]	813.3
Lithuania	6.9	7.31	8.9	7,3[r]	7,3[r]	100
Macedonia	1.1	0.81	0.87	0,95[r]	0,9[r]	94.7
Malaysia	15.1	8.2	16.55	17,15	17,3[r]	100.9
Morocco	7.52	7.26	7.41	7,5[r]	9,1[r]	121.3
Martinique	0.7[r]	0.89	0.6	0,8[r]	0,8[r]	100

Mexico	0[r]	0[r]	0	0	0[r]	...
Mongolia	0.5	0.5	0.5	0,55	0,65[r]	118.2
Myanmar	1.2	0.24	0.5	0,7	1,5[r]	214.3
Neth.Antilles	11.06	11.53	10.9	11[r]	11[r]	100
Netherlands	54.97	48.73	46.2	50,55	50,4	99.7
Nicaragua	0.84	0.89	0.84	0,9[r]	1,4[r]	155.6
New Guinea	4.92	4.78	4.41	4,6[r]	4,7[r]	102.2
Norway	0.59	0.56	0.46	0,5[r]	0,5[r]	100
Pakistan	7.14	8.08	8.25	8,6[r]	8,9[r]	103.5
Peru	3.75	4.18	4.15	4,5[r]	4[r]	88.9
Poland	19.2	20.8	21.45	22,1	24,45	110.6
Portugal	16.35	16.45	15.9	16,9	14,7	87
Puerto Rico	6.19	6.2	6.27	6.3[r]	6.5[r]	103.2
Russia	5.7	0.3	0	0	0	...
Rumania	5.69	7	7.13	7.16[r]	7[r]	97.8
Salvador	1.04	1	1.03	1[r]	1.1[r]	110
Senegal	1.6	1.18	1.11	1.6[r]	1.8[r]	112.5
Serbia	...	...	...	...	3.3[r]	...
Serbia and Montenegro	...	2.91	2.9[r]	3[r]	...	...
Singapore	37.09	41.15	37.45	40[r]	52.8	132
Slovakia	5.55	5.57	5.86	2.85	3.3	115.8
USA	457	483.25	504.4	506.3	506[x]	99,9
Tajikistan	...	...	0.93	0.9[r]	1.6[r]	177.8
Thailand	36.43	38.79	43.59	41.38	41.27	99.7
Taiwan	38.02	38.43	50.22	51.5[r]	52.5[r]	101.9
Trinidad and Tobago	4.55	4.43	3.21	3.2[r]	3.1[r]	96.9
Tunisia	3.6	1.13	1.05	2[r]	4.3[r]	215
Turkmenistan	0.7	0.7[r]	0.7[r]	0.5[r]	1.1[r]	220
Turkey	30.1	30.35	32.1	29.05	29.15	100.3
Uzbekistan	0.05[r]	0.1	0.9	2.4	2.7	112.5
Ukraine	18.7	20.17	19.92	14.59	10.65	73
Uruguay	2.1	2.25	2.19	2.2[r]	2.25[r]	102.3
Philippines	16.12	15.31	15.83	16.6	17[r]	102.4
Finland	11.75	11.05	10.8	10.7	11.25	105.1
France	92.75	93.25	95.3	95.1	91.8	96.5
Croatia	4.55	4.28	4.47	4.7[r]	4.7[r]	100
Czech Republic	5.55	6.4	6.45	7.74	7.77	100.4
Chile	9.38	9.76	10.38	10.8[r]	11.2[r]	103.7
Switzerland	13.3	12.75	12.75	13.25	13.4	101.1
Sweden	18.67	20.3	17.8	18.4	16.7	90.8
Sri-Lanka	3.75	1.99	4.15	4.15	4.15[r]	100
RSA	19.45	23.24	23.53	23.5[r]	23.5[r]	100
Yugoslavia	2.68	...	...	...	...	...
Japan	197.68	208.13	212.5	210,4	208.6	99.1
Total	**2130.38**	**2168.68**	**2271.24**	**2291.86**	**2320.18**	**101.2**

Source: NationalMaster.com [online]. Oil import. Available at: http://www.nationmaster.com/graph/ene_oil_pro-energy-oil-production. Access 3.3.2012