ESTIMATION OF THE OIL IN THE CASPIAN SEA

Tomaj Arian Kia[1] , Midatala Rani[2] And Mohammad Ali Khosravi[3].

[1]Ph.D Student, DOS In Political Science, University Of Mysore.
[2]DOS in Political Science, University of Mysore.
[3]DOS in Political Science, Central Open University of Tehran.

Abstract:

My aim for doing this research was to estimate the oil of Caspian Sea and compare the statistics of the oil research centers about the oil level of Caspian Sea. On the whole, there are different statistics about oil and gas of Caspian Sea, some of which are political and have been produced with the purpose to draw the investors to the region. United States of America played a big role in magnifying the importance of Caspian Sea in order to obliviate the world need for the oil. Its goal was to reduce the significance of Persian Gulf in providing the world's oil. But the reality is that the oil reserves of Caspian Sea are similar to those of the north and cannot be compared at all to the oil reserves of Persian Gulf. But despite that, with the price of oil rising and the possibility of extracting from resources down in the sea, there is the chance for the Caspian Sea to turn into an oil pole of the world. Because with the existence of the big oil pipelines that have been drawn from this sea to the Europe, the possibility of transferring oil is much easier than before and it has enabled the countries at the side of Caspian Sea to export their oil to other countries and this way, they can help development of their country.

Keywords: Caspian Sea and compare , statistics , estimate.

INTRODUCTION

The human beings need of energy is undeniable and the human society has provided its today status of life through using the fuel material. Today, energy is one of the principles of economic, industrial and scientific life of different countries. But energy resources are limited on earth and the fuel resources are not infinite. Different energy resources in the world include: oil, coal, gas, hydroelectricity, solar and wind energy and etc. Some of such energies such as oil, gas and coal are fossil resources which are not found everywhere and in all countries. They will be finished anywhere and in any country where they might be found one day. However, as long as they exist, they are sources for energy and a capital for the countries which possess them. They are an important factor in drawing the foreign investments. There is no doubt that they will draw the foreign investment and it might be the reason for the foreign government thinking of exploiting and colonizing the countries which might possess such resources. Some are of the belief that fuel materials seem to be endless but of course such an idea has to be rethought to some extent.

Simultaneous to the gradual reduction of the ending energy resources, human beings have added up to their efforts to find access to new sources of energy. But having access to the extant energy sources such as oil and gas seems to be easier for human beings at the present time. Some countries are greedier for finding such natural resources which are found only in certain regions. From this view point, they are ready to invest in such resources whether regarding extraction or transportation and in different forms of direct investment or installing technology.

Regarding the energy issues, the following should be considered in every region.

A. The probable reserves of energy, the known reserves, the reserves being used.
B. The net and gross production of different kinds of energy
C. Transaction of energy with foreign countries or within different regions of a country
D. Providing the energy needed for internal consumptions
E. Consumption of energy by the final consumers
F. The heat level produced by each fuel resource and value given to it accordingly. Fatah.elhame (2002).

In the last century, the role of energy in the development and economy of developed countries of the world especially the western nations has been an important one. It is predicted that oil and gas in the long run will still be seen as the very significant source of energy.

Undoubtedly, energy specially oil and gas will still remain the only producer of the economic growth of countries in the future decades. Considering the fact that the Asia region including China and India from develop further the viewpoint of economy, there is much chance that the demand for energy would increase in the mid-term. Considering immense demand for it and the increasing trend of its consumption, it is predicted that oil will still keep its influence compared to other energy resources despite environmental and ecological issues.

The growth rate of population of the world at the 1.4% on average per year has caused the constant increase of world population from 5.3 billion in the year 1990 to predictable number of more than 8 billion by the end of 2020.It is predicted that growth of demand in all different sectors of energy specially oil would be increasing in developing countries. Suberto.a (1994).

Therefore under such circumstances, the secure accessibility to energy resources will still remain in the working plans of the western politicians in the fight for more power and influence in the new world order for at least two decades to come. This way and considering the experiences of oil shock of 1973, and Persian Gulf War (1990), all the industrialized countries have always been looking for variegating their sources of energy specially that of oil.

Collapse of Soviet Union and the formation of newly independent countries in the region of Caspian Sea-considering the oil and gas resources in Turkmenistan, Kazakhstan and Azerbaijan-is a golden opportunity for the west and specially America to achieve their goal of variegating their energy resources. West and specially America have started widespread advertisements for magnifying the role of energy to be found in the Central Asia and Caucasia in providing the energy of the world the potential oil reserves of Caspian Sea have been estimated at 200 billion barrels and the role of this region in the world oil market has been seen as very important in the following decade.The value of strategic hydrocarboric resources of Caspian Sea has been estimated to be four trillion dollars by the American experts. www.iea.org

The history of discovery and production of oil in the Central Asia and Caucasia

Hereby, a short history of the oil discovery in the Central Asia and Caucasia will be given.

Oil discovery in the Central Asia and Caucasia regions dates back to pre Marco Polo time. It is written in the history that everlasting flames of the fire temples of Zoroastrians were given fuel from natural gas resources around the city of Baku before the 8th century A.D. .nameless.(2001).

Serious discovery and extraction of oil started from 1850 AD and 30% of world oil was provided from Azerbaijan of those years. The production of oil field of Baku reached 240 thousand barrels per year in the year 1990. That was half of the world oil at that time and the region beyond Caucasia was considered as one of the oil regions of the world.

The oil ships were used for the first time in the Caspian Sea in the year 1878. The railway from Baku to Batumi (Georgia) was completed at the side of Black Sea after many ups and downs in the year 1883 in order to transfer oil from Baku to European markets. It provided the chance for the Russian oil to reach world markets. After a while, a lot of oil resources of Baku were destroyed in the political conflicts and consequently, the oil production of Baku reduced. After the Russian revolution, the oil production of Baku increased again. With the start of the Second World War, Baku was considered as the progressive region for oil production and entered its second phase of economic growth. The sea oil wells in Baku reached production at the end of 1940 but Soviet Union did not have the necessary technical science and technologies for the complete development of the sea resources. .nameless.(2001).

The oil production began in the Central Asia and the other side of Caspian Sea from the end of 20th century.What is left from the Caspian oil along with changes in the region caused that some of the countries and companies remembering the old memories and commemorating their past predecessors find the motivation for their new presence in the region. .nameless.(2001).

The sedentary basins of oil and gas throughout Caspian Sea

Caspian Sea and its oil and gas resources can be divided into three groups with regards to its geographic and oceanic status.

1. The northern Caspian basin
2. The middle Caspian basin
3. The southern Caspian basin

1. The basin in the northern Caspian

The oil rich fields of northern Caspian and Astrakhan in the north west ,the gas fields of Astrakhan and the oil and gas reserves of karton, Tengiz and tazikal in the north east have made Kazakhstan the golden road to the oil and gas of Central Asia. One of the biggest oil resources of the world known as Tengiz was discovered in the western Kazakhstan in the year 1979.Russians had done the drilling in the north west of Caspian in Tengiz region for years. Discovery of Tengiz totally changed the potential of discovering oil in the region. Tengiz with deep sedentary levels up to the 24 kilometers is considered as one of the super giant resources. www.america.edu

From the preliminary predictions, the analyzers have reached the belief that Kazakhstan can be another Kuwait; development of its oil resources will cause development of country. Anyways, having 10 to 17.6 billion barrels of fixed reserves and probable existence of 92 billion barrels of oil has put Kazakhstan at the top of central Asian countries regarding oil and gas.

Karchagang is a condescend oil and gas field as vast as 60 sq km which has the 16 trillion sq feet of gas and 2.4 billion barrels of oil. Karachangang is in the north west of Kazakhstan. ahadifar.s (1999).

2. The fields of middle Caspian

In the west side of Caspian Sea and above Caucasia region and at meteska area and in east side of Caspian Sea in the permselof and buzachin area and the north of gharabaghaz is the middle Caspian region. Though, the oil rich region of bouzachin was discovered in 1974 and has good oil resources, it is preferred that more precise seismologic studies be done on it in order to do a safer evaluation. But regarding the oil field of middle Caspian, deep studies have shown that 95% of the discovered oil reserves are majorly oil rich. .mousavi.m(1994).

3. The oil rich fields of southern Caspian

This sedentary field in the Caspian Sea is one of the main discoveries. Production of oil and gas of this sea has been done. Commercial oil has been extracted form this field for long years. This region is divided into five regions of oil and gas:
1. The oil and gas rich region of apshoron above balkhan. Till now, important oil and gas fields have been discovered and extracted in this area, the most important of which is the oil field of goneshli, dashkeri, cherap and goupki.
2.The oil and gas region of apehsron peninsula; this area is more in the dry land of zerbainan and is one of the oldest oil and gas regions of the former soviet union i.e. the republic of Azerbaijan and Caucasia.
3. The oil and gas region of koura-anzali: This dry region which is at the side of Caspian Sea includes the Baku archipelago and is extended from koura region of Azerbaijan to anzali of Iran which seems to have good potential for discovery but needs a more precise extraction.
4. The oil and gas region of western Turkmenistan: the bigger part of this region is located in the Caspian Sea but at the time being, discovery activities in the dry land include gougrandagh region. akarem, gargaldagh ,nebit dagh and ghomdagh.
5. The farthest part of the southern Caspian Sea and the border waters of Iran: this region includes the deep waters of Caspian Sea and has big and appropriate fields with high capacity and in the case of advances in extraction technology, immense oil and gas can be reached at in this area.mousavi.m(1994).

Oil and gas reserves of Caspian Sea

Trade and development agency of America (TDA) has announced the fixed oil and gas reserves of Caspian Sea as the following: 15.4 to 29 billion barrels of oil and 236 trillion sq feet of gas and the probable reserves to be 160 billion barrels of oil and 328 trillion sq feet of gas. Energy information of America (EIA) has estimated the same number in the late 1980.The only difference was in the fixed reserves of oil which was mentioned as 32.5 billion barrels by this agency. These numbers in June 2000 was from 18.4 to 34.9 billion barrels for the fixed reserves of oil and the probable reserves were increased to 235 billion barrels of oil. hashemi.m(2002).

Contrasting the estimation of the Americans, the British have announced different opinions altogether. The international institute of strategic studies (IISS) which is located in

England is of the opinion that the oil of Caspian Sea is little and its discovery and extraction are costly procedures. This institute has considered the estimation of 200 billion barrels of the probable and extractable reserves by Americans in the year 1997 as a joke and has confirmed the prediction of the oil experts stating 25 to 5 billion barrels. This institute believes that Caspian Sea oil field is another North Sea in the best possible way and not another Saudi Arabia. Therefore, Caspian Sea cannot be an important and permanent rival for the Persian Gulf easily. hashemi.m(2002).

The international energy agency (IEA) which is located in France, has tied the importance of the Caspian region to the increase of world demand for oil and energy with a more optimistic position in the year 1998.The above mentioned agency has estimated the fixed reserves of oil to be between 15 to 40 billion barrels and that of gas between 6.7 to 9.2 trillion cubic meters and pointed out to the probable reserves which is not yet discovered and could estimate its capacity between 70 to 150 billion barrels of oil and 8 trillion cubic meters of gas. It has given that estimation by focusing the studies on the four countries of Azerbaijan, Kazakhstan, Turkmenistan and Uzbekistan and investigating the dimensions and the issues related to oil and gas of the region. Consequently, these numbers are indicative of 1.5 to 4 % of the known reserves of oil and about 6% of the gas reserves of gas and it may increase considering the following extractions. www.iea.org

From the viewpoint of this agency, the reasons for the exaggerated estimation of Americans for the reserves level is their insistence to create more motivation to invest and draw the attention to the Caspian region on one hand and decrease the importance of Persian gulf on the other hand. But with a short look at the number of reserves in the Persian Gulf region, it can easily be seen that Iran, Kuwait and Iraq each one alone has between 5 to 6 times and Saudi Arabia 15 times more than the reserves of Caspian sea. Regarding the gas reserves Iran has three times more gas than the Caspian Sea region. www.iea.org

Table1
Crude oil and natural gas reserves in the Caspian Sea
Oil (million barrels) and gas (trillion cubic feet)

The total gas reserves	Probable reserves of gas	Proven gas reserves	Total oil reserves	Probable reserves of oil	Proven oil reserves	**Name of country**
46	**35**	**11**	**36–45**	**32**	**3/6–12/5**	**azarbaijan**
141–171	**88**	**53–83**	**102–110**	**92**	**10–17/6**	**kazakhia**
257–314	**159**	**98–155**	**82**	**80**	**1/7**	**turkeminestan**

afshar.i(2003).

Besides the effect of political considerations on the estimation of the oil and gas reserves of Caspian Sea and Central Asia region, the results from discovery of some resources had and still have a lot of effects on the fate of the investments and investors. They have come across gas resources in some of the important oil resources such as shahdeniz in Azerbaijan, as a result of which the previous predictions have been doubted. www.iea.org

The center for international studies in Moscow has estimated the level of oil produced in the newly formed republics from the former Soviet Union with a scale of million barrels in the

1997, 2005, 2010. But the production level is dependent upon solving the issues regarding oil production, signifying the legal regime of Caspian Sea, and also signifying safe paths for the oil pipelines. Khaptulof.y(1997).

Table2
Estimated oil production in the republics of the former Soviet Union

(Million barrels per day)			
2010	2005	1997	
7/200–6/400	7/000–6/400	6/220–6/100	russia
2/500–1/500	1/800–1/100	0/540–%520	kazakhia
1/200–1/000	0/600–0/500	0/200	azarbaijan
0/400–0/300	0/340–0/260	0/140–0/110	turkeminestan

Khaptulof.y(1997).

The center for studies on oil and gas has studied the economic growth rate and oil demand in the world from the year 1995 to 2005 as the following:

Table-3

High economic growth	Based economic growth	Low economic growth	Economic growth (% per year)
2/2	1/8	1/3	2000–1995
2	1/4	0/8	2005–2000
2	1/5	1	2010 –2005
			Global demand for oil (million barrels per day)
69/5	69	68/6	1995
77/3	75/3	73/2	2000
84/2	80/3	75/1	2005
93/5	86/1	78/9	2010
			Another opec country world production (million barrels per day)
41/2	41	41	1995
41/2	41/5	41	2000
44	43	41	2005
47	44	41	2010
			OPEC countries production (million barrels per day)

26	25/7	25	1995
31/9	31/3	29/6	2000
37/3	34/1	31/1	2005
43/3	38/6	34/6	2010

ghasemi.r(2011).

These statistics-if compared with the optimistic ones-offered by the center for international oil studies of Moscow can help us see that the oil production of the countries of Central Asia and Caucasia have been 3.1 and 4.5 billion barrels respectively in the year 2005 and 2010 and we can infer that the share of oil produced by the Central Asia and Caucasia republics has been 4.13 and 5.69 respectively in the mentioned years.

As we can see, the total oil produced by the republics of Caucasia and Central Asia in the world markets has been at a very low level and the oil production of one of the countries of the OPEC member is equal or more than the whole oil produced in this region. ghasemi.r(2011).

On the whole, we can claim that though there might be the chance that oil level of the republics of central Asia and Caucasia will increase in the future years in a considerable way but the level of increase won't be so much as being effective on the oil world markets in the best possible conditions**.**

The costs for oil production in the Caspian Sea

Regarding the costs of oil and gas production, we don't have much information. In fact, we can say that the precise calculation of costs for the oil and gas production is difficult if not impossible. The oil and gas producing companies, especially if they don't own oil and gas fields and if they take part in production and deduct the production costs from the income gained from oil sale, usually will announce the real production costs bigger than what they really are.

Besides that, there are different factors effective in estimating the real costs of production which depends on the type of agreement, the field under discovery and production. The production costs are considerably different in sea or land. The production costs on land are different considering the depth of oil and gas layers. Whether oil is produced naturally or if it is required to use pump in order to produce oil would be effective in the production.

The final recovery level from the oil and gas in place is different for different fields too. Fatah.elhame (2002).

Two fields of goograndaq and goondaq in Turkmenistan have the ultimate recovery coefficient of 22 to 67 % respectively which would make the production cost in the field intensely different. Regarding production in the sea, determining factors in the oil production are depth of water, place where field is located, distance between field and shore and depth of oil and gas layer from bottom of the sea. Fatah.elhame.(2002)."

Proportion of producing oil wells to the total number of the dug wells in the development stage of each field is one of the major parameters of total cost of production and finally about the sea excavation, using developed technologies has a considerable role in reducing the production cost for the excavation in order to economize on the number of rigs. On the whole, the Middle East and North Africa are known as the regions where production is done at a low cost and countries like USA, Canada, North Sea and Russia are known as the regions of high cost. Some people believe that 50% of the world energy can be produced with the low excavation cost of 2-3 dollars for each barrel.

The production and discovery costs (except for Russia) are reported to be about 3-4 dollars. erhat.f(2000).

Recently, OPEC has done some studies to estimate the bread-even cost in the countries of Kazakhstan, Turkmenistan and Azerbaijan. These studies have been done on 10 producing fields in Kazakhstan and one field in each of the countries of Azerbaijan and Turkmenistan. The total production of the fields under study has been about 700,000 barrels of oil, 578000 barrels of liquid (oil and condescend) and the rest is the produced gas from the fields of Tengiz and Karachaganak.Fatah.elhame (2002).

The results of study have shown that the bread even cost for all the producing fields in Kazakhstan has been from 3.73 to 13.7 dollars in each barrel. The weight mean of 8.12 dollar is for each barrel. If depreciation is considered, the bread even cost will reach 6.9 to 17.04 dollars for each barrel with the mean of 12.66 dollars for each barrel.

The weight mean of bread even cost for Azerbaijan and Turkmenistan considering depreciation is 12.02 and without depreciation is 7.79 dollars for each barrel. These numbers does not include transportation costs which might be 3 to 5 dollars for each barrel for the final customer.

The estimations of the experts about the oil production costs in the world are as follow: the cost production in the country of Iran, Iraq and Saudi Arabia is about 0.5 to 1 dollar in each barrel-Kuwait 1 to 2 dollars-Libya, Malaysia, Mexico and Nigeria 3 to 5 dollars, Russia 5 to 10 dollars –North Sea 12 to 20 dollars-USA 18 to 35 dollars – Canada 20 to 35 dollars and the region of Caspian sea is 3 to 4 dollars in each barrel. Considering the daily increase in the price of oil, the oil extraction from depth of Caspian is worthwhile and if the legal regime of Caspian Sea is signified, this case would continue in an ever increasing manner. ardebili.k(2000).

CONCLUSION:

Following the collapse of Soviet Union, the region of Caspian Sea has come to the picture in the energy scene of the world once again. It seems that the geopolitical issues of the Caspian Sea have caused the importance of oil and gas of the region to be quite considerable despite the fact that oil reserves of this sea are much less than what is found in the Persian Gulf.

Untied States of America has played an important role in magnifying the value of oil and gas reserves of Caspian Sea. Regarding the estimation of reserves of the Caspian Sea, different numbers have been given from countries around the Caspian Sea, international companies, and American and European institutes. There is a considerable difference among these numbers. The main reason for that is the political objective of America in this region with the aim of reducing the importance of Persian Gulf. America also tries to solidify its presence in the region by drawing the western and especially American investors into this region for investing in the oil and gas reserves of Caspian Sea.

The newly independent countries which faced serious financial problems and were trying to free themselves from Russian domination welcome such investments and even would compete among themselves over drawing the foreign companies. The rush of huge multinational oil companies to this region started this way.

On the whole, one should be careful in using the extant statistics regarding the level of oil and gas reserves of the region, because there is a major difference among such statistics. There are different opinions and statistical references about the potential oil and gas reserves in the

region among the Russian geologists, western companies, independent experts and countries and governments around Caspian Sea.

Russian geologists have announced the reserves to be at low and medium level in their reports while the numbers given by surrounding countries of Caspian Sea is quite high. The reason for this difference in the statistics can be different definitions or it might be the result of lack of adequate technology. Most importantly the politicization of the reserves can be effective in such difference. derakhshan.m(2000).

Trade and Development Agency (TDA) of America has announced the fixed reserves of oil and gas to be 15.4 to 29 billion barrels and 236 to 337 trillion square feet respectively and the probable reserves to be 163 billion barrels of oil and 328 trillion sq feet of gas. Energy information agency of America (EIA) has announced the fixed reserves of energy 34.9 billion barrels of oil and the probable resources to be 235 billion barrels. www.iea.org

Table-4
Proven and probable reserves of the Caspian Basin countries

Total oil reserves	Probable reserves of oil	Proven Oil Reserves	**Name of country**
36-45	**32**	**1/2-3/6**	azarbaijan
15	**15**	**0/1**	iran
97-102	**92**	**5/4-10**	kazakhia
17-18	**14**	**2/7-4**	russia
81	**80**	**0/6-1**	turkeminestan
2	**2**	**0/3**	uzbakestan
248-263	**235**	**10/3-19**	Sum

www.rferl.org

At the same time, the international institute of strategic studies which is located in England has seen Caspian Sea to be another northern sea in the most optimistic way and believes that Caspian Sea cannot easily be a long standing rival of Persian Gulf. Contrasting the number of 16% of world reserves to be found in Caspian Sea and has been announced by the foreign ministry of America. This institute sees the real number to be about 3% of the world reserves. hashemi.m(2002).

On the whole, considering the price of oil rising to more than 100 dollars per barrel and the fact that it would be worthwhile to extract oil from Caspian Sea and also the need of the world for immense energy and seeing that world demand for oil has reached 96 million barrels of oil per day by 2010 and by 2020, it would need 19 million more barrels of oil and reach 115 million barrels. Under such circumstances ,the need arises that from deep waters of Caspian sea and the regions where extraction was not beneficial, extraction will be done so that both the energy need would be obliviated and the economic growth of the region be helped. ghasemi.r(2011).

REFERENCE:

1.afshar.i(2003)." Pars Sea and the Caspian Sea and Iranian ports". Political and International Studies.tehran.p.240-241

2.ahadifar.s.(1999)." Sign of the Caspian oil and gas to world markets". Caspian International Oil Conference.tehran.p23-24
3.ardebili.k(2000)."global oil market blance &out look for Caspian sea thimpactor of the middle east/Caspian oil on global energy market.5th annual international conference.iies.tehran.p-17-18
4.derakhshan.m(2000)." Caspian Sea oil and gas". International Conference on Caspian oil and gas reserves.tehran.p.16-17
5.erhat.f(2000). "Fulfilling a promise: The Caspian Oil and Gas Market". International Conference on Caspian oil and gas reserves.tehran.p.3-4
6.Fatah.elhame.(2002)." Energy sources in Turkmenistan". Proceedings of the Conference on the economic potential of Central Asia and the Caucasus.p98-104
ghasemi.r(2011)."energy data a base".oil and gas journal.no 176.p25-267.
8.hashemi.m(2002). "Oil and gas resources of the Caspian Sea".hashahri magazine.no 24
Khaptulof.y(1997)."caspian sea region".petruleum magazine.p.31.9
10.mousavi.m(1994). "Estimates of oil and gas of the Caspian Sea neighboring countries" Central Asia and Caucasus Studies Quarterly.no 8.p.58-59.
11.nameless.(2001)." Assess the benefits and harms of Central Asia and the Caucasus energy transfer" . Institute for International Energy Studies.no163.p.17-18
12.Suberto.a.(1994)." Energy consumption in the world".Central Asia and Caucasus Studies Quarterly.no.7.p.41-43
www.america.edu/projects/mandala/ted/kazakhestan.htm 13.
14. www.iea.org
15. www.iea.doe.gov/emeu/caspian/graph.htm
16 ww.iea.org/new/releases/caspian.htm1.
17. www.iea.org/pubs/studies/files/caspian/over view.htm
18. www.rferl.org/nca/ratures/1999.