

## **Natural resources of Islamic Republics of Central Asia**

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### **Abstract**

*In international affairs of today's multi-polar world, natural resources are assuming huge significance. Energy has been considered as the lifeline in the modern world for almost every human activity. Every country of the world wants to exploit its natural and energy resources for the support of its national development. In this regard, the Central Asian region which consists of five Islamic Republics is one of the important burgeoning regions. Central Asia consists of five Islamic Republics, namely Kazakhstan, Turkmenistan, Uzbekistan, Kyrgyzstan and Tajikistan. Since the ancient times, this region is the heart of Asian continent and a crossroad of traders and invaders. These Islamic republic are landlocked and underdeveloped technologically, thus their production is much less than their actual capacity.*

**KEYWORDS:** *Resources, Economic Development, production, Islamic Republics, Central Asia.*

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## **Introduction**

The Islamic countries of Central Asia came into existence after the disintegration of USSR. As a Muslim region, Central Asia not only links Asia and Europe but also provides the shortest transit route from Asia to Europe. The geographical factors have tremendously influenced the whole region. In the arena of international relations, this Muslim region has now attained great political, economic and strategic significance. The region is enriched with huge amount of natural resources such as crude oil, natural gas, gold, copper, aluminium and iron. New interests and competitions have been started among external powers due to the growing demand of oil and gas resources of the region. The Central Asian region is also a strong consumer market.

Proven oil and gas reserves across the whole Caspian region, excluding Russia and Iran, are estimated at 190 billion barrels of oil. The possible estimates of its proven gas reserves are about 196 trillion cubic feet. Over the past decade the growth of the region has increased due to its richness in both human and natural resources.<sup>1</sup>

These Islamic countries are regarded as ‘treasure house’ of natural resources. They possessed huge potential of hydroelectric power, hydrocarbon resources, crop production and minerals resources. It is estimated that about 4 percent (270-360 trillion cubic feet) gas reserves of the world are there in Central Asia. While its oil reserves are estimated at 2.7 percent (13-15 billion barrels)

**Table 1**  
**Main Potential of CARs**

<b>1</b>	<b>Kazakhstan</b>	Hydrocarbons
<b>2</b>	<b>Uzbekistan</b>	Minerals
<b>3</b>	<b>Tajikistan</b>	Miscellaneous
<b>4</b>	<b>Turkmenistan</b>	Natural gas
<b>5</b>	<b>Kyrgyzstan</b>	Miscellaneous

Source: Arvind Gupta, IDSA Policy Brief, October 14, 2013

The Muslim countries of Central Asia are blessed with large amount of natural resources but unfortunately these republics are landlocked. The attention of the regional and extra-regional powers along with the big powers like Russia, United States and China has been attracted by the enormous natural resources and energy resources of the Central Asian region. Kazakhstan is one of the countries in the Central Asian region which has the highest GDP per capita in the region. The economy of Kazakhstan substituted to positive growth from a negative growth and retained the positive growth since 1998.<sup>2</sup> This country has relatively small population and having the largest geographical area in the Central Asian region. The country has vast resources of oil and uranium. Its agriculture sector is also very strong.

The Caspian Sea region of Central Asia is the home of vast hydrocarbon fields. It contains approximately 4 % of the world’s natural gas reserves. It is also projected the nearly 3% of the world oil reserves are in this region. These resources are found in all of the five countries of Central Asia. Huge reserves of uranium are also found in the region. At the end of 2012, there were about 1.3 trillion cubic meters (tcm) of gas reserves in Kazakhstan. Turkmenistan has the highest gas reserves in Central Asia which are estimated at 17.5 trillion cubic meters. The oil reserves capacity of this country is about

0.6 thousand million barrel. Nevertheless, its oil reserves are much more than the estimated amount. The oil reserves capacity of Uzbekistan is estimated at 0.6 thousand million barrel. The country also possessed 1.1 trillion cubic meters of gas reserves.<sup>3</sup>

### **Oil resources of the region**

Oil is regarded as the black gold in the world. There is abundance of oil resources in the Central Asian Muslim republics. At the end of 2012, Kazakhstan had 30.0 thousand million barrel oil reserves. More than half of the industrial output of the country has consisted of oil, since the early 2000s. There are a large number of other industries in Kazakhstan which are dependent on the oil industry. Kazakhstan was among the top twenty oil producer countries of the world in 2008. Most of its oil deposits are situated in the Caspian Sea area.<sup>4</sup>

In 1899, in Kazakhstan's Atyrau province, the first oil well was found. Formally, since 1911, Kazakhstan is producing oil. In the former U.S.S.R, it was considered as second largest country after Russia in oil production. The capacity of a country to export oil is measured in terms of its production growth. Kazakhstan could not improve its oil production till its independence though it is producing oil since 1911. With the assistance of international oil companies Kazakhstan significantly boost its oil production after in gained independence. Kashagan, Karachaganak, Aktobe, Uzen, Mangistau, Giant Tengiz are the biggest oil fields in Kazakhstan. These are onshore oil fields and are situated in western part of Kazakhstan. In 2010, the new ministry of oil and Gas emerged new Technologies for the mining of petroleum in collaboration with ministry of industry. KMG is a national oil and Gas Company of Kazakhstan. It was established in 2002. It is playing a significant role in the development of oil and Gas sector. The president of Kaz Munay Gaz's oil company has elaborated that main hurdle in the Kazakhstan's oil export is the Russian control over the pipeline network. In 2009, after showing best performance in production, 139.5 million barrels of oil, Karachaganak field venture was also joined by Kaz Munai Gas in official capacity in 2012.<sup>5</sup>

In 2012, the production of crude oil of Kazakhstan was 1.606 million billion barrel per day. In the same year, the country ranked at 18 on the global level. The total export of crude oil of Kazakhstan were 1.406 million billion barrel per day in 2012 and the country stood at 12 on the world ranking. In 2013, the CIA world face book has also estimated that on 1st January 2013 proved crude oil reserves of Kazakhstan were 30 billion bbl. As compared to the other countries it ranked 11 on the world level. At present, the twelfth largest oil producer country in the world is Kazakhstan. The present annual production of 100 million tons (1.7 million barrels per day) would cross 150 million tons per year in the near future.<sup>6</sup>

**Table 2**  
**Central Asian Republics Oil Production at end of 2012**

<b>Country</b>	<b>At end 2002</b>	<b>At end 2007</b>	<b>At end 2011</b>	<b>At end 2012</b>
	<b>Thousand barrels Daily</b>	<b>Thousand barrels Daily</b>	<b>Thousand barrels Daily</b>	<b>Thousand barrels Daily</b>
Kazakhstan	1021	1453	1758	1728
Turkmenistan	183	199	217	222
Uzbekistan	153	104	77	68
<b>Total</b>	<b>1357</b>	<b>1756</b>	<b>2052</b>	<b>2018</b>

Source: BP Statistical Review of World Energy June 2013

Tengiz oil reservoir is situated in North-western region of Kazakhstan. It is the sixth largest oil reservoir in the world. The length of Tengiz field is 21 km and its width is 19km. All of the transit of Tengiz oil field is conducted through Atyrau. Atyrau is located in the North of Tengiz. It is approximately 350 km away from Tengiz. For the purposes of production, from Tengiz oil field, there is an agreement of joint venture for about 40 years in which Chevron has 50% of shares, Kazakhstan Petroleum has 20%, Exxon Mobil 25% and LUKOIL has 5% production shares. It is working under the umbrella of Tengizchevroil Consortium. In 2001, with an investment of US \$2.7 billion a pipeline having a length of 1505 km was constructed to export oil from Tengiz oil field to the Russian port Novorossiysk on the Black sea having maximum capacity of 1.5 million barrels of oil per day. The production of oil by TCO was started from 285,000 barrels per day which at end of 2013 has increased up to approximately 5,00,000 barrels of oil a day the after the major development of the work at Tengiz field.<sup>7</sup>

Kashagan oil field is situated in the Northern Caspian Sea region. This oil field was discovered in 2000. It is Kazakhstan's off shore oil field. The estimated oil reserves of this field are nearly 13 billion barrels. During the last 30 years, it is the largest oil field of the world discovery. Huge investment of about US \$ 116 billion was made for this expensive energy project of the world. In 2013, Kashagan oil field started the commercial production of oil. The major oil companies working under Kazakhstan Caspian shelf for the exploration of oil from this field are Royal Dutch shell, Eni, Total, BP Statoil, BG group and Mobil. Eni started operation in the Kashagan oil field project in 2001 but it was renamed as Agip KCO (Agip Kazakhstan North Caspian Operating Company NV).<sup>8</sup>

Oil industry is the fastest-growing industrial sector in Kazakhstan. It has become the economic leader of Central Asia due to the growth of its oil industry after years of foreign investment. The gross domestic product of Kazakhstan is greater than those of the combined GDP of its four neighbors. The most encouraging factor is the development of the middle class of the country, which shows the wide spread of its hydrocarbon wealth. The total production of oil Kazakhstan is approximately 1.4 million barrels per day. In the year 2007, it was listed among the top 20 oil producing countries of the world.<sup>9</sup>

Kazakhstan exports its oil to the Black Sea through Russia, to the Mediterranean through Azerbaijan and Turkey, to Batumi through rail and to China through a pipeline. Kazakhstan is trying to reduce its dependency on the oil routes of Russia for the export of oil. It is building pipelines for the export of oil to China. The Trans Caspian tankers and rail transportation is also utilizing by it. Iran and Kazakhstan are cooperating for the transport of oil by shipment via Persian Gulf through the Iranian port of Neka. The pipelines system of Kazakhstan is 3400 miles in length which runs under Kaztransoil and Kaz Munay Gaz. The export capacity of the extensive rail network of Kazakhstan is 340,000 billion barrels per day. This largest rail network is used by Tengizchevroil for transportation. The internal KCTS (Kazakhstan Caspian Transportation System) of Kazakhstan is being developed for the purpose of export of oil to international markets. Aktau, Kuryk and Bautino ports are being developed by Kazakhstan for the large cargoes consignment. In order to expand and modernize oil and gas pipeline systems, Gazprom Company has shown its interests to purchase the shares of Kaz-Munay-Gaz and Kaz-Trans-Gaz which are Kazakhstan's state owned companies.<sup>10</sup>

One of the important countries of the Central Asian states is Turkmenistan. The domestic oil pipeline network of Turkmenistan is very small in capacity. The state own oil company of Turkmenistan is Turkmenneft and its state own gas company is Turkmengaz. Foreign investment is being attracted by Turkmenistan with the collaboration of ‘Turkmennebit state oil company’ (GK) with ‘production sharing agreements’ for the upstream of oil sector. The government has signed these ‘production sharing agreements’ with Dragon oil of United Arab Emirates, Petronas of Malaysia and Burren energy of Italy. Other oil companies which are engaged in Turkmenistan are ConocoPhillips of USA, Chevron of USA, Lukoil of Russia, Zarit consortium of Russia, British Petroleum (BP) of UK, Wintershall of Germany, Mitro International of Austria, Maersk oil of Denmark, ONGC of India, and Buried Hill energy of Cyprus. The foreign direct investment in the hydrocarbon sector of Turkmenistan has tremendously increased with the involvement of these foreign oil companies.<sup>11</sup>

Turkmenistan and Uzbekistan have substantial oil industries. Each country ranked within the top 50 oil producing countries of the world in 2006. After independence, though Turkmenistan was the only country in Central Asian region to show sound oil production growth, yet after 2004, its production showed gradual decrease. The country is still self-sufficient in oil.<sup>12</sup>

The major energy source of Turkmenistan is not oil but gas. Its oil production is very low and is also of poor quality. Turkmenneft with the association of Turkmennebitgazurlask has started a program for the gas and oil industry of Turkmenistan to plan the future prospects for 2030. In Uzbekistan, there are three oil refineries which are situated in Bukhara, Fergana and Alty Arik. The production capacity of these refineries is about 224,000 billion barrels per day but due to low oil production these refineries are working below their capacity.<sup>13</sup>

Statistics of the CIA world fact book has shown that Uzbekistan has 594 million barrels of proved oil reserves and ranking at 48 on the world level. In 2012, Uzbekistan’s oil production was 102,600 bbl/day and country ranked at 49 as compared to the other countries of the world. On 1st January 2013, it was estimated that it possessed 1.841 trillion cubic meter of gas as far as reserves of natural gas of the country are concerned and its position was 20<sup>th</sup> on the on the global ranking. The estimated natural gas production was approximately 62.9 billion cubic meters and country stood at 14<sup>th</sup> position as compared to the rest of the world.<sup>14</sup>

Uzbekistan, demographically the biggest Central Asian state has “rich resources of hydrocarbon. Apart from the recent oil discovery in the Angren at Karakhtay as well as gas its total hydrocarbon reserves are approximately equal to that of Kuwait”. The oil reserves of Uzbekistan are substantially smaller. It is estimated at about 0.6 thousand million barrels. On first January 2013 its oil reserves were 600 million bbl and stood at 46<sup>th</sup> position as compared to other oil producing countries. While on the same date its oil production was 244,100 bbl per day and was ranked at 36 on the world level. Its export of crude oil was estimated at 67,000 bbl per day ranking 44. It has now been realized by the government of Uzbekistan that the energy sector is of vital importance to boost the national economy. In 2005, for the collection of revenue, taxes were increased by the government on gas and oil from 18.5% to 64% and 12.3% to 32% respectively. The foreign investors were discouraged by this attempt of the government. In 1998, NKHK Uzbekneftegaz was established. It consisted of eight firms for the performance of various works like construction work, extraction, crude oil refinery, distribution of oil products,

pipeline operation, equipment, Trade and services. Uzbekneftegaz tried in 2007 to increase the export volume of gas to 13 billion cubic meters. It was estimated that till the end of 2014 the export of the gas would be 16 billion cubic meters. The newly developed gas field is situated in Ustyurt plateau. Gazprom has invested in this field. This will raise the potential of natural gas export to 17 billion cubic meters per year.<sup>15</sup>

The proved oil reserves of the five Central Asian countries are 1.8% of the world according to estimation issued by BP world energy 2013. At the end of 2012, the share of CARs in the total global oil production was 2.4 percent. In 2013, the proved Gas reserves of Central Asia were 10.6 percent of the world and its share was 4.2 percent in the total gas production of the world.<sup>16</sup>

### **Natural gas**

Proved natural gas reserves of Kazakhstan were 2.407 trillion cubic meters on 1st January 2013 having 14<sup>th</sup> position in world. The production of natural gas was approximately 20.2 Billion cubic meters and ranked at 31 as compared to other countries of the world. In 2011, export of natural Gas was estimated at about 9.7 billion cubic meters and was on 25<sup>th</sup> position on the world level.<sup>17</sup>

Much of the natural gas produced in Kazakhstan is consumed domestically. Gas is imported by southern Kazakhstan from Uzbekistan due to the irregular and uneven system of energy infrastructure. Amangeldy gas field which is situated in southern Kazakhstan began its production in the year 2003. If this field is further developed, Kazakhstan will stop to import gas from Uzbekistan.<sup>18</sup>

About all the gas reserves are in associated fields (oil and gas), such as the Tengiz fields and Caspian's Karachaganak. The largest reserves of the country are found in this field.<sup>19</sup>

Turkmenistan is one the important Central Asian countries having huge proved hydrocarbon reserves. Its natural gas reserves are estimated at about 17.5 trillion cubic meters. As far as the natural gas reserves are concerned, it ranked at 4<sup>th</sup> position after Russia, Iran and Qatar. According to the CIA world fact book statistics, though the country was at 4<sup>th</sup> position as compared to the rest of the world as far as natural gas reserves are concerned but, due to insufficient pipeline infrastructure, it exports of natural gas was estimated at about 41.1 billion cubic meters ranked on 10<sup>th</sup> position on world level. The main obstacle for the export of gas in the world market is the landlocked nature of the country.<sup>20</sup>

**Table 3**  
**Central Asian Republics Proven Gas Reserves**

<b>Country</b>	<b>At end 2002</b>		<b>At end 2011</b>		<b>At end 2012</b>	
	<b>Trillion meters</b>	<b>Cubic meters</b>	<b>Trillion meters</b>	<b>Cubic meters</b>	<b>Trillion meters</b>	<b>Cubic meters</b>
Kazakhstan	1.3		1.3		1.3	
Turkmenistan	2.3		17.5		17.5	
Uzbekistan	1.2		1.1		1.1	
<b>Total</b>	<b>4.8</b>		<b>19.9</b>		<b>19.9</b>	

Source: BP Statistical Review of World Energy June 2013

The 100 trillion cubic feet proven gas reserves of Turkmenistan are located in the Amu Darya basin. Roughly half of these deposits are found in the giant Dauletabad-Donmez field. The other large deposits are located in the Murgab basin, of which the largest reserves are in Yashlar. It has also been reported that new deposits are discovered in the Lebansky, Maryinsky and Deashoguzsky areas of the country. Since the second half of 1998, the gas production of Turkmenistan has steadily increased. Currently, almost all the energy needs of the country are fulfilled by natural gas. About 80% of energy exports are consists of oil and gas.<sup>21</sup>

In 2012, the leading exporter of gas in Central Asian and Caspian region was Turkmenistan. The export of gas was approximately 1.5 trillion cubic feet in the same year. The amount of the gas which was exported was 5.2% to China, 24% to Russia, 22% to Iran and 2% to other countries. A ten year developmental plan was started by the government of Turkmenistan in 1993 for exploration of hydrocarbon resources and to become the second Kuwait. The plan did not succeeded as result of the limitations for foreign companies as regard to ownership shares.<sup>22</sup>

Turkmenistan mainly uses the Russian pipelines infrastructure for exports of its gas and oil. It is also connected with Iran through two small pipelines which are being used for barter trade. As mentioned above, South Caspian basin is the home of oil and gas fields. These fields remained underdeveloped due to the disputed nature of this region.<sup>23</sup>

Among the former Soviet states, Turkmenistan is regarded as the second largest country as far as the export of the gas is considered. In 1990s, Turkmenistan exported mostly it natural gas to Ukraine. The production of gas was reduced and its exports discontinued in 1994 due to gas debt issue. Now natural gas production is again recovering. It has been estimated that the production of the gas would be 240 billion cubic meters by 2020. Gazpom, CNPC and Lukoil are the main companies which have made heavy investments in the oil and gas sector of Uzbekistan. Uzbekistan has 1.1 Trillion cubic meters of natural gas reserves with a production of 56.9 billion cubic meters and its share in the world gas production is 1.7%.<sup>24</sup>

It has been roughly estimated the natural gas reserves of Uzbekistan about 65 trillion cubic feet. About two-thirds of proven reserves are found in nine large deposits, eight of which are under development. The largest reserves are found Ustyurt region which in the northwest of the country. Gas is used for the production of electricity production. A large portion of the gas is consumed domestically. Turkmenistan and Uzbekistan fulfill almost all the energy needs through gas. Kazakhstan relies on coal power. This country is the biggest exporter of oil in the region. Uzbekistan is the 17th largest producer of natural gas in the world, ninth largest producer of gold and sixth largest producer of cotton. Abundant natural resources of the country are yet to be developed.<sup>25</sup>

### **Mineral and Strategic Resources**

Kazakhstan contains the second largest phosphorus reserves, second largest reserves of copper ore, 31.8 billion tones of proven coal reserves. The potential iron ore reserves of the country are 15.4 billion tones and proven reserves are 9.1 billion tones, plus trillions of dollars worth Rare Earth Metal (REM). Furthermore, Kazakhstan is the second largest chromium producer in the world. It provided 94.6% of total chromium production of the former USSR.<sup>26</sup> The country is the eighth largest producer of iron and produces 16,662 million tons of iron, fourth largest producer of molybdenum and lead. It possessed large deposits of uranium and produced 56% of the total output of the former

USSR.<sup>27</sup> Moreover, Uzbekistan has rich deposits of gold, copper and coal. The labour market of Uzbek republic has rich quantity of good quality labour which is both more disciplined and cheaper than what available in the Sub-continent and South-West Asia.<sup>28</sup>

In the whole Central Asia there are surplus energy resources for export. Uranium is not only found in Kazakhstan but also in Uzbekistan but it is a minor product with major implications for environment. Scores of minerals are found in the mines and are significantly contributing to the GDP of these republics.<sup>29</sup>

Uzbekistan possessed not large but sufficient amount of hydrocarbon reserves. Third largest deposits of uranium in the world are found in Uzbekistan. Huge amount of uranium ore is also possessed by Tajikistan. The country also has its enrichment potential. The quantity of highly enriched uranium in Kazakhstan is between 10, 590-10,940 kilograms and its share in the former USSR's output was 56%.<sup>30</sup>

Central Asia region is blessed with variety and large number of A to Z natural resources. A few of the minerals which are found in the region in significant quantity are zinc, uranium, tungsten, titanium, silver, salt, mercury, manganese, chromium, copper, bismuth, bauxite and arsenic. Furthermore, the countries of Central Asian region have the largest deposits of chromium, gold, and uranium of the world.<sup>31</sup>

Kazakhstan was famous area about twenty years ago where the Soviet prisoners were kept, nuclear tests were carried out and gulag camps were located. This country possessed the fourth largest nuclear arsenal of the world having about 1,000 nuclear warheads and 40 TU-95 heavy bombers, which have been voluntarily rescinded by the country.<sup>32</sup>

Vast deposits of natural gas, large deposits of aluminum, silver, copper, gold, and uranium are found in the Kyzylkum. One of the largest open pit mines in the world is the Muruntau gold mine of Uzbekistan.<sup>33</sup> It is several kilometers wide and more than 300 meters deep. Throughout history, gold is such a mineral which has enjoyed a universal value or appeal in the whole world. It is a precious metal famous for its beauty. It is as an agent minimizing the loss or risk in troubled markets. The leading export of both the Republic of Kyrgyzstan and Uzbekistan is gold. It is also mined in Tajikistan and Kazakh Republic. In southern and middle of Tien Shan gold belt in the Republic of Kyrgyzstan and Uzbekistan, largest gold deposits of the region are found. In the Makmal gold mining complex, the Sary-Dzhasskiy, Soltan-Sary, and Terek-Sayskiy gold mines other major deposits are found. The open pit Muruntau gold mine in the Central Kyzylkum region of Uzbekistan holds one of the largest deposits of gold in the world.<sup>34</sup> Other important gold deposits are situated in the nearby goldfields of Amantaytau, in Samarkand and the Zarmitan field. In 2006, the Uzbek republic ranked among the top 10 gold producers in the world.<sup>35</sup>

The oil and natural gas of the Central Asian region would be exported to Europe and other countries through Russia in the past. In order to keep a check on the sale of the natural resources of the region to European markets, Russian government wants to maintain the status quo.<sup>36</sup> On the other hand, Iran is in favour of changing this trend. Iran wants to use its own territory for the export of the resources of the Central Asian countries through Persian Gulf to the whole world.<sup>37</sup> China wants to connect these republics with Xinjiang through pipelines.<sup>38</sup> Turkey wants to become a transit route for the energy resources of Central Asia to Europe and Asia.<sup>39</sup> Currently, Russia has also decided to discontinue the import of gas from TurkmenGaz and wants to increase import gas form Uzbekistan.<sup>40</sup>

### **Actual Production versus Capacity**

At the end of 2012, the production of natural gas of the countries of Central Asia was 141 billion cubic meters. Only Turkmenistan produces 64.4 billion cubic meters of gas during this period. It has been concluded that the whole Central Asian region is producing 2.4% oil of the world while the proven capacity of the region is 4%. As far as the production of gas of the region is concerned, it is 4.2% and the production capacity of gas is nearly 10%. Oil, gas and electricity production of Central Asian region is not equal to its potential capability.<sup>41</sup> Many experts are of the belief that even potential capacity of both oil and gas of CARs is not truly measured as a result of territorial differences and variations in climatic conditions. The region could have more potential capacity than proven earlier.<sup>42</sup>

The region is facing the overwhelming impediments for the exploitation of hydrocarbons and electricity production. These obstacles are various in natures. Firstly the Central Asian region is landlocked. It is not easy for energy exploration companies expose these resources to the world energy markets. Many investors are not ready to invest in energy sector due to its accessibility factor.

Secondly, for the oil companies of the west, EU and USA, the constant control and influence of Russia over the majority of oil fields and routes of pipelines of Central Asia is a big question mark. However, to cope with their own energy needs, China and India both have made huge investments in Central Asia's hydrocarbons sector. The presence of NATO forces in the region has various implications for regional players like China, Russia, Afghanistan, Iran, India, Pakistan and Turkey. The key interests of United States in the region are for energy, Security, and Democratization of Central Asian states.<sup>43</sup>

Thirdly, the main obstacle for oil companies to invest and under-development of hydrocarbons and low electricity production are territorial disputes among the Central Asian republics, water disputes among the states, unfriendly and non-cooperative environment for investment, unnecessary intervention of the government, inability of the government to frame sufficient rules and regulation for investment, corruption at court and government level, insufficient rights for protection of the property, lack of infrastructure facilities for exports purposes, outdated power transmission lines and equipments, monopoly of the government to control oil, lack of motivation for private partnerships etc.<sup>44</sup>

### **Conclusion**

This study has clearly shown a reasonable picture of energy potential of the countries of Central Asia. In the Central Asian region, Kazakhstan, Turkmenistan and Uzbekistan are the main countries having abundant and significant amount of oil and gas resources. However, other natural resources are in large amount in all the Central Asian states. In the field of coal, Kazakhstan is considered as the world leader. It has been reported that one of the famous goldmines in the world is in Kyrgyzstan. Deposits of gold, antimony, boron, lead and Zinc in Tajikistan occupied an important place in its mineral reserves. The silver deposit of Tajikistan is one of the largest deposits of the world. The largest deposits of gold are found in Uzbekistan. It is the world leader in production and export of gold and Uranium. At the end of 2012, the proven oil reserves of CARs were 31.2 thousand million barrels, while its oil production was 1357 thousand barrels per day. Kazakhstan was leading country in production of oil CARs with 1728 thousand barrels of oil per day. At the end of 2012, the proven gas reserves of CARs

were at 19.9 Trillion cubic meters. In the same year, Turkmenistan was leader with proven reserves in the whole region.

The oil and gas production and export capacity of CARs is much more than that of the actual production and export. There are various possible solutions to explore energy resources and increase their exports. To increase investment in energy sector of the region and to increase the capacity building cooperation both at bilateral and multilateral level like SCO is very necessary. In addition, peace, stability, good governance, incentives for investors, resolution of the territorial and water disputes among the countries of Central Asia, to provide infrastructure facilities like rail, road and pipelines will help to increase the exploration and export of the resources of Central Asia.

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