KAZAKHSTAN OIL & GAS SECTOR

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A. Executive Summary

Kazakhstan has made significant economic progress in the relatively short time since independence from the Soviet Union. However, the country has come to a critical juncture in their economic development. Kazakhstan's reliance on significant central government control of the economy and legal system is impeding economic progress. Despite numerous economic strategies meant to move up the value chain, the country's prosperity has come primarily in the form of inherited, rather than created, wealth.

This paper will consist of two sections. In the first section we will analyze the economic performance and current business environment of Kazakhstan. In particular, we will focus our efforts on studying the various strengths and weaknesses within the macro and micro levels of economic competitiveness, and suggest actions that will allow the country to increase prosperity. We will argue that the country has a number of endowments and factor inputs which lay the foundation for economic development. Kazakhstan's goals must now be to improve the business environment, including political institutions, the rule of law, and level of rivalry in the private sector. If Kazakhstan is successful in implementing changes, it has the opportunity to be a business hub within a large and growing region of the world.

The second section of the paper will focus on the oil and gas cluster in Kazakhstan. We will first analyze the history and recent performance of the cluster. We will then discuss the business environment as it stands today, and what factors can be improved to make the cluster more globally competitive. We will argue that the despite the country's success in increasing production, a weak business environment is holding the cluster back. Going forward the cluster must address the micro level issues and create a coherent cluster strategy in order to develop the capacity to move up in the cluster value chain.

B. Kazakhstan – Country Analysis

1. Overall economic performance

1.1 Country profile

Kazakhstan, neighbored by Russia, China, Kyrgyzstan, Uzbekistan and Turkmenistan, is located in Central Asia, and ranks as the 9th largest country in the world. It is the largest landlocked country in the world, and its territory of 2.7 million square kilometers is 1/3 of that of the United States.

Kazakhstan is ethnically diverse with 131 nationalities including Kazakh, Russian, Ukrainian, Uzbek and Tatar. It has the 62nd largest population of about 15.4 million in the world, out of which 53.4 percent of inhabitants are Kazakhs. Vast in land, Kazakhstan has a very low population density of less than 6 people per square kilometer.

Kazakhstan has large reserves of accessible mineral and fossil fuel resources. The extractive sectors in oil, natural gas, and metal have attracted over 40 billion in foreign investment and account for approximately 57% of industrial output and 13% of its national GDP.

1.2 History of economic development

Most of Kazakhstan's economic development history has been marked by the legacy of a planned economy inherited from Soviet Union. After centuries of nomadic economy, Soviet power became gradually dominant in Kazakhstan, and in 1936 the Kazakh Soviet Socialist Republic was officially established. This marked a new era characterized by intensive industrialization and collectivization of agriculture. In the next five decades of planned economy, Kazakhstan developed large-scale economic objectives that gave birth to large industrial plants, a great amount of transit infrastructure, and the mass production of non-ferrous and ferrous metals.

In 1991, the collapse of Soviet Union led to Kazakhstan's independence. In the post-Soviet era, Kazakhstan remained close to Russia in terms of energy supply, but also started developing closer relationships with the West by shifting towards a more market oriented economy. The reshaping of its economy was accompanied by adoption of a new constitution, privatization programs, and a series of government initiatives aiming at strengthening cluster development. As a result of these reforms, Kazakhstan has enjoyed a high level economic growth, moving the country ahead of most of its neighbors. Despite all the positive outcomes, however, Kazakhstan still remains largely a planned economy that ranked 82nd in the Index of Economic Freedom 2010, with red tape and overly burdensome restrictions hampering the business environment.

1.3 Recent economic performance

For the last decade, Kazakhstan has witnessed strong and stable GDP per capita growth of 8.5 percent[1] on average, a close match to China while outpacing Russia, Kyrgyzstan and Uzbekistan.

Figure A: GDP Per Capita Growth

GDP Per capita growth (%), 1999-2008						
	Kazakhstan	Russia	China	Kyrgyzstan	Uzbekistan	Turkmenistan
1999	4	7	7	2	3	15
2000	10	10	8	4	3	17
2001	14	5	8	4	3	19
2002	10	5	8	-1	3	14
2003	9	8	9	6	3	15
2004	9	8	9	6	6	15
2005	9	7	10	-1	6	11
2006	10	8	11	2	6	10
2007	8	8	12	8	8	10
2008	2	6	8	7	7	8
Average	**8.5**	**7.2**	**9**	**3.7**	**4.8**	**13.4**

(Source: Economist Intelligence Unit, World Development Indicators)

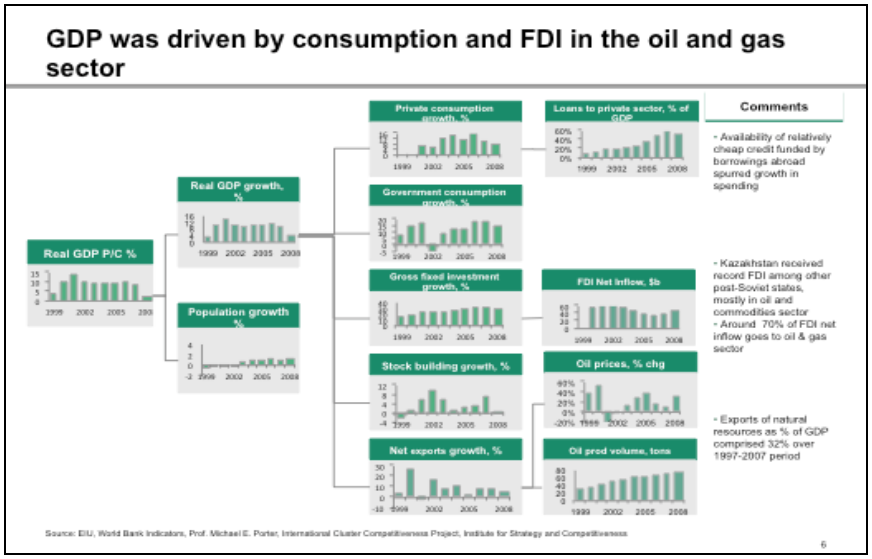
In the last decade, Kazakhstan's economy has been mainly driven by private consumption and foreign direct investment (FDI). Availability of relatively cheap credit, funded by borrowing abroad, spurred growth in spending at a rate of averaging 8.9 percent[2], and record FDI poured

[1] Source: Economist Intelligence Unit

[2] Source: Economist Intelligence Unit, country data on Kazakhstan

into the country, with most going to the oil and commodities sector[3]. The net inflow of FDI into the oil and gas sector alone accounts for an average 43.3% of Kazakhstan's annual GDP[4].

Figure B: Economic Performance, Drivers of Real GDP per capita

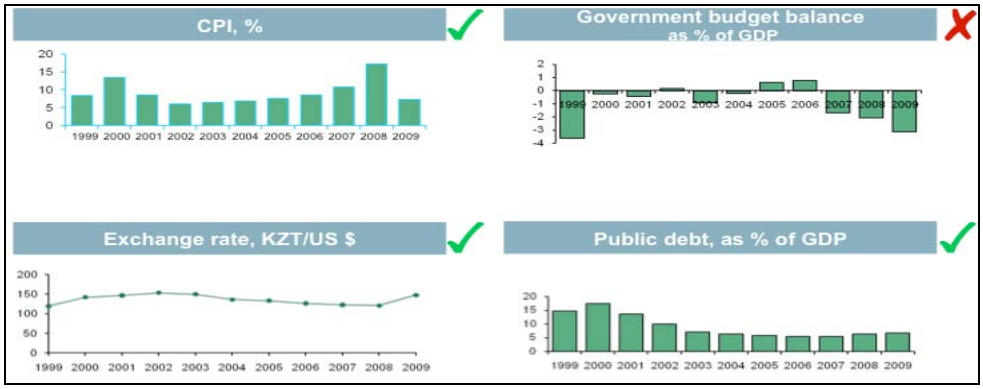


In 2008, Kazakhstan's PPP-adjusted real GDP per capita was $11,415.8[5], 91.4% above China, 28.3% below Russia, and significantly above its other neighbors Kyrgyz Republic, Turkmenistan and Uzbekistan[6]. Despite this success labor productivity has become an increasing concern. Between 1999-2008 Kazakhstan's labor productivity grew at an annual rate of 7.2%, compared to 5.5% for Russia, 12.1% for Azerbaijan, and 2.7% for Uzbekistan. However, throughout the period the growth rate appeared volatile and dropped to approximately 3% in 2008, rendering it well below the 4.9% average of comparable former USSR countries. This decline has been attributed to government attempts to impact unemployment through increase in hiring workers for the public sector as well as to growth of wages above the inflation rate[7].

[3] 70% of FDI inflow goes into oil & gas sector.
[4] Ibid.
[5] Source: International Monetary Fund, 2009 World Economic Outlook
[6] Ibid.
[7] Source: interview on March 20, 2010

Kazakhstan's macroeconomic performance has been very stable over the last ten years, as illustrated by Figure C. During this period, Kazakhstan experienced low inflation, a steady exchange rate, declining public debt, and a stable government budget balance. Since late 2007, Kazakhstan has been hit hard by the global financial crisis due to its dependency on foreign debt and commodity exports. As of September 2007, Kazakh banks have been cut off from most Eurobond and syndicated borrowing. Combined with a sharp decline in commodity prices in 2008, this led to a quick slowdown in bank lending, a deflating real estate bubble, and a paralyzed construction sector[8]. Kazakhstan's inflation rose sharply to 15% in 2008, coupled by 20% currency devaluation and growing government deficit due to spending to bail out debt-ridden banks.

Figure C: Macroeconomic Indicators[9]



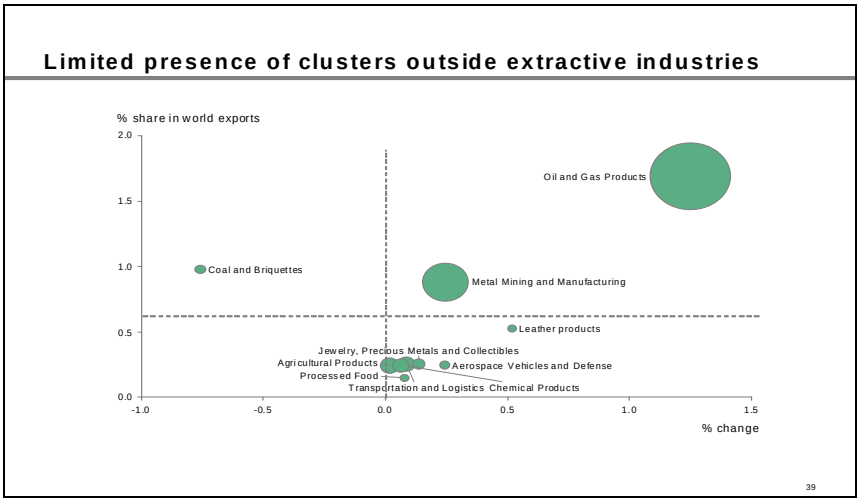
1.4 Composition of economy

Since the discovery of its oil and gas reserves in 1990s, Kazakhstan's economy has failed to realize balanced growth. Over the period of 1997 to 2007, natural resource exports comprised 30% of Kazakhstan's GDP and absorbed 70% of FDI inflow. Outside of the resource extractive

[8] Sources: EIU, EBRD 2010 Kazakhstan Report
[9] Source: EIU

sector, however, clusters are usually underdeveloped due to lack of government's attention and insufficient foreign investment.

Figure D: Composition of Kazakhstan's Economy[10]



2. Assessment of National Business Environment

Given the legacy of the Soviet planned economy and the challenges with moving to a market economy, Kazakhstan has experienced mixed results in providing a competitive business environment. While Kazakhstan was named as one of the top 10 reformers in the Doing Business in 2010 World Bank report, it has fallen from 56th to 67th in the World Economic Forum's Global Competitiveness Report. Additionally, in the new *Global Competitiveness Index* Kazakhstan continued to fall in rankings such as infrastructure, human development and political institutions. The section below analyzes factors that led to the deteriorating performance.

2.1 Political Institutions

Kazakhstan is a presidential republic with a strong presidency that is not adequately balanced by

[10] Source: Prof. Michael E. Porter, International Cluster Competitiveness Project, Institute for Strategy and Competitiveness, Harvard Business School; Richard Bryden, Project Director.

the legislative or judicial branches. In 2005 Nursultan Nazarbayev, who has been in power since Kazakhstan's independence in 1991, was re-elected President for a second seven-year term. Two years later the Constitution was amended to remove the two-term limit for the first President. Opposition parties have remained weak. Given the regime's tightening of control of all media outlets, regular reshuffling of key government positions, and detention of key opposition leaders, presidential power is expected to remain strong.

The concentrated leadership has coincided with weakening of the executive branch due to frequent movements (every 1-2 years) of key public sector personnel. This has promoted a lack of accountability and corruption among government officials. Institutional capacity to define and implement a sustainable national economic strategy has been extremely weak. The average age is 30 for ministers and 27 for other state employees.[11] The power of the center has also contributed to lack of authority for local governments in the regions of Kazakhstan.

Rampant corruption has remained one of the biggest hurdles for improving Kazakhstan's business environment. The 2010 Global Competitiveness Report survey respondents cited corruption as the most problematic factor for doing business in the country. Kazakhstan ranked 120th out of 180 countries in the 2009 Transparency International's Corruption Perceptions Index. According to the 2010 Country Commercial Guide for U.S. Companies, corruption remains widespread in the judiciary, police and customs areas.

2.2 Social context

Given the vast territory, Kazakhstan population is small, amounting to 15.3 million people. Over 100 nationalities reside in Kazakhstan; in the 1999 census, 53% of inhabitants were Kazakh,

[11] Source: Interview on March 20, 2010

30% Russian, 2% Uzbek, 2% German. By contrast, in 1991 the Kazakh and Russian populations were almost equal. The massive exodus of Russian and German populations over the last 19 years (appr. 2 million people) resulted in net migration deficit of -3.3 individuals per 1,000 people in 2006.[12] The quality of healthcare has continued to deteriorate since independence due to lack of funding and emigration of qualified personnel. Between 1989 and 2001, the ratio of doctors per 10,000 inhabitants decreased 15% to 35, and the ratio of hospital beds per 10,000 inhabitants fell by 46% to 74. By 2006 a mere 2.5% of GDP has been spent on healthcare.[13] The underinvestment and net negative migration have contributed to slow population growth.

Kazakhstan inherited a strong primary and secondary educational institution system from the Soviet Union. As a result of mandating education until age of 15, the literacy rate of Kazakhstan is 97%.[14] However, the quality of public education system has declined since the Soviet era due to lack of funding and the emigration of Russian and German teachers. The number of private colleges and universities rapidly increased over the last 15 years as private institutions were preferred by those who could afford them. However, while enrollment of students in higher education has doubled between 2001 and 2006, quality of education has not improved.

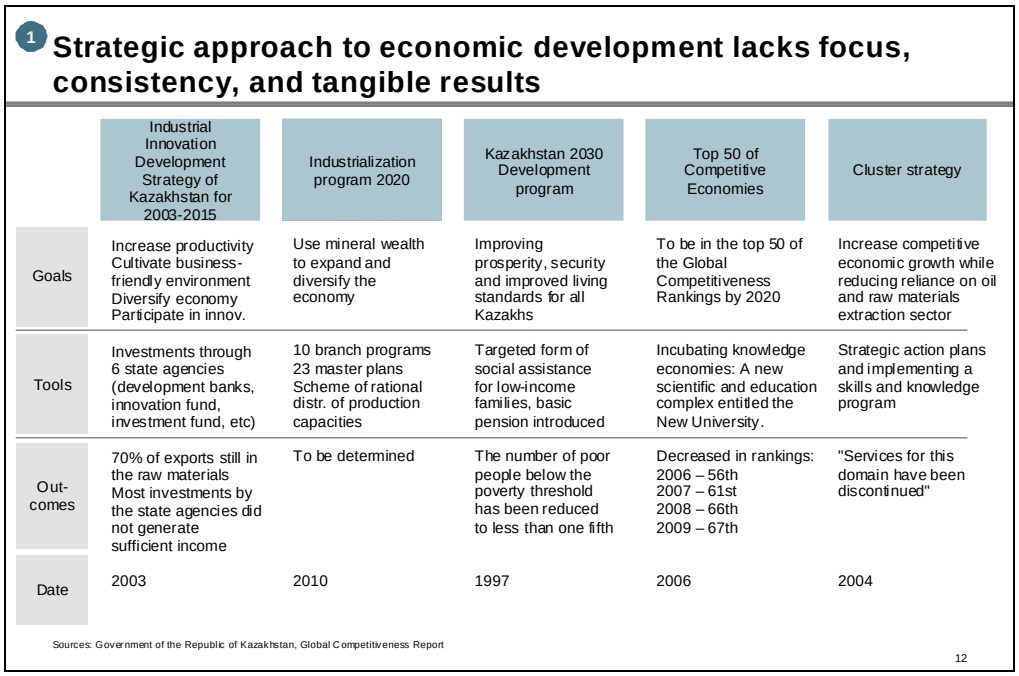
2.3 Government Policies

As mentioned earlier, inexperience, lack of accountability and frequent movement of personnel have resulted in a low capacity for the government to establish and implement a coherent economic policy. Economic development has suffered from lack of focus, consistency and tangible results. Between 2003 and 2010 various governmental agencies have created at least

[12] Source: Library of Congress – Federal Research Division
[13] Ibid
[14] Source: EIU

five strategic policy documents that overlapped one another. Figure E summarizes these policies and their lack of achievement of tangible results.

Figure E: Summary of Strategic Initiatives



1 Strategic approach to economic development lacks focus, consistency, and tangible results

	Industrial Innovation Development Strategy of Kazakhstan for 2003-2015	Industrialization program 2020	Kazakhstan 2030 Development program	Top 50 of Competitive Economies	Cluster strategy
Goals	Increase productivity Cultivate business-friendly environment Diversify economy Participate in innov.	Use mineral wealth to expand and diversify the economy	Improving prosperity, security and improved living standards for all Kazakhs	To be in the top 50 of the Global Competitiveness Rankings by 2020	Increase competitive economic growth while reducing reliance on oil and raw materials extraction sector
Tools	Investments through 6 state agencies (development banks, innovation fund, investment fund, etc)	10 branch programs 23 master plans Scheme of rational distr. of production capacities	Targeted form of social assistance for low-income families, basic pension introduced	Incubating knowledge economies: A new scientific and education complex entitled the New University.	Strategic action plans and implementing a skills and knowledge program
Out-comes	70% of exports still in the raw materials Most investments by the state agencies did not generate sufficient income	To be determined	The number of poor people below the poverty threshold has been reduced to less than one fifth	Decreased in rankings: 2006 – 56th 2007 – 61st 2008 – 66th 2009 – 67th	"Services for this domain have been discontinued"
Date	2003	2010	1997	2006	2004

Sources: Government of the Republic of Kazakhstan, Global Competitiveness Report

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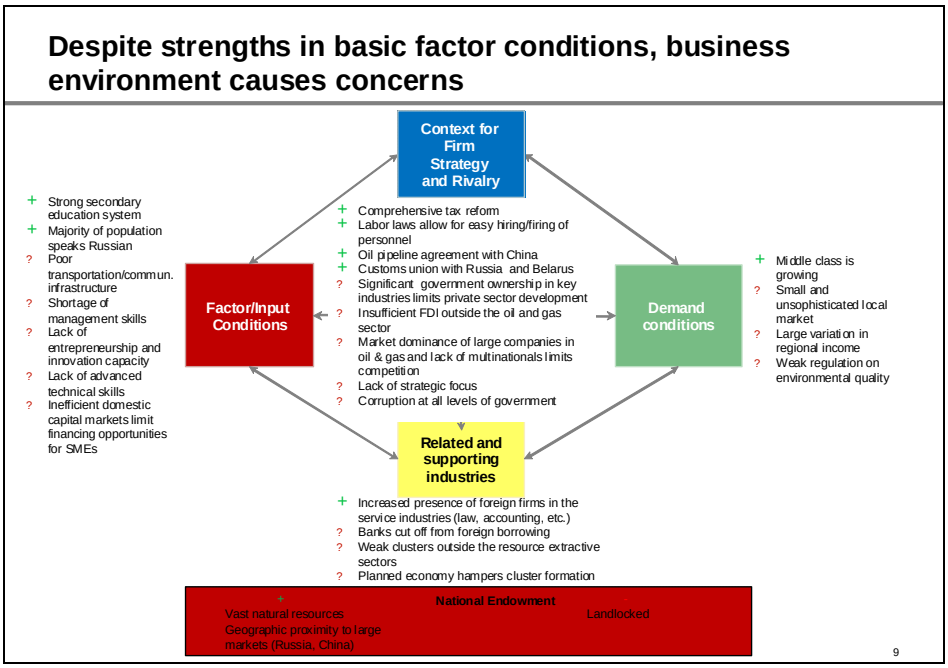
The cluster strategy has been renamed “Industrial Map” strategy and has been assigned different government authorities to implement the changes. It is noteworthy that all plans were driven centrally by the government and private sector has not been involved in execution.

2.4 Institutions for Collaboration (IFC)

Given the significant government influence in the private sector there have been relatively few institutions of collaboration created. There are chambers of commerce within different regions and for certain constituencies, such as the US Chamber of Commerce, however, they do not appear to play a significant role in economic development. There have been a growing number of IFCs within the oil and gas value chain, but relatively few in other industries. The IFCs in the oil and gas sector will be discussed in detail later in the paper.

2.5 National Diamond

Figure F: National Diamond



Factor/Input Conditions

Kazakhstan has mixed factor input conditions. Its strong primary education system has led to a literacy rate of 97%, promising a high quality labor force. The bulk of its population is Russian-speaking, which helps Kazakhstan maintain close economic ties with Russia, as evidenced by the recently established customs union. Despite these advantages, Kazakhstan is still faced with several key challenges that it needs to address to become more competitive.

First, Kazakhstan's transportation infrastructure falls short of the needs of a vast country that has the highest volume of road and shipping per capita (Library of Congress – Federal Research Division, 2006). Two-thirds of Kazakhstan's 23,000 kilometers of main highways are in poor condition. Its railroad system is mainly concentrated in northern part of the country and is badly in need of repair. Kazakhstan's telecommunication system also performs poorly, as it only offers

15 lines per 100 inhabitants. So far, despite the government's advocacy for upgrading infrastructure, repairs and expansion have failed to attract sufficient investments. The country has relatively weak and inefficient capital markets, which makes it difficult for SME's to attract financing. In addition, Kazakhstan's weak secondary education system has led to a lack of the management and advanced technical skills needed to move to higher value added activities.

Demand Conditions

With its income per capita rising by 168% to $11,410 in 2008 from $42,60 in 1999[15], Kazakhstan has seen a surging middle class that demands a wider variety of goods and services. Yet income disparity prevails among regions: an affluent region such as Atyrau accounts for 25.7% of national GDP with a population of 380,000 [16], while Almaty Oblast only contributes 1.7% with a population of 1,603,700 as of 2008[17]. Lack of professional education in both rural and urban areas and poor urban infrastructure are the main barriers that have significantly limited opportunities for population mobility and resulted in small underdeveloped local markets.

Firm Strategy and Rivalry

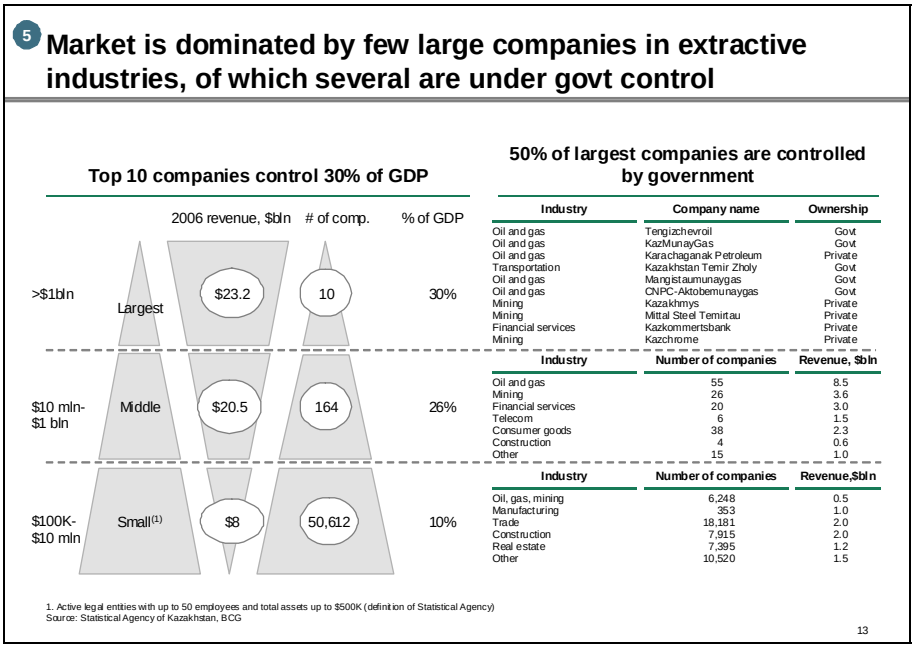
Kazakhstan has made some progress in reforms, for example recent labor laws allowing flexibility to hire/fire personnel. However, many challenges still exist.

First, there has been an alarming trend of increasing government control over the economy. The combined Samruk-Kazyna National Welfare Fund manages state assets in oil and gas, energy, transportation, telecommunication, and financial and innovation sectors; and, it is estimated to

[15] Source: EIU
[16] http://en.wikipedia.org/wiki/Atyrau_Province
[17] http://en.wikipedia.org/wiki/Atyrau

control up to 91% of Kazakhstan's assets.[18] Fifty percent of the top ten companies by revenue in 2006 had government as a key shareholder.[19] Since the 2008 financial crisis, reverse privatizations started taking place, especially in the banking sector. In 2009 government took control of the second largest bank in Kazakhstan, BTA, and a top four bank, Alliance Bank, citing inability of companies to survive under the creditor pressure. Figure G demonstrates the top-heavy structure of Kazakhstan's business environment and government as a key participant.

Figure G: Composition of Players in the Market



In an effort to save state companies, government has mandated that all state development institutions (such as Kazakhstan Development Bank, Investment Fund, etc) must lend to state-owned enterprises only.[20] This has left small-and-medium enterprises (SMEs) strapped for working capital and many have failed as a result.

[18] Source: Country Guide – US Commercial Services

[19] Source: Statistical Agency of Kazakhstan; BCG; Factiva

[20] Source: Interview on March 20, 2010

Increasing state control and negative legislative trends toward foreign investors have also contributed to limited FDI into sectors outside of oil and gas. In 2008, FDI amounted to $20 billion while in 2009 Kazakhstan attracted only $9.7 billion.[21] Of this amount, the majority (estimate: 70%)[22] was invested in the oil & gas sector. Despite continuously increasing investment in Kazakhstan's energy sector, concerns remain about the government's challenges of contractual rights, preferences for domestic companies, and creation of mechanisms for intervention in foreign companies' operations, particularly procurement decisions. Together with vague and often contradictory legal provisions that are arbitrarily and inconsistently enforced, these negative tendencies feed a perception that Kazakhstan is less than fully open to investment. These factors lead to the limited number of MNCs outside the extractive resource industry, limiting rivalry. Additionally, the current labor law has a quota for foreign labor - only 0.75% of total workforce can be outside of Kazakhstan, again limiting company's ability to compete.[23]

Related and Supporting Industries

On a positive note, in recent years more foreign services firms such as accounting, legal and consultancy services have entered the country. These firms have generally followed the foreign firms that participate in the oil and gas industry. However, there are still very few clusters outside the extractive resource industry, which leads to overall weak supporting industries.

3. Country Recommendations

Given its geographic location, Kazakhstan should strive to leverage the significant markets of Russia and China by becoming a hub of business in Central Asia. Political stability and healthy business environment will become Kazakhstan's competitive advantages as compared to its

[21] Source: EIU
[22] Source: CMAR
[23] Source: Country Guide – US Commercial Services

Central Asian neighbors and increase incentives for companies seeking entry into Central Asia to establish headquarters and drive their business from Kazakhstan. To achieve this, Kazakhstan needs to improve its logistical infrastructure, eliminate corruption, and improve education, among other issues. The following section discusses priorities for Kazakhstan and provides more detailed recommendations in a table.

Based on the vision for the country, a major task for Kazakhstan should be a creation of a coherent strategy of economic development for the next decade focusing on the improvement of business environment, including development of infrastructure, strengthening of the legal and political institutions, and attraction of FDI. Without a strategy that clearly establishes implementable actions, realistic milestones and aligns responsibilities between private and public sector, Kazakhstan will not be able to achieve the vision of becoming a business hub in Central Asia. As part the strategy, a formal coordinating agency should be created that will have executive power and responsibility for achievement of the strategic milestones.

However, in order to have capabilities to produce a viable, realistic and dynamic strategy, Kazakhstan needs to strengthen its political institutions. In the short run, weakness of both local governments and legislative branch should be addressed in order to counteract the strong pull of the center. Strengthening of local governments can start with establishment of democratic elections of "akim" (head) of regions and other key local government officials. The ability of local communities such as civic groups, business leaders and others to influence decisions of the local governments via votes will facilitate reduction in corruption and increase accountability of local officials.

Also, local governments should be vested with powers to develop regional clusters using

endowments and competitive advantages of a particular region. The cluster efforts should be led with a "bottom-up" approach where regional governments work with local businesses (including both MNCs and domestic enterprises) to develop a comprehensive cluster policy that will address the needs of local businesses. A national agency can be used to facilitate the exchange of best practices among local governments. Additionally, institutions for collaboration, created with assistance from international agencies and companies, should be developed to ensure transfer of international expertise and to attract foreign capital. To illustrate the government's commitment to foreign corporations, Kazakhstan should establish a timeline for withdrawing government ownership in the private sector and develop and enforce monopoly regulations.

As a second priority, Kazakhstan should develop a comprehensive strategy to attack corruption on the national level (police, legal system and executive branch). This can be accomplished through 1) professionalization of the national government institutions, 2) limiting presidential term to total of eight years, 3) limiting an ability of the President to appoint legislative powers.

As a third priority, the government should partner with the private sector (local and international) to start the development of logistical framework with a view of connecting Russia, China and other Central Asian republics.

Area	**Overall recommend-ations**	**Short-term**	**Medium-term**
Public sector	Strengthen Kazakhstan's political institutions	• Attract professional diaspora – ethnic Kazakhs and Russians/Germans with roots in KZ • Institute professional training for government officials • Engage local government in cluster development	• Pursue a creation of a coherent strategy with quick wins, implementable actions and realistic milestones by establishing a formal coordinating government organization • Design a process to ensure transparency and consistency. • Institute professional civil service with transparent rules and performance-based promotion.

Public sector	Address corruption at all government levels	• Implement a comprehensive anti-corruption strategy, including national and local government – increase salaries and punish corrupt behavior • Remove requirement for government institutions to go through a long tender process	
Physical infrastructure	Develop railroad, airline, highway and telecom infrastructure	• Use private-public partnerships to upgrade highway system • Open domestic market for airline and telecom business • Continue to push for railroad privatization	• Design a long-term plan of how to develop infrastructure based on value proposition (linkages between neighbors)
Competition	Increase competitiveness of domestic business	• Create transparent SME lending institutions • Support entrance of foreign banks • Simplify regulatory procedures to register, license and report activities of businesses	• Start privatization process – divest state assets in non-resource industries • Ensure independent banks • Establish competition authority
	Increase FDI into non-resource sectors	• Remove labor quota on foreign personnel • Encourage skill transfer programs as part of FDI commitment • Actively involve existing multinational companies in setting up private sector IFCs	• Develop a comprehensive plan to attract FDI, IFCs, NGOs, etc. – Government agency to target, attract and support investors – Export Processing Zones • Make cities attractive to expats
Cluster development	Focus on upgrading/ developing clusters that have potential given location and endowments	• Focus on existing budding clusters (logistics, food processing, construction materials, oil & gas equipment) • Create new private sector driven institutions to support clusters • Allow private sector institutions to participate in economic policy	• Launch public-private sector institutions for workforce development
Skill development	Address lack of technical/ managerial skills	• Continue scholarship program for students higher education abroad • Create educational standards for secondary and higher education • Improve IT skills in secondary ed.	• Set up a workforce development council to align business needs with educational capabilities • Strengthen technical training programs through foreign hiring

Source: Team analysis and Michael Porter's Kazakhstan Competitiveness Presentation

C. Oil & Gas – Cluster Analysis

4 Cluster Overview and Performance

4.1 Geography

Kazakhstan possesses unique geographical features that lead the country's oil and gas cluster to be spread throughout the entire country, instead of one specific geographical area. Around 70% of Kazakhstan's oil and gas reserves, both onshore and offshore, are concentrated in Western

Kazakhstan around the city of Atyrau (population of 154,000 people). Some oil reserves are also located in Southern Kazakhstan but the prospects for new discoveries there are not very promising. [24] The pipeline goes across the country with continuous effort to expand pipeline infrastructure to bring oil to China. Finally, the capital of the country, Astana (estimated population of 692,000) is hosting the country headquarters for the oil and service companies as well as numerous emerging institutions of collaboration that support to the entire cluster. Therefore, it is impossible to define a specific region for the oil and gas cluster in Kazakhstan and instead it should be viewed in the context of the entire country.

Figure H: Map of Kazakhstan[25]

4.2 History of Cluster

Oil was first discovered in Kazakhstan in 1911, but very little oilfield development was done until the country became independent in 1991. According to Lukoil CEO Vagit Alekperov, the Soviet government put much more resources into developing oil and gas infrastructure in other parts of the USSR, keeping the exploration in Kazakhstan for the future[26]. Starting 2001, Kazakhstan's government found itself in a position of having to develop its own economy and

[24] Source: US-Kazakhstan Business Association: http://www.uskba.net/about_energy.htm
[25] Source: CIA
[26] Interview with Vagit Alikperov, March 17, 2010

developing the natural resource base, the main endowment of Kazakhstan, was simply a matter of survival for the country and government. Lacking the required sophistication to take advantage of their natural resources, the country began attracting FDI for the exploration and production of oil and gas. Until recently, when Kazakhstan parliament enabled government to alter or cancel contracts with foreign oil companies, foreign multinationals enjoyed relatively favorable investment conditions and support from the government entities.

4.3 Global Oil and Gas Industry

Since the late 1990s and until the financial crisis the global oil industry had enjoyed unprecedented increases the market prices for oil, mainly inspired by tremendous growth in consumption coming primarily from China and other emerging markets. Gas prices, which generally follow the oil price trend, have increased dramatically as well. Growth in production followed, producing an additional incentive to invest in oil and gas sectors throughout the world.

4.4 Institutions for Collaboration and Cluster Initiatives

Realizing the importance of the institutions for collaboration for the successful oil and gas clusters throughout the world, the government of Kazakhstan supported the creation of several institutions that support the cluster. For example, government-supported oil and gas conference KIOGE became Central Asia's largest and most influential trade event for oil and gas industry. It supported the entrance of more than 5,000 companies into the market. [27] Non-profit organization KazEnergy is active in establishing a dialogue between business and government authorities on protecting the interests of industry enterprises. [28] Finally, The New University in Astana was recently established by the government as an institution that develops the relevant skills in the

[27] Source: Kazakhstan International Oil & Gas Exhibition and Conference, http://www.kioge.com/2010/
[28] Source: Kazenergy, *www.kazenergy.com/*

cutting-edge technology for oil and gas companies by utilizing partnerships with leading foreign schools. Despite a number of initiatives the IFCs have seen limited success in improving the competitiveness of the cluster.

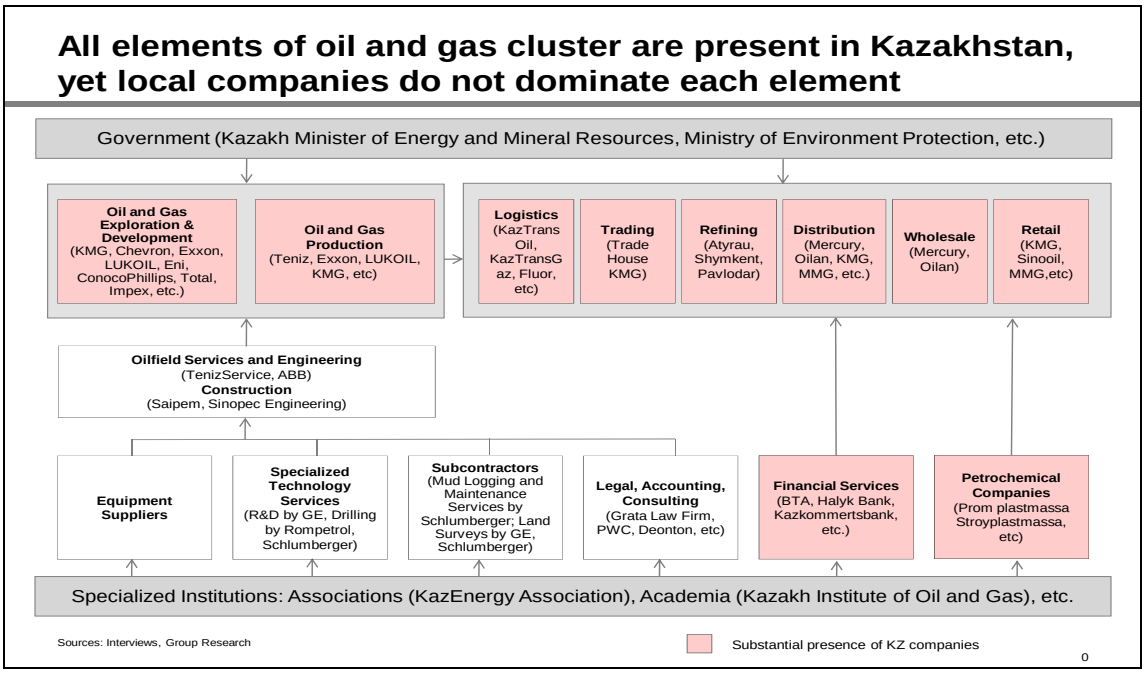
While several governmental cluster development projects are also underway in Kazakhstan, their top-down design and failures in the past leave the experts with mixed feelings about their prospects. For example, the government and private sector have collaborated to create the Energy City initiative in Aktau (city in Western Kazakhstan with 188,000 population), which will bring together a mix of energy related companies, multiple customers, and suppliers. Another initiative, called Accelerated Industrial Innovation Program for 2010-2014, is aiming at increasing competitiveness in the cluster by diversifying its activities to higher value added pieces of the value chain. [29] However, its top-down design and implementation, which has been managed almost exclusively by the Ministry of Industry and New Technologies, have led to limited success at this time.

4.5 Kazakhstan Oil and Gas Cluster Value Chain

Kazakhstan is one of the largest oil producers (ranked #19 by EIA) and owner of oil reserves (ranked #11 by EIA) in the world. Unlike some large producers, such as Iran and Venezuela, Kazakhstan has a fairly complex and well developed value chain. Iran for example is lagging behind because its exploration activities are dominated today mainly by Chinese companies versus in Kazakhstan we see a lot of competition among multinationals. Venezuela, having gone through nationalization in oil services in 2009, limited competition as well. (EIA)

[29] 70% of FDI inflow goes into oil & gas sector.

Figure I: Oil and Gas Cluster Map



Despite the fact that Kazakhstan's oil and gas cluster is relatively deep, our research shows that Kazakhstan's enterprises are not evenly represented along the value chain. Kazakh companies can be noticed mainly in the production and downstream segments. Moreover, the overwhelming majority of companies is either state-own enterprises, like KazMunaiGaz (a local version of Gazprom of Russia) or somehow tied to the President. In particular the national Government appears interested in building a strong Kazakh presence in the segments directly linked to extraction and sales. The recent 2007 law allowing government oil and gas contracts to be terminated appear to be another step in the direction of greater national control of those parts of the value chain. While local companies have a significant presence in the production and downstream segments, foreign companies still control the sophisticated areas of the segments.

The exploration and supporting areas of the value chain both require highly skilled labor which is in scarce supply in Kazakhstan. Therefore, the exploration segment is heavily dominated and

influenced by international players such as Schlumberger, GE, etc. Some Kazakh companies have begun to make inroads into this segment (Teniz), however, they hold small market shares.

The transportation and logistics segment is also managed primarily by foreign companies. Companies such as KazTransOil and KazTransGaz are highly active in backbone pipelines, however, such sub-segments as tankers and oilfield services are almost untouched by locals.

In the inputs segment local companies demonstrate mixed success. They are dominating in such "traditional" sub-segments as raw materials, oilfield services, and infrastructure. However, such "new" services as specialized R&D, equipment and technology remain mainly if not exclusively dominated by internationals such as GE.

In terms of supporting industries, Kazakh companies have taken an active stand and developed a heavy presence in financial services. This can be attributed to a significant amount of institution support for the financial markets in Kazakhstan since the 90's when independent Kazakh government needed to create from scratch new institutions for an independent economy. This is however the only area in the supporting industries that is dominated by Kazakhs. Strategy consulting, legal services and construction are still dominated by international companies.

Finally, we should mention that the Government and specialized institutions are both developed, and at least from the structural point of view serve the needs of oil and gas cluster well. For instance, there are two ministries, the Kazakh Ministry of Energy and Mineral Resources, and the Ministry of Environment Protection, that directly work with the cluster. There are also numerous non-government institutions such as KazEnergy Association and Kazakh Institute of Oil and Gas that aim at supporting oil and gas cluster. However, what is missing is the lack of a strategic vision and approach that could drive cluster development.

4.6 Cluster Performance

The cluster has been going through a very rapid development – as it was created virtually from scratch after 1991. Oil production has been growing, FDI in oil and gas has reached substantial level of $100Bn, and the number of Kazakh oil and gas companies has reached almost 2,000 in 2009. However, Azerbaijan, a close neighbor of Kazakhstan, seems to have performed better. For example, through tight cooperation with multinationals, Azeri increased oil production almost 5 times, versus Kazakhstan's 3 times since the USSR collapse. Kazakhstan also lags behind Azerbaijan in the ability to export their oil. Azerbaijan has three pipelines with excess capacity, whereas Kazakhstan has to send a portion of its oil either by railroad or barge. Moreover, Kazakhstan produces almost double the amount of oil as Azerbaijan, but Kazakhstan's refinery capacity is 345 bbl/day whereas Azerbaijan's refinery capacity is 399 bbl/day. (EIA)

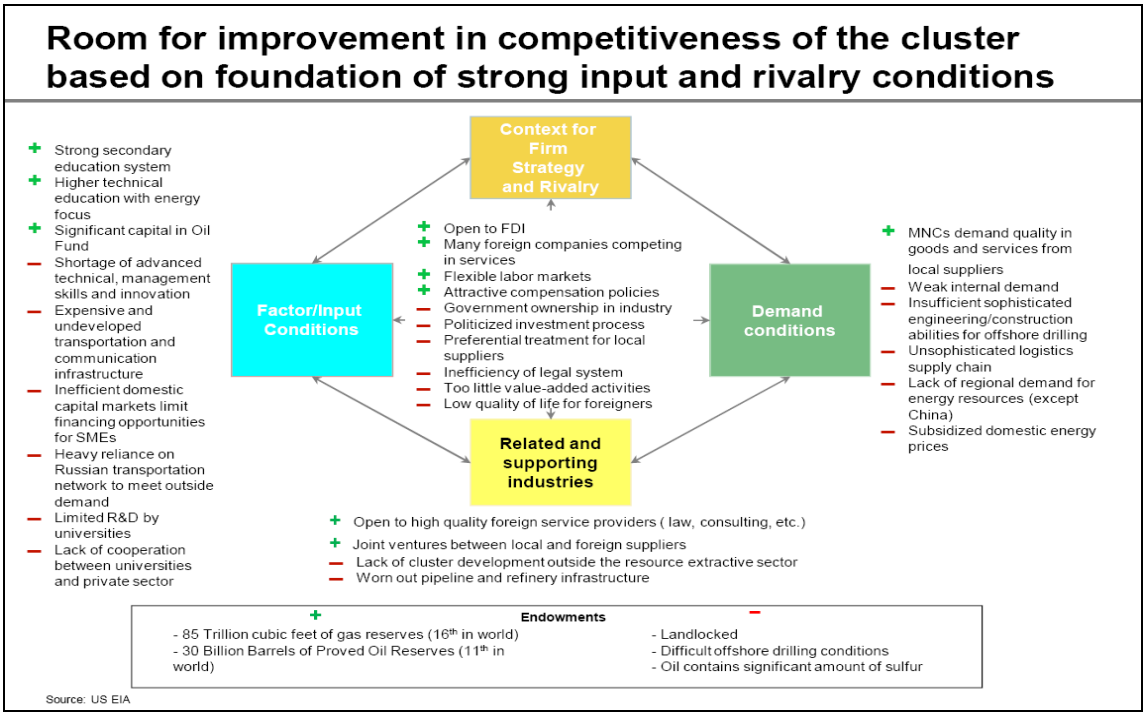
Despite impressive growth indicators, there is still concern about how much benefits are actually created by the cluster. For example in 2010 Kazakhstan is expected to import oil and gas inputs totaling $9Bn and it is expected to produce locally only $125M. The ratio of imports to local production has actually increased from 77x in 2007 to 125x in 2009. This is in spite of initiatives such as the Cluster Development Project in 2004 that focused on having more of the value-added work done domestically. That said, there are some signs of progress as local companies have begun to develop joint venture projects with \ foreign companies in the hope that they can develop the skills \ to take on work domestically. In terms of employment, the cluster also demonstrates its important benefits to the country, with 5.7% of the population employed in oil and gas, a number which has been stable between 2004 and 2008. (Kazakhstan Statistical Agency)

5 Assessment of the Cluster Business Environment

5.1 Kazakhstan Oil and Gas Cluster Diamond

Having looked at the oil and gas cluster through the Diamond framework, we have found that the government, industry, and institutions for collaboration all have long way to go to improve the cluster and make it efficient and competitive in a global economy.

Figure J: Cluster Diamond



Endowments

Kazakhstan enjoys rich oil and gas endowments. There are, however, some limits even to this winning case. For example, most Kazakh oil contains sulfur making it cheaper oil. In addition, offshore drilling is problematic in the Caspian Sea due to the weather conditions in the winter. Finally, being a landlocked country limits Kazakhstan's export options.

Factor/Input Conditions

While there are some strengths within Kazakhstan's oil and gas factor inputs, including a strong basic education system, recent investment in higher technical education with an energy focus, and significant capital in Oil Fund, Kazakhstan's Factor Conditions are still handicapped. For example, the virtual abundance of educated young people is misbalanced by the lack of specially designed programs at high schools and universities aimed at teaching advanced technical, management, and innovation skills. In addition, universities rarely cooperate with the private sector and are not performing necessary R&D. The country's relatively large oil fund ($22Bn as of April 2009) is "bottlenecked" by inefficient domestic capital markets limiting financing opportunities for SMEs. Finally, expensive and undeveloped transportation and communication infrastructure in Kazakhstan causes the country to rely heavily on Russian's transportation network to meet outside demand.

Firm Strategy and Rivalry

Kazakhstan achieved mixed results in this part of the diamond. For example, Kazakhstan is fairly open to FDI. However the investment process, being open, is known to be politicized and corrupt. Within the cluster we can observe two market dynamics. First, foreign companies compete among themselves in the higher value added segments, and local compete with locals mainly in lower value added areas. The nature of competition for locals is dependent on getting more preferential treatment from the government than the competitors, limiting the benefits of competition. One paragon quote from our interviews can better describe the nature of the context for firms "…there is lack of transparency in contracts. Hence local companies who get contracts from Chevron for example, are based on what Chevron is told by certain vested interests. This

means that entrepreneurship developed does not happen. The same is true for the state companies who give out contracts."[30]

Demand Conditions

Kazakhstan internal demand for oil and gas can be characterized as low. MNCs demand high quality goods and services from local suppliers, however there is relatively weak internal demand for oil and gas because of the small population and low income levels. The country also suffers from a lack of regional demand for energy resources (except China all other neighbors are rich in hydrocarbons). In addition, their unsophisticated logistics supply chain and subsidized internal energy prices negatively distort the market. Subsidized local prices for energy lead to underinvestment in pipeline and refinery infrastructure and as a result their underperformance.

Related and Supporting Industries

This part of a diamond shows the best performance within the oil and gas cluster. Kazakhstan is open to high quality foreign service providers (law, consulting, etc.) and to forming JVs. However, the weak cluster development outside the oil and gas sector leads to limited domestic supporting industries.

6. Major Challenges in Cluster Development

6.1 Geographic location and export profile limit Kazakhstan's bargaining power.

Kazakhstan's export market for oil and gas is set up in such a way that 80% of the exports go to the Russian Federation, with only 10% going to China, and 5% to Iran and Georgia. [31] This happens primarily because transportation infrastructure, built in Soviet times, was designed with

[30] Anonymous

[31] Source: International Energy Agency, BP Statistical Review

the idea to move exports to the West. Considering the fact that Russia itself is a major producer of oil and gas, with about 7,000 K bbl/day in excess production, Russian bargaining power becomes very strong. [32] This has historically forced Kazakhstan to accept the prices significantly below those on the open market.

6.2 Essential structural reforms needed to improve legal system

Kazakhstan passed a new tax code in 2009 that provides unified tax regime for almost all subsoil contracts and replaces rent tax with export duty. Among other things it also introduces mineral extraction tax to replace royalties and changes excess profit tax base and rates. Finally, corporate incomes taxes have been reduced from 30% to 20%.[33] The new tax code is benefiting the large businesses forcing the smaller companies to consolidate as their fixed investment per barrel becomes higher than for large companies making access to capital even more difficult. [34] Although tax reform has generated momentum for the cluster, absence of clear and strong comprehensive legal reform framework is apparent. Legal reforms are particularly important because regulation is far below the generally accepted principles, with serious shortcomings in the area of transparency and corporate governance. Government's attempt to revise previously signed long-term contracts for oil production decreases investors' confidence. In addition, insolvency laws fall short in addressing reorganization, liquidation, and estate treatment.

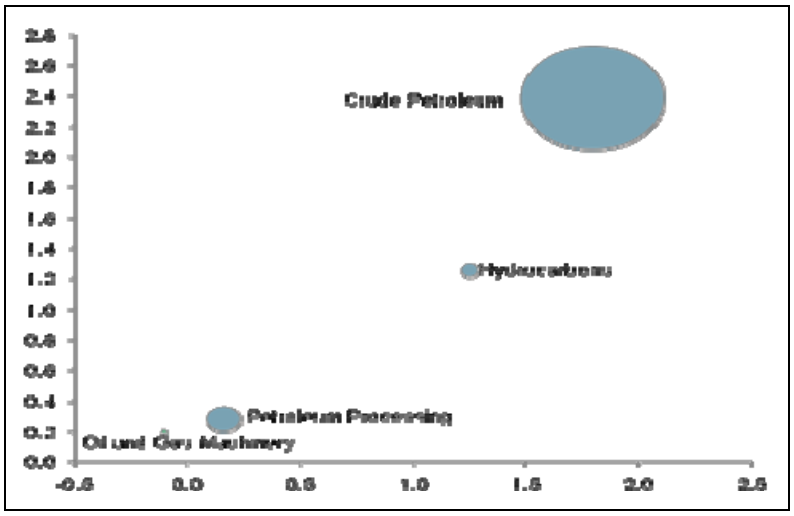
6.3 The proportion of value added activities within the cluster is low

Kazakhstan's oil and gas cluster primarily focuses on the extraction of resources and much less on processing, refining, and other activities that are higher up in the value chain (See Figure K).

[32] Source: International Energy Agency, BP Statistical Review
[33] Source: KazMunayGas Investors Relations Presentation
[34] Source: Interview conducted on April 10, 2010

There are three broad categories of reasons why companies choose to concentrate on the lower segments of the value chain – economics, human capital, and business environment.

Figure K: Oil and Gas Exports Breadown[35]



Several factors related to economic conditions prevent companies to invest towards refineries and other value added activities. First, transportation infrastructure is too inefficient to make value added activities a worthwhile investment. As a result, low levels of FDI are directed towards refining activities. Thus, all three major refineries are government owned and need serious modernization. Currently, all three refineries operate below capacity due to low demand.

Human capital also plays a central role in the low proportion of value added activities in oil and gas cluster in Kazakhstan. There are very few oil and gas research institutions and innovation centers in Kazakhstan, and none of them put enough attention on the refining process. In addition, very few resources are allocated to talent attraction within the industry.

The business environment is another major factor contributing to the shortage of high value added activities in Kazakhstan's oil and gas cluster. As investment in refineries requires a long-

[35] Source: Prof. Michael E. Porter, International Cluster Competitiveness Project, Institute for Strategy and Competitiveness, Harvard Business School; Richard Bryden, Project Director.

term view, in order to put their money investors need complete confidence in the country's intentions and its rule of law. Kazakhstan's recent legal rulings put that confidence into question.

7 Cluster Recommendations

Kazakhstan's has the unique opportunity to use its inherited wealth in the oil and gas cluster as a stepping stone to "created wealth" for the entire country. After independence the country made the prudent decision to encourage foreign investment in its natural resource sector, which has driven the country's success over the past decade. However, the country's recent actions suggest the possibility of a giant step backwards in the cluster's development. Going forward the principal actors in Kazakhstan's oil and gas cluster must come together to develop a strategy to improve cluster competitiveness. If they are successful, they have the potential to develop skills in areas of the value chain that will create more prosperity within the sector, and that can be leveraged to support growing clusters elsewhere in the economy, such as manufacturing, logistics, etc. To make this leap there are a number of important steps that they must take.

7.1 Create comprehensive legal framework

Following recent attempts to revise previously signed long-term contracts, investors' confidence is becoming a central issue in Kazakhstan's oil and gas cluster development. Therefore, the country's first priority in developing the cluster should be to establish a clear and transparent legal process. The country should announce that they will honor all previously signed agreements, and will look to set the highest standards in contract law and investor protection.

7.2 Create comprehensive plan to develop full-service oil and gas services cluster

Creating full-service oil and gas services cluster should start with encouraging the establishment

of joint ventures with already existing world-class leaders in full services. There is a strong need to develop expertise by type of oil production – drilling of deep oil wells, drilling of wells with high pressure, and reverse pumping of sulfur gas among others. To develop this expertise the IFCs and government should encourage specialization by universities in a given type of productions, and partner with foreign universities and companies' to train local workers.

7.3 Diversify destination of exports

Kazakhstan's current export profile provides Russia with enormous bargaining power, which leads to the country receiving less than the market price as a result. In order to become less dependent on a single source of exports, we recommend leveraging current knowledge of extractive resources to develop petrochemical sector in Kazakhstan. The initiatives such as building a plant in Atyrau together with Chinese JV partners to refine gas into plastics and detergent should be continued and widespread. In order to reduce Russian influence over the prices Kazakhstan receives for its crude oil, we recommend significantly expanding the capacity to export oil and gas to China, whose demand will be increasing.

7.4 Additional policy recommendations

In addition to priority recommendations, described above, we propose four additional recommendations that Kazakhstan's government should implement.

1. **Gradually reduce domestic subsidies-** In order to attract FDI into refining activities, the government should gradually and predictably reduce subsidies on domestic energy prices.
2. **Strengthen supply chain management and logistics-** Due to poor logistics networks in the country domestic subsidies do not go all the way to end-consumer. Inefficient supply chain management causes the consumers to pay more even though the price is subsidized.

Strengthening supply chain management system would provide consumers with low energy prices and the need for domestic subsidies would disappear.

3. **Leverage other countries' interest in diversifying export base-** Given many countries strong commitment to diversifying their energy import base, there should be a global commitment to helping Kazakhstan develop capabilities to make their oil and gas cluster more competitive. Kazakhstan should use this fact to get assistance in developing educational partnerships with top-notch educational institutions, getting capital more diversifying pipeline exports, and reducing tariffs across multiple sectors.
4. **Improve quality of life for foreign employees-** The government needs to encourage investments in good private schools, healthcare, entertainment, and clean environment for areas inhabited largely by international employees. This can encourage more talented foreigners to come to work in the country.

D. Conclusion

As a developing country relying significantly on their inherited wealth, Kazakhstan's major economic challenges are most visibly reflected in the issues faced by the by the natural resources sector. While there are a number of significant challenges blocking the shift to created prosperity within the country and cluster, they are not insurmountable. The country has shown a willingness to examine economic strategies based on a cluster approach, and both the country and sector possess a strong base of factor and endowment inputs on which to build. The question that must be asked going forward is whether or not the central government chooses to embrace market forces and encourage competition, or whether or not they wish to take a step backwards in the director on a centrally planned government controlled economy? The answer will likely determine the future level of competitiveness of Kazakhstan and their oil and gas cluster.

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3. Interviews

13 interviews were conducted comprising a wide range of industry and government officials. We have kept the identity of the interviewees anonymous so as to encourage open discussion.

4. Required Disclosure

Akmaral Omarova is a citizen of Kazakhstan and grew up in the country.