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INDUSTRIAL CLUSTER DEVELOPMENT IN KAZAKHSTAN

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I, _____, hereby certify to be the author of this Master's thesis, that was written under mentorship of Prof. Dr. _____ and in compliance with the Act of Author's and Related Rights – Para 1, Article 21, I herewith agree this thesis to be published on the website pages of the Faculty of Economics, University of Ljubljana, Slovenia.

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INTRODUCTION

Industrial cluster development has become an increasingly popular topic for scientists, researchers and economic policy-makers. Many organizations have devoted various conferences and articles to the cluster topic, including the OECD[1], U.S. National Governors Association, USAID[2] and European Commission (Ketels C. , The development of the cluster concept - present expiriences and further developments, 2003). A large number of regions and nations have launched initiatives to develop or strengthen clusters. With rapid industrial development, researchers and policymakers are trying to reap the full potential of economic benefits. As a new approach to help economies to harvest all of the benefits of an improved macroeconomic and legal context, cluster-based efforts have received a lot attention (Economic And Social Comission for Asia anf the Pacific, 2005)

The cluster-based approach has been well popularized by the papers of Michael Porter (Porter, 1990; Porter, 1998). He has been a pioneer in introducing a term “cluster” in his work had been devoted to industrial clusters and regional clusters. He described in detail the direct relationship between cluster’s partnership and competitiveness. Porter defined a cluster as a geographic concentration of interconnected businesses, suppliers, and associated institutions in a particular field. Porter developed the “diamond of advantages,” which consists of the four corners. Each of them creates a competitive advantage for firms. The diamond includes factor conditions, demand conditions, industry strategy/rivalry, and related and supporting industries. However, Narula (1993) insisted that Porter’s approach was a static one and cannot be implemented in dynamic competitive environment. The model is quite subjective because it is based on the few industrial countries, especially the developed ones. It is difficult to implement this model to developing countries.

The idea of specialized industrial localization is hardly new. In the late nineteenth century, Marshall (1980) included in his "Principles of Economics" a chapter, which was devoted to "the concentration of specialized industries in particular localities." Marshall characterized the local concentrations as specialized activities based on the triad of external economies: labor market pooling, intermediate inputs, and knowledge spillovers. One follower of the Marshall’s industrial localization was German economist, Alfred Weber (1929). In his book “The theory of the location of industries”, he presented a classification of phases of industrial convergence. Weber divided the industrial development into two phases: scale expansion and centralizing tendency. He first described the dynamic concept of agglomeration economies. Nevertheless, Weber’s concept was constrained in application because it was mostly focused on the production process the aim of which is cost minimizing.

[1] OESD stands for Organization For Economic Co-operation and Development
[2] USAID stands for United States Agency for International Development

In the early 90s, Krugman (1991, pp. 483–499) formulated his theory of economic geography. He combined trade theory and location theory and concluded that high manufacturing proportions and scale within a spatially defined region are critical to forming regional convergence. This approach went a significant way to offset Marshall and Weber's theoretical deficiencies. In the past two decades, experts in the economic geography field have devoted considerable effort studying the local industrial specialization, spatial agglomeration of economic and regional development. Experts in the economic geography field such as Scott (1988,1998); Amin and Thrift (1992); Harrison (1992); Harrison, Kelly and Grant (1996); Markusen (1998); and Asheim (2000) have made multiple attempts to define spatial agglomeration from economical, social and institutional point of view.

In spite of the fact that the cluster concept is a fashionable topic not all researchers agree that cluster has a positive effect on economic development of countries. Despite the abundance of materials and articles devoted to this subject, it is difficult to find a precise definition of the cluster and especially to identify a specific framework for the successful development of the cluster strategy. The key questions that remain unanswered are the following

- Why is the cluster policy more successful in some regions?
- How does the cluster increase and change over time?
- Which microeconomic elements could explain the cluster phenomenon?

Numerous examples argue that the cluster initiative is more of culturally and historically oriented phenomena. The process of the creation and development of clusters is highly dependent upon many specific factors.

Cluster policy has been disseminated not only in Europe from which the original approach hails, but also in Asia. Cluster policy in Asia is noticeably different from Europe's. One difference is that cluster policy in Asia is typically undertaken by the central governments as a national policy and/or local governments as a regional policy. Conversely to spontaneously created clusters in Italy, they had been created by the efforts of anchor firms or governments. This can raise the question as to whether or not cluster policy can be effective in forming a cluster. Fujita (2003) believes the central issue in the field of spatial economics is to clarify the mechanism of industrial agglomeration.

Under the influence of Porterization, cluster approach has been applied in many countries around the world, including Kazakhstan. This offers an opportunity to discuss whether industrial cluster policy is effective or not. In 2005 by taking the examples of many Asian countries, such as Malaysian, Singapore and South Korea, Kazakhstan has adopted a cluster policy. However, Kazakhstan's cluster policy has not been as successful as that of Asian clusters.

1 CLUSTER POLICY

Cluster phenomenon is the economic agglomerations of interrelated firms on specific locale and the evolution of this field can be traced back from handicraft production. But only since the last quarter of XX century, industrial clusters have considered as an important factor in economic development of regions. The majority of economists around the world recognize that the regions, in which clusters are created, become leaders of economic development. These regions' leaders define the competitiveness of national economies.

In spite of the popularity of the cluster strategy, the definition of cluster is still unclear. There is more than one meaning of "cluster" term. They are widely used to describe the geographic clusters of firms, industries and related processes: industrial areas, new industrial space, territorial production complexes, neomarshallian nodes, regional innovation environment, agglomeration, industrial districts to name a few. These terms are different in meaning and sometimes used as equivalent, creating a confusion (Appendix A), which leads to some misunderstanding. The key toward understanding such a difference is a clear understanding of how a cluster works.

By the definitions given in the Appendix A, one can stress two main characteristics in the definition of clusters. The first characteristic confirms that a cluster must be **linked** in some way. The links can be the vertical (supply chain) or horizontal (additional products and services, institutions, and other links). Most of these links involve social relationships or networks that produce benefits for the involved firms. Secondly, a fundamental characteristic is the fact that clusters are **geographically close** groups of interconnected companies. Co-location helps companies build and increase the benefits of creating value resulting to network of interactions between firms.

Nevertheless, with the increasing process of globalization, the geographical proximity is less of a barrier. The modern technologies allow for communication to occur faster, less expensive chipper and easier. Clusters can be divided in two main types: spatial and functional. Functionally related systems are less strictly limited to certain regions. They are more closely coincided to Porter's original definition of cluster (Porter, The competitive advantage of nations, 1990) and usually related to industrial clusters. The main characteristic of the spatial type of cluster is a necessity in concentration on a specific area. They are considered to regional clusters.

The cluster development of the economy is a particular business tool. A market-oriented society develops the rules of their businesses through the laws, relationships, banking sector, and support institutions, for example. Therefore, the cluster is a specific space that

allows successfully developing large firms, small businesses, suppliers, research institutes, and other organizations involve in cluster. Cluster inherent primarily synergistic effect, since the participation of competing companies is mutually beneficial.

1.1 Theoretical foundation of cluster approach

In the past two decades, experts in the economic geography field have devoted considerable efforts to study the local industrial specialization, spatial agglomeration of economic and regional development. The first mention of cluster policy was in "Principles of Economics" by Marshall (1980). Marshall argued that enterprises centralize in order to seek significant scale economies. He divided scales into two types: external and internal. External scale economy leads to industrial development and regional concentration. The second one relates to organizational and management efficiency. Industrial cluster as a result of external scale economies accelerates the efficiency and productivity of all players, part of which they are. He coined as the "industrial district" and found out three spatial advantages for the firms concentrated on a specific locale: labor market pooling, intermediate inputs, and knowledge spillovers.

A larger labour market pooling makes it easier for workers to choose better job matched to their skills. In other hand as larger labour market pooling as easier for firms to find workers suited for their needs. Labour pooling improves the matching between firms and workers and reduces the search costs. The labour costs and labour quality have been examined as crucial factors in the agglomeration of firms (Adams & Wang, 2009, pp. 279–294). Overman and Puga (2007) detailed and studied the labour pooling phenomenon. They provided empirical evidence of the role of labour market pooling in determining spatial concentration. Their results show that sectors, which are more spatially concentrated, are less subjected to idiosyncratic volatility. Combes, Duranton, Gobillon, and Roux (2003) explored deeper and argued that firms and workers are more productive on average in larger markets. Estimates of the productivity increased from a doubling in the size of an agglomeration range between two and eight percent, depending on the sector and details of the estimation procedure. Subsequently, Rosenthal and Strange (2008) investigated the relationship between local industrial organization and agglomeration economies. They argued that the presence of small establishments produced an environment conducive to growth, in particular entrepreneurial growth, showing that additional activity at smaller establishments is associated with a larger amount of entrepreneurial activity.

The advantage of intermediate inputs is quite strong motivation for agglomeration. In order to economize transport costs, firms are trying to concentrate in specific locale. This concentration provides a sufficiently large market to maintain specialized local suppliers. Conversely, the presence of specialist suppliers is attractive for producers. Much of Abdel-Rahman's and Fujita's (1990, pp. 165–183) works are devoted to this argument. Firms

prefer to locate where the market for final goods is larger this leads to a larger labour market. In turn, it enlarges the market for final goods.

The third incentive is that firms are motivated to concentrate knowledge and technologies, thus reinforcing the agglomeration force and further deepening the pool of mutual knowledge and technologies. Moreover, Audretsch (1998) contented that the propensity for innovative activity to cluster spatially will be the greatest in industries where tacit knowledge plays an important role. It is tacit knowledge, as opposed to information, which can only be transmitted informally, and typically demands direct and repeated contacts. According to Pietrobelli and Barrera (2002, pp. 541–562), clusters provide easier access to skilled labour, suppliers of raw materials, components, new machinery and special equipment. Despite the obviousness of the argument, there are some criticisms regarding the validity of this agglomeration forces. Krugman (1991, p. 53) argued that “knowledge flows are invisible; they leave no paper trail by which they may be measured and tracked." Unlike, Jaffe, Trajtenberg and Henderson (1993, pp. 577–598) believed that knowledge can be beneficial through the form of patented inventions but they recognized it decreases with distance. According to this point of view, knowledge spillovers tend to be geographically bounded within the region where the new economic knowledge was created. However, it may spill over but the geographic extent of such knowledge spillovers is limited. Beenstock and Felsenstein (2009) do not recognize the importance of technological spillovers as a driven force of agglomeration. They argued that agglomeration forces have focused almost exclusively on pecuniary scale economies.

A follower of Marshall in the study of industrial specification was Weber. He first considered the concept of agglomeration economies. In his book “The theory of the location of industries” (1929), he gave a classification of phases of industrial convergence. He divided the industrial development into two phases: scale expansion and centralizing tendency. Weber studied the agglomeration’s process, which is to some extent overlapped with the original Marshallian theory. The first phase is development of technical equipment and labour pooling. This accelerated the specification of firms which lead to increasing productivity and quality improvements. Weber emphasized marketization as the most important factor in the phase of centralization where firms can avoid a “middle man”. During these phases, firms have an ability to reduce all common costs and increase productivity. However, Weber’s concept has a limited use because of it was mostly focused on the production process and aimed towards cost minimizing.

In the early 90s, Krugman (1991) formulated his theory of economic geography. He combined trade theory and location theory and concluded that high manufacturing proportions and scale within a spatially defined region are critical to forming regional convergence. Nevertheless, this theory was initially proposed by Thünen (1826), He investigated the optimal use of land around cities. Then, Krugman (1991) based of the Dixit-Stiglitz monopoly competition model (D-S model); formulated an economic model

to confirm the convergence theory. This approach significantly offset Marshall and Weber's theoretical deficiencies. He offered a convenient mathematical formulation of the theory and it proved to be very applicable and useful for all sorts of modifications and upgrades. Later, they appeared in large quantities.

The main achievement of Porter's concept is a great popularization of the cluster approach. Porter developed the "diamond of advantage," which consisted of four corners. Each of the corners creates a competitive advantage for firms. The diamond includes factor conditions, demand conditions, industry rivalry, and related and supporting industries. Martin and Sunley (2003, pp. 5–35) argued that the Porter's concept is rather intuitive and does not add new insights to cluster identification methods although Porter focused on the innovative aspect of competition rather than the traditional aspects such as cost minimizing. Porter analyzed the economies of many countries for the adaptation of his cluster concept.

1.2 Preconditions of cluster development

The implementations of many approaches or policies require a set of conditions and prerequisites. The absence of some relevant social and economic foundations can be one of the reasons the cluster approach fails. There are many examples of unsuccessful cluster performances because of a lack of appropriate business environment. Existence of the critical mass of relevant enterprisers is a key element for cluster existence. Considering the preconditions of cluster formation is very important to keep in mind that they are specific and unique in terms of the nature of the industry. Some clusters require more matured infrastructure and business experience of participants as opposed to others. For instance, success of the innovation cluster high depends on existence of science parks, universities, educational institutions and high-skilled labour force in the region. Regulations should not be terribly strict when making patent mechanisms easier for patentees and innovators.

Moreover, cluster preconditions may vary depending on the location where they were implemented. Culture, mentalities, history, and background play crucial roles in the forming of clusters. However, we can generalize and classify the main preconditions of cluster development. The most developed clusters have five basic characteristics, three of which are considered starting conditions for implementing a cluster approach.

Existence of competitive enterprises

A key condition of cluster development is the existence of competitive market enterprises. The concentration of high employment in the depressed enterprise may be a prerequisite to form and develop cluster but it is not a criterion of cluster existence. A relatively high level of productivity of firms and sectors within the cluster, the high level of the exportation of goods and services, strong economic performance of firms (profitability, shareholder

value) can be a criterion of competitiveness. Porter (1998) believed that clusters influence on the competition in three different ways. They augment the productivity of firms within a local area and motivate firms to innovations. In addition the clusters attract new start-ups. When firms compete within a cluster this has a positive effect on the national competitive advantage. As industries become more and more engaged in international activity there is a tendency for companies to come closer together to maintain a competitive advantage (Porter, The competitive advantage of nations, 1990).

Existence of cluster competitive advantages in region

Competitive advantages of regions can be an access to raw materials; availability of specialized human resources, suppliers and related services, specialized education and training programs, the relevant infrastructure and other factors. Moreover, a high level of FDI[3] could be considered as indicators of advantaged location.

Geographical concentration and proximity

Key members of clusters are supposed to be geographically close to each other and have opportunities of active interaction. Consequently, the closeness enables new ideas and innovation to be widespread. The geographic scope can vary depending on the type of characteristics of the cluster and whether or not one or more regions of the state is included. The high specialization of performance in the region can be indicative of geographical concentration.

Geographical proximity was initially the central idea of the cluster approach. Although the some experts have tried to refute the importance of physical agglomeration, there are many important aspects, explaining why geographic proximity is the core of the cluster concept.
According to Rosenfeld (1997, pp. 3–23), firms reap the benefits of economies of scale when they can co-locate, co-market and co-produce in the same geographic location. When firms are concentrated in one area, they become synergistic since they are interdependent. Co-operation reduces the risks associated with the starting of a new activity or investment in new products or processes. Rosenfeld (1997) argued that being within the same geographic area is very important for cluster-participants in order to be close to competition, clients, products and suppliers. This will allow them to work together more efficiently Best (1990) believed that the geographical proximity ensures a continuous flow of technical and commercial information as well as the diffusion and local rootedness of competences and skills to foster entrepreneurial activity. He argued that an exchange is not only money and goods but ideas, particularly as solutions to problems.
Geographical proximity between firms and research institutes contribute to an informal exchange of non-encoded, tacit knowledge and its accumulation. At the same time, social

[3] FDI stands for Foreign Direct Investments

capital can be particularly beneficial for the support of joint efforts, but can also lead to lack of mobility, and obstruction of innovation.

Wide range of participants and "sufficient critical mass"

In order to reap clusters benefits, the existence of sufficient critical mass of participants is very important. The critical mass may serve as a buffer and give the cluster stability to external influences and pressure. Conversely, a lack of critical mass can make clusters more vulnerable to the loss of specific resources and skills. In some industries with complicated production processes, such as industries of nuclear sectors, pharmaceuticals, automobile and shipbuilding, the achievement of critical mass is essential. The high level of employment and the number of participants-companies are indicators to measure the sufficient critical mass.

Another point of critical muss is that cluster-participants have to be diverse otherwise cluster would be no more than an enlarged company with many branches and subcontractors. The recent mapping of the clusters showed that they mainly include a large number of small and medium size enterprises. Not only are firms significant potential actors. Clusters may enter into alliances with a variety of intensive institutions such as universities, research institutes, public authorities, consumer organizations, and much more. Four main categories of factors are usually present in the cluster: firms, government, financial and research institutions.

In addition, the institutions of cooperation play a key role in forming clusters. They can help to create completely new structures and to involve many organizations, but may also represent a number of already-established factors, such as business chambers, industry and professional associations, labor unions, technology transfer and others. Different actors are involved in cluster initiatives in various ways and incentives. Their capabilities and roles can vary depending on industry context and the period of the life cycle of the cluster. When the cluster concept was implemented for first time, the attention of strategists, practitioners and researchers was focused on clusters as whole. However, as attention gradually shifted to issues that may arise in the sharing of knowledge and skills, they have developed as a systematic approach, which emphasizes the interaction and interdependence of the various involved parties. For example, more attention was paid to the role of universities. Universities are crucial not only because of their natural mission in education and research, but also because of their ability to serve as a bridge of scientific-industrial collaboration.

Existence of interactions and cooperation between participants

One of the major success factors of the cluster development is the existence of business relationships and coordination between members. These links can be different in nature

including a formalized relationship between a parent company and suppliers, or between firms and educational institutions. In the cluster policy as collaborative efforts, trust is an essential element of successful implementation. According to Lorenzen and Maskell (2004), the existence of trust forms new markets because companies can share knowledge more freely, without worrying about whether or they will not gain anything. The Cluster Initiative Greenbook (Solvell, Lindqvist, & Ketels, 2003) provides evidence that a high level of trust among firms is directly correlated to better performance.

Permanent multi-aspects interaction in complementary activities leads to the process of mutual learning, experimentation and innovation. But clusters may go beyond the constraints within a single sector. They can cover various sectors and industries. Another important aspect into cluster's interaction is a cooperative competition which is the way small and medium enterprises confront external economies of scale, used by large enterprises. Lobbying, foreign market research, joint export promotion, trade fairs and specialized investments in infrastructure are typical areas where competing manufacturers can collaborate. On the other hand, they can compete in the areas such as marketing, production, sales, new products and process improvements.

In conclusion we can sum up that the cluster phenomenon is not just an economic sphere but also it is considered in the broader social and institutional aspects. Therefore the implementation of the cluster approach requires the cooperative development of all players involved in it. As shown in practice, the "top-down" approach is not always successful in cluster development. The main role of government as a tool for clusterization is to prepare and adapt favorable conditions for players. Worldwide trend towards decentralization brings an increase in the role of local government relative to the central government and it shifts traditional industrial policy to industrial cluster policy. As of result of the cluster ideology, corporations are now decentralizing and consolidating as well as outsourcing in an effort to achieve greater economies of scale (Hood & Peters, 2000). Autonomy is one of the advantageous traits of cluster. Two attractive features of working in the industrial district are shown as the greater degree of autonomy, and space for worker self-management that allows for better appreciation of worker skills and knowledge (Pyke & Sengenberger, 1990, pp. 1–9). There exists the capacity to restructure without the need to rely on managerial hierarchy. This enables the formation of a collective identity (Porac, Thomas, & Baden-Fuller, 1989). A further feature of clusters is flexibility in the ways of operating. Through close interrelations, small enterprises are able to achieve great flexibility and capacity to adapt, which permits them to respond rapidly to new external requirements and conditions (Giner & Maria, 2002). Flexibility is often obtained as a result of collective processes of decentralized co-operation in decision-making and is strengthened by the culture and know-how accumulated by local agents (Pietrobelli & Barrera, 2002).

According to Greenbook (Solvell, Lindqvist, & Ketels, 2003), cluster initiatives seem to be more successful if they are focused on a strongly established network of firms. Cluster policy has to be concentrated on activating firm's actions rather than on the creation of them. Clusters will be stronger in a good business environment and if they are part of a broader strategy. Isolated clusters have less power in decision making process. In addition, the more successful cluster can be as a driver of economic performance and it has an ability to see the long term advantages. On the other hand, governments are concerned about job creation which causes increased long-term satisfaction of labour force and has a positive effect on the productivity of firm.

1.3 Types of clusters

Depending on the industry, clusters are different in size, in width of coverage, in level of development. The nature of the cluster can change their boundaries as well as the appearance of new companies and industries. According to Porter (Porter, On Competiton, 1998), they are present in large scale and in a small economy, urban, rural, and on few geographical levels in the same time. Clusters are observed in both developed and developing economies. We will consider types of clusters only in developing countries. Classification for developed countries is not suitable for developing countries because of different levels of the economic development. Knorringa and Meyer-Stamer (1998) in their research on industrial clusters in developing countries classified industrial clusters into three types as it is shown in Table 1.

Table 1. Cluster Classification Relevant To Developing Country

	Italianate	**Satellite**	**Hub and spoke**
Main features	Mainly SME's strong specialization, strong local rivalry and networking (coopetition); and trust based relationships	Mainly SME's, dependent on external firms often based on cheap labor	Large local firms and local SMEs and a clear hierarchy
Main strengths	Flexible; specialization and high-product quality; and high-innovative potential	Cost advantage and embedded skills/tacit knowledge	Cost advantage; flexibility and strength of large firms

table continues

continued

Main weakness/ vulnerability	Slow adoption of technology and resistant to change in economic environment	Dependency on external actors for sales, inputs, and know-how; limited scope for local activities to create competitive advantage	Whole cluster depends on the performance of a few large firms
Typical trajectory	Stagnation or decline with changing internal division of labor and outsourcing of certain activities to other locations	Stagnation integration of backward/forward steps, offering complete package to external clients	Stagnation/decline (if large firms stagnate/decline); changing internal division of labor (large firms outsource activities locally)
Promising policy interventions	Collective action to shape locational advantages, public-private partnerships	Typical instruments of SME upgrading (training at all levels, technology extension)	Partnership between large firms, business associations & public agencies to strengthen SMEs

Source: P. Knorringa, and J. Meyer-Stamer, New Dimensions in Local Enterprise Co-operation and Development: From Clusters to Industrial Districts, 1998.

However, the above typology is not exhaustive in regard to developing economies. Another approach elaborated by Mytelka and Farinelli (2000) may reveal gaps of previous classification. They classified industrial clusters into three types based on the inherent characteristics of industrial clusters as it depicted in the Table 2. (Adams & Wang, 2009)

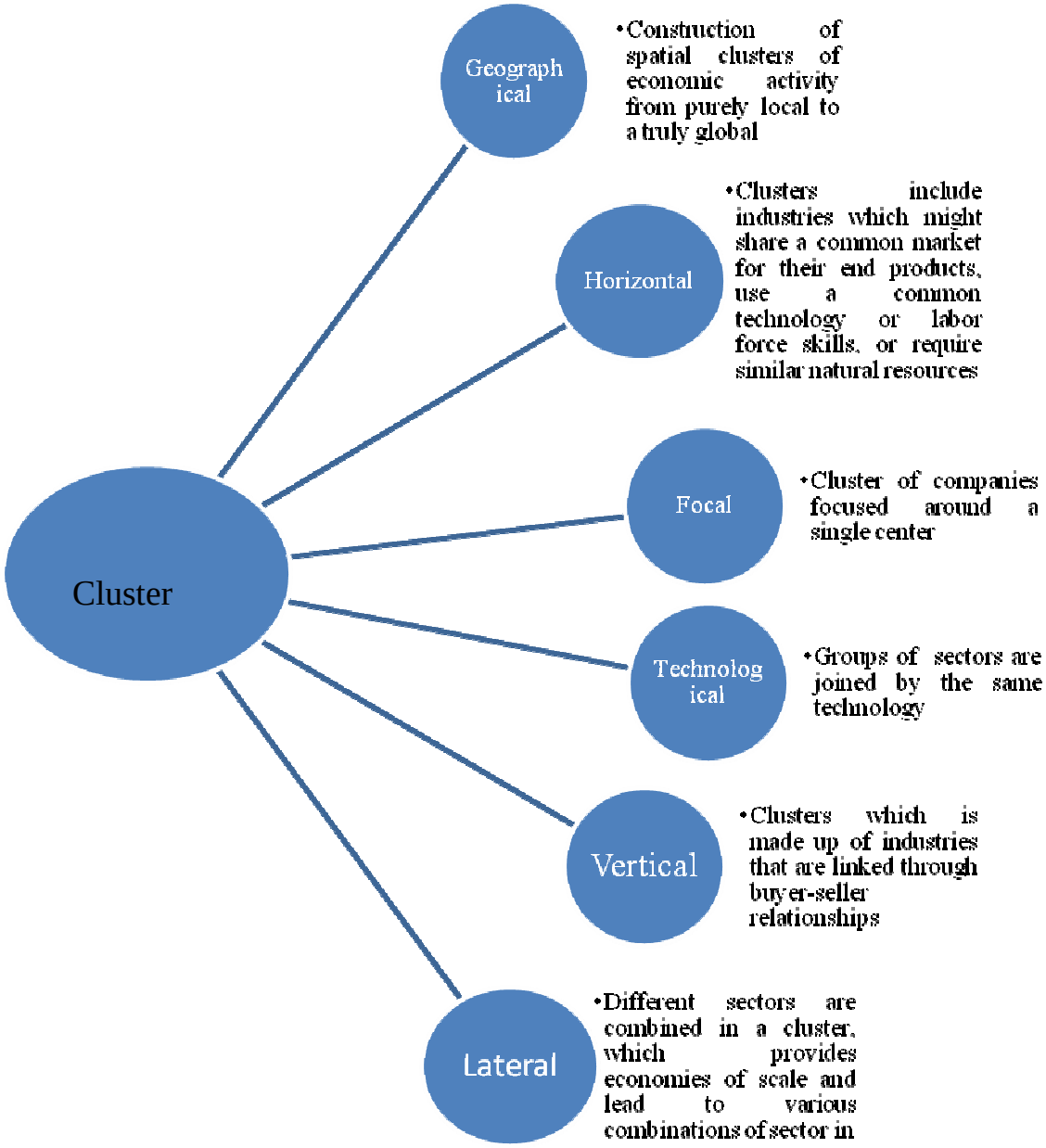
Table 2. Cluster Types And Their Inherent Characteristics

Types	**Informal clusters**	**Organized clusters**	**Innovative clusters**
Examples	Suame Magazines (Kumasi, Ghana)	Nnewi (Nigeria) Sialkot (Pakistan)	Jutland (Denmark) Belluno (Italy)
Critical economic factors	Low presence	Low to medium presence	High presence
Size of firms	Micro and small	SMEs	SMEs and large
Innovation	Little	High	Continuous
Trust	Little	High	High
Skills	Low	Medium	High
Technology	Low	Medium	Medium
Linkages	Some	Some	Extensive
Cooperation	Little	Some, not sustained	High
Competition	High	High	Medium to high
Product change	Little or none	Some	Continuous
Exports	Little or none	Medium to high	High

Source: L. Mytelka and F. Farinelli, Innovation Systems and Sustained Competitiveness, 2000.

In the literature there are different approaches to the classification of clusters. Currently, experts describe the six main characteristics of clusters as follows (Figure 1).

Figure 1. Characteristics Of Clusters



Originally industrial clusters were probably created spontaneously. According to majority of experts, the spontaneously-created clusters are the strongest type in terms of viability. In this case the entrepreneurs know “what to do” and “how to do” business in cooperation with cluster-members. As an example of the spontaneous formation of a cluster can be a cluster in Tuttlingen (Germany). The transition to the production of surgical instruments was largely provoked by the successes of competing manufacturers of knives from Solingen. In the other hand, there are cluster created by the efforts of central and/or local governments or by the efforts of anchor company. The cluster in Sialkot in Pakistan (Table

2) is good example of purposefully-generated cluster which has been created by the colonial administration and the local authorities. This is an example when entrepreneurs know “what to do” but do not know “how to do”. Some researchers distinguish a third type of agglomeration where entrepreneurs do not know “what to do” and “how to do” and, consequently, they do nothing. Beshimbayev (2007) has insisted that third type of clusters is similar to situation in Kazakhstan. He has argued that domestic producers and the business are not yet ready for long-term competitive strategy. The successful cluster forming can be possible even if entrepreneurs have never had business contacts with each other. A key element of such cluster forming is a sufficient level of trust between participants, which is achieved through mutual learning by a specially trained external agent known as a “cluster broker” (Vladimirov & Tretyak, n.d.). The cluster agent can be employed by the same future participants of cluster, the anchor firm which seeks to enter at the regional market, and the local administration. Purposefully-generated clusters can develop successfully and then create a profitable, stable and strong cluster.

Another classification of clusters is based on the stages of development. Cluster classifies into five types: pre-cluster or agglomerate, incipient, developing, mature, and transforming. The first stage assumes the presence of a sufficient number of participants. The second stage requires that there are several companies are united around the "key" areas of the cluster, expanding the overall prospects of cooperation in a region. The third stage, the developing cluster, is characterized by the new entrants. The attractiveness of industry increases and lures new start-ups expanding the cluster’s scope. The fourth stage of cyclical development reaches a critical mass of participants and develops relations beyond the region. Changing market conditions and technologies has an effect on cluster development. To survive and not allow the cluster‘s stagnation, business members concentrate around the new opportunities, products and innovation. This transforms the cluster into a new cluster.

1.4 Criticism of cluster policy

Cooperation of all stakeholders and the establishment of specialized clusters help reduce costs and improve product quality. Clusters foster high level of productivity and innovations. However, it is not protected from pitfalls and risks that might considerably reduce competitiveness and leads to stagnation or decay of whole cluster. We can distinguish the five following disadvantages of cluster approach. One of the cluster advantages is the possibility of internal specialization and standardization. This is achieved by the mutual and efficient exchange of ideas between specialists, creating the competitive environment. On the other hand, this can have its pluses and minuses. The **overspecialization** can bring a vulnerability to the region. A lack in permanent technological upgrading may damage the competitiveness of the cluster. Another pitfall of the clustering is **inflexibility** to environmental changes. A strictly conservative structures and management can lead to risk of delay or prevent a radical reorientation of the

necessary restructuring. However, in an inflexible cluster, we can observe rarely but changes in the introduction of new technologies and innovations. In case when cluster reached full blockage begins process of cluster decline and leads to the complete death of the cluster and its inability to accept any changes. Strongly embedded clusters are more subjected to the **effect of blockage**. Firms gradually become closed to new business partners, new opportunities, and the ability to innovate.

The pressure that is created by strong competition into clusters as well as the pressure in the market of products are always advantageous and promote innovation. Unlike stand-alone companies, cluster-firms better feel market condition and faster react on any environment's changes. Firms participating in clusters are open to each other and able to share any risks involved. However, this narrow cooperation can lead to **reduction of competitive pressures** destroying the capability to innovate.

Experts distinguish the following main challenges associated with the implementation of cluster policy. Some firms are apprehensive to share technology with other firms due to a lack of trust and the fear of losing control. Furthermore, just because firms are close together does not mean that they will be concerned with forming relationships with each other (Perry, 1999). Lack of trust between companies is probably a whip of all the countries emerging from the collapse of the old communist system. The breakdown of banks, the loss of savings, compounded even greater distrust of government. Another important barrier in clustering is the lack of specialized policy-makers and competent professionals. Business illiteracy and low levels of experience working in cooperation hinders the development of cluster initiatives in developing countries.

The institutional context of cluster implementation is one of the most important challenges for cluster-participants. The clusters may not generate the same economic benefits when involved in weak state-organized institutional settings as if operating in strong collaborative institutional contexts. Most researchers and academicians have focused on the internal structure of clusters and their formation. The study of the textile cluster in Turkey indicated that the institutional make-up of the country can discourage factors from changing patterns of organizing for innovation. Some specific historical and social circumstances of environment can be as barriers to entrepreneurial activity as well. Becattini (2002) argued that cluster has not only main characteristic of industrial district but it is including the attitudes and values of local population. In this view, districts are socio-economic systems joining together a community of people with common values or culture and economy (Paniccia, 2002). The success of clusters does not solely depend upon the economic sphere but also on the broader social and institutional aspects. From the economic point of view, a cluster is a group of firms where each specialized in a different manufacturing phase of a dominant regional industry and constitutes a model of extensive division of labour. From the social point of view, there is relatively a homogeneous system of values and views that creates community standards or norms of reciprocity and trust

(Lorenz, 1993). All these conditions make cluster policy extremely specific in each particular case and context. It is very difficult to talk about cluster policy in general or try to predict success or failure of some cluster. This gives vulnerability to the cluster's research and generates so much controversy. Moreover, there is a strong debate about the measurement of cluster performance and effectiveness of cluster-based economic policies.

1.5 The economic benefits of clusters

According to Lucas (1988), the driving force behind the growth and development of cities and regions is the productivity gain associated with the clustering of talented human capital. Martin, Ottaviano and Baldwin (2001) demonstrated that spatial convergence of regional economic activity stimulates economic growth as a result of significant reductions in innovation costs. In addition, Crafts and Venables (2003) argued the importance of geographic convergence to economic performance, scale and location, in terms of the relative decline of Europe, the rise of America and the renaissance of Asia. Researchers and policy-makers are always interesting in the measuring of influence of cluster performance on the economic development. The Global Competitiveness Report (2009) based on survey data from more than 8,000 business leaders, have found a positive and statistically significant relationship between the cluster's performance in the national economy and GDP per capita, a broad measure of national productivity and prosperity. Despite the fact that the statistical correlation does not prove causality, it strongly argues that the development of strong clusters is one aspect of overall economic development.

The Cluster Mapping Project, which has been used to measure the impact of cluster presence on economic performance in US regions, confirmed the important role of strong clusters for regional prosperity. The share of a region's employment in specialized cluster is positively and significantly related to higher average regional wages. Secondly, the more regions concentrated their employment the higher their wage growth. Being strong in some fields seems to be more important than having a presence in all fields. It is important to keep in mind that there are two aspects of cluster performance. There is increasing evidence and agreement among researchers that clusters exist and that they have a number of positive economic effects. There is less systematic evidence and agreement that policy interventions are possible and that they can generate value by speeding up the process of cluster development or increasing the effectiveness of existing clusters. However, government policy plays an important role in pushing the firms into a cluster. The externalities do not occur spontaneously. They can be triggered or strengthened by the purposeful adequate political action. Time which takes a cluster implementation can be corrected by the policy action as well.

If cluster can be created the next important questions arises. Are the resources spending to "create" a cluster higher than economic value which it generates? The answer is still quite unclear. There are sufficient examples of successful clusters in history as well as a failure

in implementation of purposeful cluster policy. The second question is: Can a purposefully-created cluster further survive without financial support? Cluster formation is a very long and costly process with a high failure rate that can generate constant dependency of region from government financial support. The one of the good examples of long financial dependency from government is an establishment of research infrastructure in California. Despite the fact that cluster successfully operates today it takes around thirty years to be independent.

No less important aspect of cluster policy is which industry has to be targeted. In order to concentrate on few fields, government picks up the most advantageous industries. However, the targeting is some sort of interventions into a competitive process which can leads to break up of a health competition and innovation process. Moreover, this top-down approach of economic development is very costly for public budgets. Cluster approach has to be focused on the removing the most serious bottlenecks for higher productivity and innovation for a cluster by mobilizing the capacity of cluster participants to act jointly. In order to identify the most limiting factors, companies must be part of this process. To act upon these findings, a broad group of institutions will have to work together. Depending on the specific circumstances, all stakeholders related to the cluster from the government and individual companies to trade associations and universities have to be involved.

Although the cluster is not the only effective instrument of economic policy and only one of them, its ability to be more innovative and productive has a huge impact on economy at large. Cluster policy is a more effective at the regional level. The direct firm-level interventions destroy competition and costly for government' budget while a regional cluster policy are widespread at broad industry system. It has a little effect on each individual firm operation and correspondingly on whole competitiveness. However, the national-level cluster policy has a risk to miss precision for a specific cluster (Ketels C. , The development of the cluster concept - present expiriences and further developments, 2003, p. 19). Numerous studies demonstrate that wide cluster perspective is less effective in achieving microeconomic improvements. The capability of systematic approach in cluster policy is very important. It allows searching barriers and drivers to competitiveness in whole economy rather than within only individual company or a single industry. Cluster policy opens perspective beyond the business sector by assisting to solution discovery for infrastructure improvement, education and low regulation systems (Ketels, Lindqvist, & Solvell, 2008, p. 31).

2 KAZAKHSTAN OVERVIEW

The Republic of Kazakhstan lies between two worlds Europe and Asia. It is the world's largest land-locked country and the ninth largest country in the world by size. Territory of the county stretches on 2,727,300 square km, which is greater than Western Europe in its entirety. Kazakhstan is bordered with two great powers: Russia on the north, China on the east; and with Kyrgyzstan, Uzbekistan and Turkmenistan on the south. Despite its enormous size, the population density is less than six people per square km, which is the 224th place in the world out of 239 countries (World Pupulation Prospects: The 2008 Revisiom Population Database, 2009). From 1990 to 2002, the population growth rate was negative. It was connected with big ethnic Russian migration. Since 2003, the population of Kazakhstan has increased almost by eight percent. In 2010, the population amounts to 16,036,100 million people (The Agency of Statistics of The Republic of Kazakhstan, 2010). Representatives of 131 nationalities live in Kazakhstan. The largest nationality groups are Kazakhs (53.4 %), Russians, Ukrainians, Uzbeks, Germans, Tatars, Uigurs. They make up 95 percent of the total number of country population. The state language is Kazakh; belongs to the Turkic languages group. In state organizations and local authorities, Russian language is equally and officially used. It is considered as a business language of country.

Kazakhstan is a young country which declared itself an independent country on 16th of December in 1991. From 2000 to 2006, Kazakhstan experienced a high economic boom with an average annual growth rate of 10 percent. The export of hydrocarbon sector played a main role in extremely high economic growth. The exploration of crude oil increased from 26 million in 1991 to 76 million in 2009. In 2009, the hydrocarbon sector accounted for 60 percent of the country's industrial output. In addition, 72 percent of all investments of the mineral complex were allocated in the hydrocarbon sector. Since 1996, foreign investments in this sector had risen almost 15-fold. Expansion of the hydrocarbon sector sustained high economic growth and considerable foreign inflows in the county's economy. On the other hand, this lead to a high dependence from the export of raw materials. The majority of the state budget has filled up by petrodollars rather than by taxes. Therefore high fluctuations of oil prices affect the vulnerability of economy.

However, the successful development was a result of not only favorable conditions in the oil industry. Since independence, Kazakhstan has implemented a number of comprehensive reforms that have turned the country from a planned economy into the state with the successful developing economies. Kazakhstan has relatively liberal economic relations, the modern market infrastructure, a stable national currency - tenge, and one of the most progressive financial and economic systems in the post-Soviet space. Moreover, Kazakhstan's banking sector has made significant success since 1991. The financial system is a leader in innovation, including the creation of successful private pension funds, the National Oil Fund, which are accumulated revenue from oil export for future generations

(Банковская система Казахстана названа самой прогрессивной на всем пространстве СНГ [The banking system of Kazakhstan is the most progressive in the whole CIS], 2001). For attracting investors, the government developed a favorable investment climate. From 2000 to 2008, the foreign direct investments significantly increased by tenfold, which is the highest investment per capita in CIS[4]. Furthermore, in order to protect the economy and to achieve sustainable economic growth, the government developed strategic program to diversify economy and to avoid Dutch-disease. In 2010, the government is going to spend 67 billion dollars on different industrial projects.

2.1 Political, economic and social conditions in Kazakhstan

Republic of Kazakhstan is the unitary state with presidential form of government. The principle of independence and the political system were formulated in the first Constitution of Kazakhstan in January 1993, which was approved by referendum on the 30th of August in 1995. Kazakhstan's parliament is the supreme legislative body and consists of two chambers: the Senate (Upper House) and the Mazhilis (Lower House). The 47 members of the Senate are indirectly elected representatives of regional assemblies and appointees of the president. The Mazhilis is composed of 67 elected deputies. Both chambers are elected for a four-year period. Only one political party, Nurotan, is represented in Kazakhstan's parliament which cannot guarantee the democratic regime. Moreover, the limited division of power may expand the public corruption and decrease transparency of the governing process. However, on the other hand, the absence of party and ideological opposition may help push through economic reforms and contribute to political stability, a prerequisite for a favourable investment climate. The prime minister is the head of the executive branch of government and is appointed by the president, with the approval of the parliament. Territory of the country comprises of 14 regions where akims are heads of local administrations. Akims are appointed by the president. Since the December 1997, the capital of Kazakhstan has been Astana (About Kazakhstan).

According to a majority of experts, Kazakhstan is a constitutional republic with a strong personalized presidential regime. Nursultan Nazarbayev has been a president since Kazakhstan became independent. In 1995, Nursultan Nazarbayev expanded his presidential powers by changing constitution. In 1998, the parliament extended the presidential term from five years to seven. Then, they abolished the term limits for the first president. Only he can initiate constitutional amendments, appoint and dismiss the government, dissolve the parliament, and appoint administrative heads of regions, Astana and Almaty.

Furthermore, in May 2010, the government granted to the president the "national leader status", providing guarantees of non-persecution and the right to influence politics after possible retirement. They decided to give the president and his family members full

[4] CIS stands for Commonwealth of Independent States

immunity from all criminal or administrative offences he committed during the presidency or afterwards. In addition, to defame the president, distort facts of his biography, and damage or ridicule his images will be considered as illegal and can be sued (Nurmakov, 2010). Kazakh lawmakers proposed to create a museum dedicated to the first Kazakh president and building a monument to Nazarbayev in Astana as well (Pitalev, 2010). The proponents argued that Nazarbayev deserved to be seen in the same light as figures like George Washington, Mustafa Kemal Ataturk, Mahatma Gandhi and the founder of modern Singapore, Lee Kuan Yew.

Kazakhstan is the current chair of the Organization for Security and Cooperation in Europe. It is the first post-Soviet country to hold this position. Kazakhstan promotes itself as a booming and foreign investment-friendly state but the constitutional amendments can spoil this image. More and more politicians and academicians have repeatedly criticised the authorities, especially for crackdowns on press and Internet freedom (Ma-Shan-Lo, 2010).

Despite his autocratic regime, Nazarbayev has been keeping the country stable regardless of its ethnic, religious and regional differences. In time of his governing Kazakhstan achieved impressive results in financial, economical and legislative development. According to Kozbagarova B. and Wandel, J. (2009, p. 10). Kazakhstan justifies the expansion of presidential power referring to the successful Asian model. In these countries political reforms takes a back seat to economic growth, “once economic recovery is ensured, political democracy will be introduced”. In contrast to Turkmenistan and Uzbekistan, Kazakhstan has a considerably high economic transformation process.

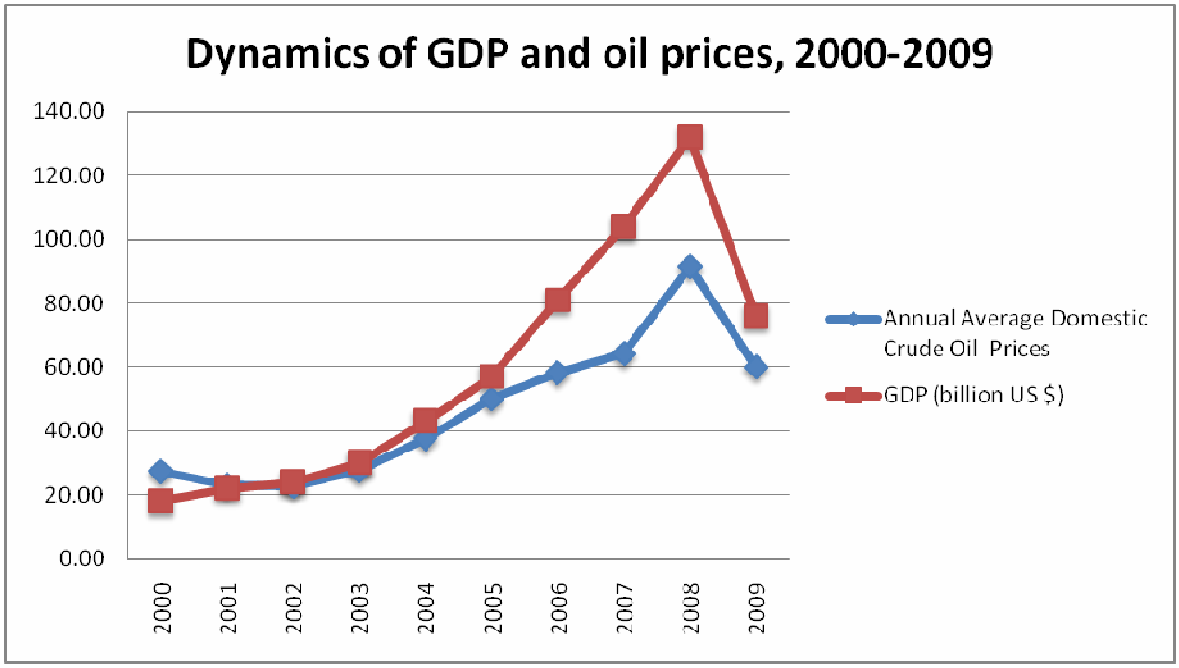
In the beginning of the Soviet era Kazakhstan was completely as an agrarian supplier, particularly in grain sector. During the industrial crisis in 1920, the Soviet Union recognized the necessity of industrial development. Kazakhstan, according to plan of the Moscow authorities, had to become one of the major areas of rapid industrialization. Soviet’s government strongly advocated the establishment of the mining industry and railway transport system to export raw materials from country. Several local leaders led by S. Sadvakasova opposed and offered to develop the manufacturing and light industry, take into account country's interests during the industrialization, not to turn it into a colony. However, the industrialization of Kazakhstan was prevailing by majority views to develop solely raw material extraction. Nevertheless, the extraction of crude oil was not dominant in supplying in that time. Kazakhstan was developing solely those areas which could not been met by existed Soviet’s sources. Since then, Kazakhstan has become a supplier-economy concentrating on the export of primary raw materials in exchange for its manufactured imports. Therefore supply chain has been well-developed only in the north direction to the Russia’s market. The expansion of industry also gave impetus to the simultaneous growth of the transport, telecommunications, and other infrastructure activities.

During the industrialization Kazakhstan achieved second place in production of non-ferrous metals and became the third-largest oil and coal producer in the Soviet Union. In 1939, industry share amounted to 58.9%. The industrialization had been accompanied by the accelerating level of urbanization. During that time, the proportion of urban population considerably increased three-fold. In addition, it promoted a detachment of skilled workers, engineers and technicians. Their share substantially grew from 10.7 percent in 1926 to 33.8 percent in 1939. Kazakhstan, in a historically short period, from a backward feudal territory turned into an agrarian-industrial republic. More than 500 thousand Kazakh nomadic and semi-nomadic households moved to the residence. Furthermore, it was a considerable growth of migration from Russia, Ukraine and Belarus to meet labor demand for the extensive industrialization. The second wave of industrial development had been started with the beginning of the Second World War. In order to protect industry and to continue produce industrial outputs, the Soviet government has been decided to move many of heavy industry far east-south, in Kazakhstan.

After the collapse of the Soviet Union and with acquiring of independence Kazakhstan faced a lot of challenges such as a falling in demand for Kazakhstan's traditional heavy industry products and underdeveloped supply chain. This has been resulted in the devaluation of savings, salaries, and pensions and left the economy in a terrible state. According to macroeconomic indicators, Kazakhstan lagged behind the development of Russia for 12 years in time of the collapse of Soviet Union. In the first 2 years following the disintegration of the USSR, Kazakhstan began to define its strategy for the transition from communism to a market-based economy. One of the most important elements in this transition was the transfer of property rights from the government to the private sector. Establishing private property rights was, therefore, a first step in the transition to the economically rational use of resources. In 1993, Kazakhstan government adopted a privatization program to return control of economic assets to the people themselves. In its first decade of independence, Kazakhstan made great progress in the transition to a modern, democratically governed state with a market-based economy (Kazakhstan - Working conditions). In 2000, Kazakhstan became the first former Soviet republic to repay all of its debt to the International Monetary Fund, the seven years ahead of schedule. In September 2002, Kazakhstan was the first country in the CIS who received an investment-grade credit rating from a major international credit rating agency (Economic Overview. International Information Centre of the Republic of Kazakhstan, 2007). In the same year, Kazakhstan has been recognized by both the EU and the United Sates as a market economy since 75 percent of GDP had been derived from private sector.
Nevertheless, as we can see on Figure 2 there is a noticeable correlation between oil prices and GDP growth. Continued growth of oil price allowed Kazakhstan to further enhance its export. As we can see from Figure 2, there is strong correlation between growth of GDP of country and prices on crude oil. Between 2003 and 2008, there was an extremely high demand on oil therefore oil prices increased substantially. Its number soared from slightly less than 40 US dollars in 2003 to almost 140 US dollars in 2008. Similarly, we saw a

considerable growth in GDP. From 2003 to 2008, this number dramatically grew four-fold. Since 2008, we have seen a fast drop in the oil prices and GDP as well.

Figure 2. Dynamic Of GDP And Oil Prices, 2000–2009

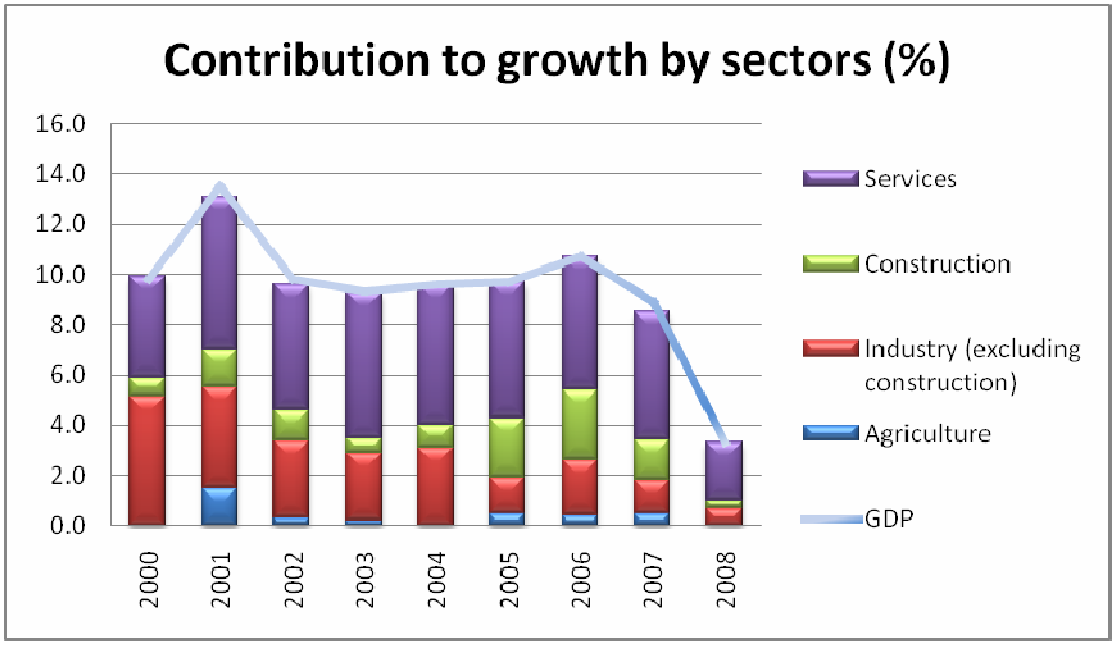


From 2000 to 2007, Kazakhstan enjoyed double-digit growth not only because of booming in energy sector, but because of economic reforms, good harvests in agriculture sectors, and attracted foreign investments as well. In 2007, Kazakhstan was the undisputed leader in terms of attracted investments among the CIS countries. Over 80 percent of all foreign direct investments into the Central Asian region have been invested in Kazakhstan's economy. According to the World Bank, Kazakhstan is among the top twenty countries in the world which are the most attractive for investment. Between 2000 and 2008, the inflow of foreign investments in Kazakhstan boosted from 10 billion dollars to almost 50 billion dollars. In addition, the European Investment Bank considers Kazakhstan as the most attractive investment partner in Asian region (Инвестиционная карта. Казахстан, СНГ и другие [Investment Map. Kazakhstan, CIS and others], 2009)

The information on the Figure 3 relates to the contribution of each sector to total growth of the country. As we can see the GDP growth reached a peak at 13.5 percent in 2001. The high growth was derived from a dramatic increase in construction and agriculture sectors. In 2001, the government adopted the new law, which strengthened the legislative framework for the introduction of private ownership of land and development of mortgage in construction sector. The second peak was in 2006 at almost 11 percent. Beside a service sector, the construction and industry sectors provided almost 50 percent of total GDP growth. From 2003 to 2006, we saw a gradual rise in construction sector and it became another main engine of growth. Then, since 2007 there has been a rapid fall in this sector

due to a big impact of world financial crisis. In 2008, contribution of construction sector to GDP growth dropped five-fold.

Figure 3. Contribution To Growth By Sectors, (%)



Between 2000 and 2007, share of industry in GDP decreased from 33.2 percent to 28.3 percent, while the contribution of construction rose almost twice. During this period, commercial banks began to increase its external borrowing which led to a substantial increase in gross external debt. It amounted to 108 billion dollars in the end of 2008. The private sector reached 97.8 percent in total external debt which was not guaranteed by the state. As a result, the economy acquired a form of "housing bubble".

As we can see on the Table 3, the external dept boosted almost nine fold from 2000 to 2009. It reached 111,326 million dollars in 2009. Between 2000 and 2008, there was a stable growth in GDP. Its number considerably raised from 18,294 million dollars in 2000 to 132,299 million dollars in 2008. Then, we noticed a dramatic decline in this number. After almost a decade of rapid expansion, economic indicators substantially dropped in 2008 under the pressure of the global financial crisis and economic slowdown. Restricted access to international capital markets nearly halted domestic lending and triggered a slump in real estate. Due to a high integration in global economy Kazakhstan's economy one of the first has been damaged by financial crisis. The price inflation remained stable from 2000 to 2006 and it moved into double digits in 2007. The authorities responded to the shocks by supporting banks' capital, adopting financial policies to sustain growth, and adjusting the exchange rate.

Table 3. Selected Macroeconomic Indicators, 2000-2009

Column	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
GDP (mill US $)	18,294	22,152	24,636	30,833	43,150	57,124	81,000	104,853	132,229	76,074
GDP per capita (US $)	1,229	1,491	1,659	2,074	2,847	3,771	5,292	6,548	8,492	4,821
Inflation	13	8	7.1	6.8	6.7	7.5	8.4	18.8	9.5	6.2
Unemployment	13	10.4	9.3	8.8	8.4	8.1	7.8	7.3	6.6	6.6
External debt	12,658	15,158	17,981	22,767	32,713	43,429	73,996	96,914	108,130	111,326
Balance of payment (mill US $)	585	384	535	1,533	3,999	-1,944	11,134	-3,051	2,188	272
Trade balance	2,440	1,320	2,300	4,088	6,785	10,322	14,642	15,100	33,518	9,053
Export (mill US $)	9,288	8,927	10,026	13,232	20,603	28,300	38,762	48,351	71,970	29,887
Import (mill US $)	-6,848	-7,607	-7,726	-9,144	-13,818	-17,978	-24,120	-33,260	-38,451	-20,834
Balance of service (mill US $)	-872	-1,524	-2,152	-2,251	-3,099	-5,268	-5,912	-8,071	-6,615	-4,301
Export (mill US $)	1,132	1,301	1,584	1,773	2,009	2,228	2,807	3,552	4,382	3,115
Import (mill US $)	-2,004	-2,825	-3,736	-4,025	-5,108	-7,496	-8,719	-11,522	-10,998	-7,417
Share of GDP (percent)										
Industry	33.2	30.7	29.5	29.5	29.3	29.8	29.5	28.3	32.2	29.5
Service	48.4	49.3	50.5	51.5	53.3	52.0	51.7	54.3	52.1	55.6
Construction	5.2	5.5	6.3	6.0	6.1	7.8	9.8	9.4	8.1	7.7
Agriculture	8.1	8.7	8.0	7.9	7.1	6.4	5.5	5.7	5.3	6.2
FDI (mill US $)	10,078	12,917	15,464	17,567	22,367	25,607	32,689	43,381	47,660	n/a

Although the government spending on housing, medical care, and other social services is a considerable high, the qualities of these sectors remain weakly developed. The number of expenditure allocated in social sectors amounted to over 40 percent of total budget expenditures in 2009 (Statistical Bulletin, 2010). Moreover, this number rose by 34 percent in comparison in the previous year. In 2010, the government plans to increase this number approximately over 50 percent. Housing is one of the most challenging problems facing Kazakhstan today. Economic growth and the aspiration of the majority of Kazakhstan's population for upgrading their living conditions promoted the increasing relevance of housing construction. In this context, the key objectives of the state program of housing construction was to provide solutions to problems relating to housing construction development; and the provision of all segments of the population with affordable housing. The state programme has been aimed to improve a living, housing and environmental standards by 2020 particularly in rural area. Since 2000 year, there has been a significant increase in the average supply of housing. Houses in cities have been built at

an especially rapid pace. In addition, the volume of investment in house construction in 2007 rose by 60 percent (Improving social, housing and environmental conditions, 2008).

Kazakhstan's government provides the support for single mothers and disabilities. However, the amount of benefits is not sufficient to cover all costs and it has not kept up with inflation. Kazakhstan adopted the payroll tax-based rather than insurance-based system. One of the most telling facts about the current healthcare system is that the average life expectancy of 66 years is ranked at 156th place in the world (Central Asia: Kazakhstan, 2010). The reason of such low number is environmental pollution and the underdevelopment of healthcare system. Although sanatoriums and hospitals exist in many locations, the level of medical care is far below European standards. Public health suffers greatly in some heavily industrialized areas, such as the Qaraghandy province and East region of Kazakhstan. The Soviet authorities never seriously made environmental protection a high priority. A majority of manufacturing companies still work on out-dated equipments without any environmental protection. In the area of the Aral Sea, Kazakhs suffer from the pollution and salinization of the sea. Another polluted area is Qyzylorda which suffers from rocket launches and related activities in the Baikonur Cosmodrome (Almaty, 2008). However, people undergo the most serious general health problems in eastern Kazakhstan from the widespread radiation poisoning of the soil, food products, and water sources.

The infrastructure is very important for attracting foreign investors. The government has to provide appropriate living conditions for inhabitants and foreign investors. Although the government contributes a lot of efforts to improve situation in this area, there are still problems, which require considerable attention (Human Development Report. Kazakhstan, 2004). One of them is the significant reduction of the number of kindergartens due to the lack of state funding and non-existence of private sources. Moreover, the quality of operated kindergartens is very poor including a lack of hot meal or low quality food served, and buildings in poor repair. For improving social conditions, the government has substantially increased a social spending. "Despite the difficulties of the world economy, when many countries are reducing social spending, Kazakhstan since January 1, 2010 has been carried out a considerable growth of pensions and scholarships of 25 percent ad social benefits of almost 9 percent. Since July1, 2010 the wages to employee of public sector has raised by 25 percent"- said Prime Minister Karim Masimov (Выступление Премьер-Министра Республики Казахстан К.К.Масимова [Speech by the Prime Minister of Kazakhstan K. Massimov], 2010).

2.2 Business environment

Kazakhstan's success in privatization got a lot of attention from media and among politics and academics. Abandoning social principles in favour of rapid income gains for the few, the government sold a majority of public sector to a few large multinational corporations.

This led to the widespread perception of growing corruption, bribery, and cronyism (Kazakhstan - Working conditions). The big business groups emerged as a holding company. They were vertically integrated conglomerates and controlled multiple phases of the production process, such as financing, capital, and manufacturing. The president's daughters and their husbands have substantial shares in some of these holdings as well as in leading banks (Kazakh President Handed 'Leader Of The Nation' Status, 2010). Ten big holdings together control more than four-fifths of the country's economy (Kozbagarova & Wandel, 2009, p. 17).

The most recent report from the Heritage Foundation's Index of Economic Freedom rated the country as "moderately free" and ranked it 83 out of 179 countries, well above neighbouring Russia and China and just below the global average (Index of Economic Freedom World Rankings, 2010). This score is one point lower than last year's, primarily reflecting purported declines in freedom from corruption and respect for property rights. The Foundation's report scored Kazakhstan highly in trade freedom, fiscal freedom, government size, and labour freedom. Nevertheless, challenges to economic freedom still remain.

Corruption increases the cost and difficulty of doing business for foreign and local firms especially it relates to customs system. According to Transparency International the Global Coalition, Kazakhstan was ranked 120 places in 2008 in comparison to 145 in 2009 (Corruption Perceptions Index 2009, 2009). It showed noticeable improvements and government's attempts to create a favourable environment for investors and local enterprises. In spite of progress against corruption, it remains quite widespread, and the judiciary is often perceived as an arm of the executive branch rather than as an enforcer of contracts and guardian of property rights.

According to The Global Competitiveness Report 2009–2010, Kazakhstan ranked the 67th place as opposed the 66th in 2007–2008. It showed a moderate decrease by one point in country's competitiveness although Kazakhstan has set an ambitious goal to become one of the 50 most competitive countries (The Global Competitiveness Index 2009–2010 rankings and 2008–2009 comparisons, 2010). On the other hand, the World Bank's Ease of Doing Business Report showed a slight increase in doing business in Kazakhstan. There was a significant improvement in dealing with construction permits. Kazakhstan ranks the 143th place in 2010 compared to 177th in 2009. Similarly, we noticed a considerable progress in the paying taxes. It soared by 9 points (Explore Economies. Kazakhstan, 2010).

Since 2010, Kazakhstan has become the first country from the former Soviet Union with chairs in the Organization for Security and Cooperation in Europe. In addition, Kazakhstan plans to launch the project to improve the business environment for up to four years, which is sponsored by USAID. The project promotes economic development by providing assistance to strengthen the capacity of public and private sectors to participate in effective

dialogue. Moreover, it is aimed at developing modern free market, improving the implementation of legal reforms in business and public administration, and to reduce costs and remove barriers to the development of small and medium businesses.

2.3 Kazakhstan's potential

Kazakhstan is the biggest energy producer country in the Central Asia. The large foreign investment inflows to the oil and natural gas sectors made Kazakhstan a key world energy producer and exporter. Almost all big companies in carbohydrate business have their branches in Kazakhstan. Kazakhstan holds the largest proven oil reserves in the Caspian region. The carbohydrate reserve on the land and continental shelf are estimated approximately at over 5.5 bin tones or 39.8 bin barrels. The estimated oil reserves located only within the Kazakh part of Caspian Sea amount to more than 17 bin tones or 124.3 bin barrels (Nabazbekov & Ustimenko, 2007, pp. 5–8). Kazakhstan holds 11th and 8th places in the world in terms of proved reserves of crude oil and proved recoverable coal reserves, respectively.

Kazakhstan possesses enormous reserves of natural resources. Its mineral reserves put Kazakhstan at sixth place in the world. The 99 out of 110 elements of the Mendeleyev periodic table are found in the subsurface of Kazakhstan while 70 of them are prospected and 60 elements produced and used in industrial needs. Kazakhstan is one of the richest countries in terms of titanium, magnesium, tin, uranium, gold and other non-ferrous metals. Kazakhstan holds first place in the world tungsten production, second place in chromium and phosphorous ores, fourth in lead and molybdenum and eighth in iron ore. In Kazakhstan approximately 300 of the huge deposits of gold are prospected while 173 of them are detailed and investigated. There are rich deposits of potassium salts, borates, bromine combinations, sulphates, phosphorites and the different raw materials for the varnish and paint industry (Geography of Kazakhstan, n.d.). However, a lack of finance, investments, and appropriate labour force does not allow use the full potential of the country. The abundance of natural resources has both positive and negative effect on the economy. As a result of historical development referred to above, as well as the lack of experience has led to heavy dependence from resource extraction and underdevelopment of high value added production. Almost 90 percent of goods in the store are imported although the country possesses all resources to produce those goods.

Economic and geographic conditions of Kazakhstan make the transport component of the economy one of the most sizeable in the world and determine high dependence of the economy on the transport networks. Kazakhstan boasts a huge transit potential being between Europe and Asia. The main advantage is that the transit corridor through the territory of Kazakhstan is the shortest distance. Providing the communication between Europe and China via Kazakhstan, the distance will decrease two times compared to transit via the sea or to a thousand kilometres across the territory of Russia. However, the current

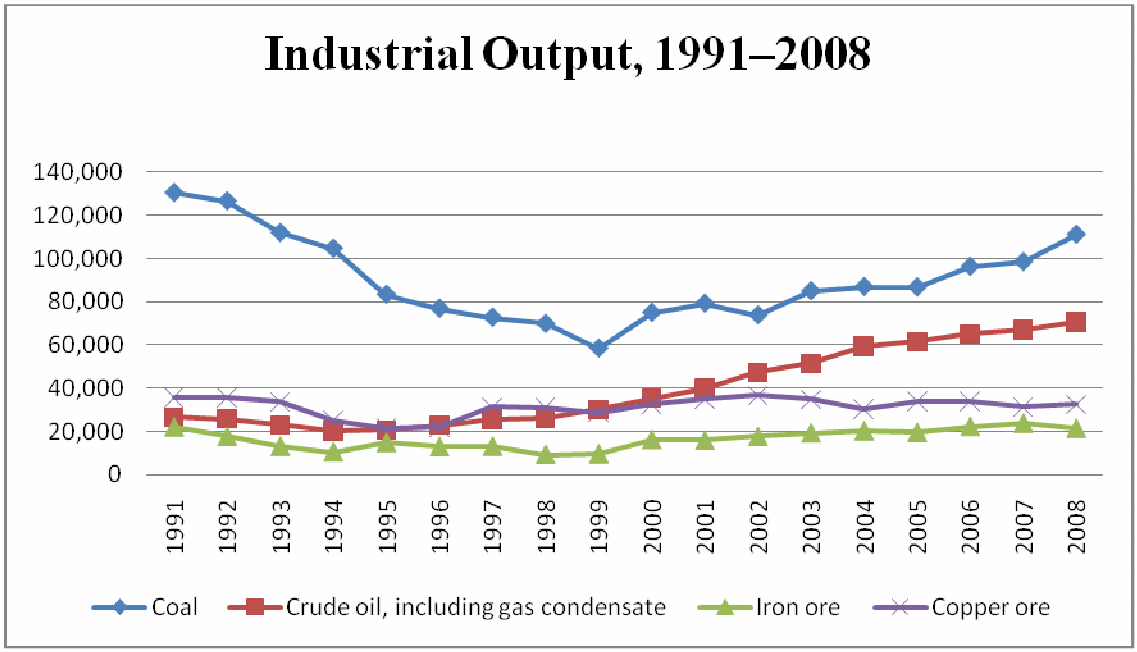
development of infrastructure is very poor. The quality of roads, customs procedures, and roadside service is very underdeveloped and do not meet world standards.

2.4 Industrial policy of Kazakhstan

Kazakhstan's economy passed two stages of development (Chayanov, 2009). Industrial development as part of economic development can also be divided into two stages of industrial development. During first stage, in 90th years, it was important to stabilize economic conditions and to carry out a basic structural reconstruction. At that time, the main tasks of the government's economic policies were to survive, to reform and to prevent social turbulence in society. Therefore the state's efforts were focused on solving current problems. The government attempted to squeeze out economy as maximum as possible therefore strategic objectives are not were taken into account. Therefore that time ties with increasing volume of extraction of raw materials and export.

The extraction of crude oil has risen substantially (Figure 4). Since 1994, its number soared three fold. Conversely, the coal production decreased considerably from 1990 to 1999. The main reasons for such a sharp decline were the cessation of state subsidies to the coal industry, long-term freeze of prices of coal products, the availability of obsolete or unprofitable mine fund, reduction level of effective demand, and slow adaptation of the industry to work in new economic conditions. However, since 1999 we have seen a dramatic growth in this sector. The production of copper and iron ore remained relatively stable between 1990 and 2008.

Figure 4. Industrial Output By Sector, 1991–2008

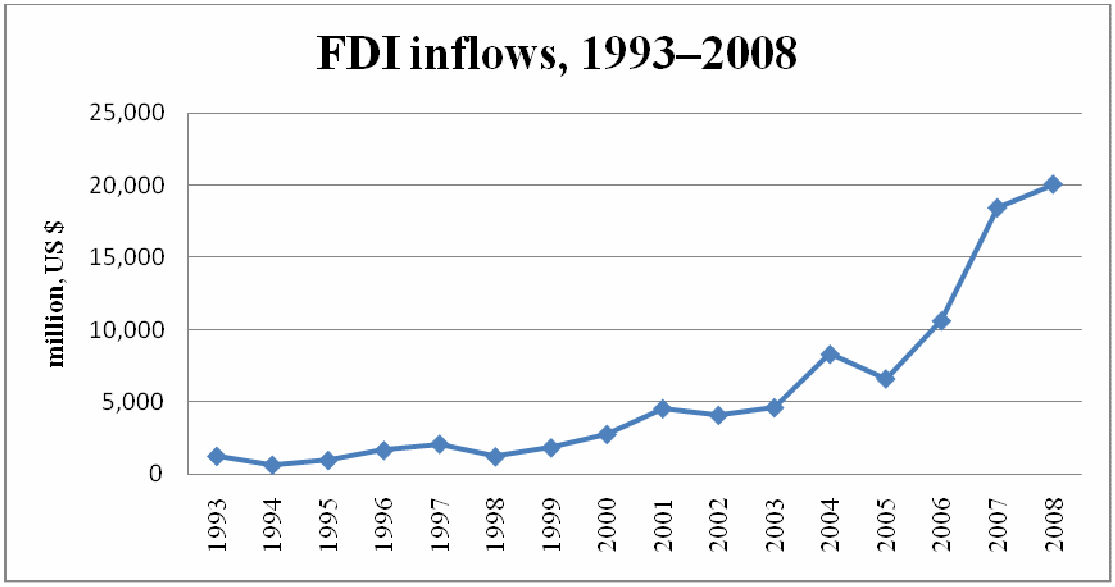


Quantitative increases in production without any upgrade of obsolete assets and applying innovations cannot lead to sustainable growth. Outdated equipment and lack of knowledge and new technologies have hindered the development of the country. In 1997, the government elaborated a strategic programme of development "Kazakhstan- 2030" at the initiative of the president. According to proponents, the strategy combines the best sides of the market and government regulation when the state takes responsibility for the investment in strategically important objects and defines the general rules of the game as well as makes favourable conditions for the market.

In some sectors the strategy had positive results. The government conducted a range of recreational activities in the coal sector, which led to a recovery of the industry, the strengthening of investment activities as well as a sharp decline in the level of social tension in the coal regions. A key component of the restructuring of the industry was the privatization of large enterprises and the closure of unprofitable enterprises. Implementation of the Strategy-2030 has been started with establishment a new funded pension system and several holdings, based on the Chilean model. Since 2000, it has been established by the National Fund by a presidential decree, using the Norway's oil fund as a benchmark, which is one of the most successful in the world. In 2006, Government initiated the Fund of Sustainable Development – "Kazyna", which is became the prototype of the Malaysian fund Kazyna, and holding "Samruk" as an example of Singapore's holding - "Temasek". During the active liberalization and intensive investment policy FDI flows grew by 166 percent, from 964 million dollar in 1993 to over 20,000 million dollar in 2002. Since 2005, we have seen a rapid rise in FDI inflows, particularly in construction sector (Figure 5). A majority of investors expressed the greatest interest in the extraction of

minerals and oil as well. As a result, the impressive investment flows solely to this sector led to the negative structural changes in the economy.

Figure 5. FDI Inflows, 1993–2008



The second stage of industrial development has been to diversify economy using the revenue from oil sector. The experience of developed countries has shown that sustainable growth of the country cannot be ensured only from development of export-oriented raw material industries. Today the situation in industrial sector shows a serious slowdown in the manufacturing industries, especially in machinery construction and high-value added production. The government's passive investment policy is not conducive to the radical reorganization of the economy. The government recognised mistakes in investment and financial policy and tightened the policy of investing, where investors should be involved in diversification process. "We will work only with those who will suggest specific projects aimed at diversification and deep processing of raw materials. This means that in sectors where the country cannot find mutual solutions, we will search for new partners, offering them favourable conditions and resources for the projects. We will develop such laws, which will oblige all investors, working on the development of high value-added production in oil and mining sectors" - said the President (Главное для инвестора - стабильность условий работы [The most important for invetors is the stability work conditions], 2008).

In consequence of the strengthening the regulatory functions of the government, it has purchased shares in the four country's biggest banks. This intensified supervision over the financial system and increased state role in strategic sectors of the economy through national companies. According to the Chairman of the Board Fund "Samruk-Kazyna", K. Kelimbetov, the scale and complexity of modernization requires a high degree of government's centralization (Chayanov, 2009). He argued that a strong political leadership

is a guarantee of consistent implementation of economic policies and goals of socio-economic development of our state. However, W. Ruttenstorfer, one of the Austrian investors, noticed that in Kazakhstan there is a lack of stable investment policy and predictability of the authorities which are the most important for investors (Главное для инвестора - стабильность условий работы [The most important for invetors is the stability work conditions], 2008). The tendency of growing state involvement in the economy and the persistence of informal barriers to entrepreneurship can hamper Kazakhstan's economic potential and negatively affected on the natural competition.

In order to develop high value production and diversify economy, the policy-makers elaborated the cluster policy and the "30 corporate leaders of Kazakhstan" programme. The main objective of the program "30 corporate leaders" is to create conditions for accelerated modernization of Kazakhstan's economy and the achievement of a qualitatively new level of competitiveness. Achieving of goal is expected through the creation, strengthening and development of corporate leaders, as well as the implementation of breakthrough projects, which have a significant multiplier effects and are aimed at significant diversification of the domestic economy. In the world practice, there are many examples of such interactions. One of them was the policy of support for exporting enterprises which was conducted by "Asian tigers". However, mostly these corporations in developed countries have been formed by natural means.

The essence of the cluster approach has been to form certain groups of geographically localized interconnected companies, suppliers of equipment, specialized services, infrastructure, research facilities, higher education facilities and other associated institutions needed to achieve a certain economic effect and amplifying competitive advantages of certain companies and the country in general. During the first stage of the project, 55 thousand enterprises in 46 sectors and in 12 regions were studied. Finally, the seven sectors which were the most appropriate for clusterization have been defined. This included tourism, transport logistics, oil-and-gas machine building, construction materials, food processing and textiles, and metallurgy (Министерство индустрии и новых технологий Республики Казахстан [Ministry of Industry and new technologies of the Republic of Kazakhstan], 2009). Generally development of industrial programs is a quite complicated and extensive process. Therefore, today, we cannot surely say about future success or failure of these programs in Kazakhstan. No one model of industrial development can perfectly fit into Kazakhstan's economy. Because of this, Kazakhstan's policy-makers should take into account the national peculiarities and historic features of the country, and not blindly repeat the way of other countries. Moreover, the cluster development requires a well-educated human capital and well-functioned formal and informal institutional structure.

3 CLUSTER DEVELOPMENT IN KAZAKHSTAN

The cluster policy was primarily associated by advanced economy. If in advanced economies the cluster policy was popular in the mid 1990s, in developing countries it has been adopted only since the year 2000. International donor organizations and investors played a crucial role in spreading a cluster policy in advanced countries. On the other hand, the government-initiated type of cluster policy is more common in developing countries. The government support decreases the level of uncertainty considerably. Therefore an investing in companies which a part of cluster policy is a less risky, especially in unpredictable economy of developing countries. However, as a survey shows, this type of cluster is survives less successfully in the case of policy shift than business- or donor-initiated clusters (Ketels, Lindqvist, & Solvell, 2003).

Kazakhstan's economic policy is more centralized than in developed countries and the clusters are mainly created by purposeful government efforts. Therefore the cluster policy has a more macro-oriented focus and strongly depends on the overall economic conditions. This makes serious barriers in implementing a cluster policy, since cluster policy is inherently regional phenomena. Moreover, the implementation of cluster policy is challenging because of an absence of trust between participants. There is no social context among companies and between government and companies. The literature reveals that government-initiated cluster policy has a lower level of trust than business-initiated cluster policy. In addition, it is characterized by a small quantity of participants. Usually this type of cluster policy has a few big companies which produce most of the outputs.

Kazakhstan was inspired by the success of Southeast Asian tigers such as Malaysia, Singapore and South Korea and followed this industrial cluster policy. Rather than market-driven diversification these countries have applied a strategic government planning and intervention. Many researchers are skeptical to the process when the government determines which sectors are needed to develop. They argued that instead of "pick up" industries, the government should concentrate solely on the institutional environment. According to Afoncev (2009), the cluster policy in Kazakhstan is more like a wide industry complex of Soviet type rather than clusters as industry agglomeration.

In 2003, the Kazakh government made attempts to determine the priority areas in industrial development. The implementation of a development program, "Innovative Industrial Development Strategy of the Republic of Kazakhstan for 2003–2015" has become one of the key strategic goals. The sectors linked to high value-added sectors, and the agro-food sectors are announced as an important area. The main goal of this program has been the overcoming of Dutch disease and diversification of economy, based on Malaysian and Norwegian models.

Since 2004, Kazakhstan has initiated the cluster policy by approving the project "Diversification of Kazakhstan's economy through the development of clusters in non-extractive sectors of the economy" for future economic development of the country. The project was developed by the Centre for Marketing and Analytical Research of the Republic of Kazakhstan together with foreign consulting firms JE Austin Associates, and Economic Competitiveness Group. The main customer of the project was the Government of the Republic of Kazakhstan. The aim of the project is to increase the competitiveness of sectors, which is not related to the extraction of natural resources. According to the policymakers, a successful implementation of this program should lead to increased productivity and sustainable economic growth. K. Bishimbaev (Beshimbaev, n.d) believed that cluster policy would provide an effective channel of communication between businesses and government agencies. Only by this way could it be possible to improve business, to remove administrative barriers and to take measures for cluster development. The ex-Prime Minister of the Republic of Kazakhstan, D. Ahmetov, argued that in the development of small and medium enterprises, the cluster approach should be dominant. However, it does not mean to stop activities in other fields. "We built a vector orientation, which are the most effective in terms of economic implementation", - he said (Sultanova, 2005).

The next program of industrial development was “Programme of 30 Corporate leaders”. It was announced in 2006 as an additional instrument of industrial development. The government defined corporate leaders in the same priority as industries and provided them with the financial and fiscal supports. The corporate leaders were recognized companies who had an export share of total non-oil exports not less than 2 percent, a recognizable "brand" on the domestic, regional and/or global markets, and a high level of investment in R & D. As we can see, supports are mainly provided to big companies rather than small and medium enterprises. The program indicates that the government does not completely accept the entrepreneurs as the best for finding profitable business opportunities. The government’s planning type of clusterization is more similar to that which was implemented in countries such as Malaysia, Singapore and South Korea. According to Kazakhstan’s policymakers, this approach is the main reason of their success (Kozbagarova & Wandel, 2009, p. 28) When corporate leaders were chosen, the second step of program was to form an interrelated and integrated complex around those leaders. The whole process should take place under the direct control of the government with the participation of many state institutions. Like cluster policy the firms-participants were chosen by the government rather than the natural selection under the competitive forces (Economical Policy, 2009). In the framework of the program, 44 projects are planned to launch with total cost 54 million dollars. This includes 13 manufactories in the metallurgy field, six companies in the chemical and petrochemical industries, four power stations, two in the agricultural field, and one for building locomotives (Sevostyanova, 2008). According to proponents, all three state programs should provide the sustainable

competitiveness of the country. In fact, these programs are identical and have the same mechanism in spite of different names.

3.1 Assessment of Kazakhstan cluster policy

During the first phase of the clusterization, special groups were studied fifty five thousand companies, in forty-six industries in twelve regions of the country. Because of resource limitation and financial restrictions, the government determined a limited number of clusters, which are now the most meaningful for economic development. Nowadays the seven most cluster adopted industries have been identified, and among them is tourism, transport and logistics services, oil and gas machinery, construction materials, food and textile industries, and metallurgy. Some of them were more developed while others needed to start from scratch. Geographical concentration was one of the criteria for industry selection with regard to future cluster development as well as a critical mass of companies in any industry. Since 2006, additional pilot clusters have been launched, which include a pharmaceutical cluster in the city of Karaganda and cluster of medical services on the basis of new centre in the city of Astana.
In the framework of cluster policy government has created the four state holdings companies to serve cluster-participants:

- Kazakhstan Holding for Management of State Assets – “Samruk”
- National Fund for Sustainable Development – “Kazyna”
- National Scientific and Technological Holding – “Samgau”
- National Holding – “KazAgro”

Later the holding “Samruk” and “Kazyna” were joined and renamed in “Samruk-Kazyna”. The function of these holdings is to target investment into the infrastructure and the priority sectors. The holding “Samgau” is a completely, state-owned, managing holding. It aims to create favorable conditions for scientific and technological development of the state by formation of the unified information and communication environment, information systems, resources and standards (On Establishment of the JSC “National Scientific and Technological Holding "Samgau", 2007). The next holding “KazAgro” unites seven different companies for serving agro-food sector. The purpose of holding is the stimulation of agro industrial sector development by effective management of the Joint-Stock Companies which operates in the agrarian area (Ministry of agriculture of the Republic of Kazakhstan, 2010). “Samruk-Kazyna” was created as a prototype of Singapore’s holding Temasek. Temasek is fully owned by Singapore's Ministry of Finance and has close links to the government which was criticized by many foreign countries. As written on the official webpage of the “Samruk-Kazyna” holding “the key purpose is to manage shares of national development institutions, national companies, and other legal entities it owns to maximize their long-term value and competitiveness in the world markets. The key area is a modernization and diversification of national economy” (Sovereign Wealth Fund

«Samruk-Kazyna» JSC, 2009). As we can see the definition of purpose is too wide which make not able to point out the main functions of holding. Kalimzhanov (2009) argued that the main disadvantage of fund is a lack of transparency and the clarity of the fund's schemes. According to many of Kazakhstan's policy-makers, to have all these holdings is too costly for the national budget. One of them described the establishment of holdings as duplicating functions of ministries that intensify control over private businesses. As the Report of Accounts Committee of the Republic of Kazakhstan showed, only five projects are functioning now out of 121 that were financed by the holding (Самрук-Казына изымает активы у должников ["SamrukKazyna" withdraws assets from debtors], 2010). Accounts Committee estimated the total loss at 25.5 billion tenge (127 million euro). In general, the state has not received about 11 billion tenge (55 million euro) which were planned as a profit from the financed projects. The Standard & Poor's index accessed the transparency of the fund Samruk-Kazina as 24 points out of a possible 100 (Pavlovich, 2009).

3.1.1 Metallurgy cluster

Cluster metallurgy was formally initiated in the Karaganda region, since a significant proportion of outputs of ferrous and nonferrous metallurgy are located in this area. However, there are metallurgical complexes in the eastern part of Kazakhstan; it is also included in the cluster policy. The copper and zinc concentrate are principal products produced in the east Region. However, the further steps of processing are taking place in other regions due to lack of technological facilities.

The main economic actors in metallurgy cluster are large companies, such as Mittal Steel Temirtau and Kazakhmys Corporation. Kazakhmys is the largest copper producer in Kazakhstan and one of the top ten world producers (Kazakhmys. Group Overview, 2009). Around these companies are more than 300 concentrated suppliers of equipment and materials including more than 30 enterprises of machine building and metallurgy. Nowadays the metallurgy cluster including the 52 companies which are companies for the extraction, beneficiation and metallurgical processing, as well as financial, marketing, and research infrastructures.

The cluster consists of a few large enterprises. They represent 86.8 percent, share of medium enterprises amount to 4.9 percent, and small ones reach 8.3 percent (The Agency of Statistics of The Republic of Kazakhstan, 2010). This structure is similar to the East Asian model of cluster policy, where big companies dominate almost in all sectors. In Kazakhstan, the share in GDP of ten big companies is almost 80 per cent (Gurinovich, 2005). The country's dependence from few anchor firms makes whole economy more vulnerable to even small declines in its production.

Metallurgy complex has a considerable rich recourse base. This complex was formed on the basis of domestic depths since Kazakhstan is the first ever home of world's reserves of

zinc, tungsten, vanadium, and barite ore, the second ever home of reserves of chrome, phosphate and uranium ores, and the third ever home of reserves of copper, silver, lead and zinc. Kazakhstan is also the fourth ever home of molybdenum, the sixth ever in gold reserves, and the eighth ever of reserves of iron ore. In the depths of the country, 50 percent of the world's tungsten and chrome ore amount to 23 percent, lead at 19 per cent, zinc at 13 percent, and the final 10 percent are copper and iron.

The government's key objective in the metallurgy industry is development of high-value, additional production facilities by attracting domestic and foreign investments in this sector (Industrial Park Metallurgy - Metal "(Karaganda, SEC Saryarka), 2008). The cluster policy is mainly focused on national benefits and driven by a national level of management rather than local or regional. On the other hand, the cluster policy in Europe is aimed at improving the business environment and business relationships between participants. It can be explained by the type of initiators because usually government-initiator clusters pursue the state economic policy.

Unlike developed countries, where 79 percent of cluster initiatives have their own webpages, the metallurgy cluster does not have its own websites. Website enables possible stakeholders to find relevant information about this cluster or the process of implementation. All information is available on the different government's web pages, which is inconvenient and complicated for searching. Moreover, the data is incomplete and outdated. This makes it very difficult to find information if one is not familiar with the government's institutional structure. In addition, there is not an individual or group of people who are directly responsible for cluster implementation.

The metallurgy cluster is the most developed cluster among because of fact that Kazakhstan was a resource base for the Soviet Union. It inherited a good system of extracting metallurgical raw materials. However, the system is highly centralized and a majority of coal and ore fields belong to the single company. The equipment and technologies needs to be modernized because most of them are extremely outdated. As a part of cluster policy between the government and Mittal Steel Temirtau, a mutual agreement was developed and the company was able to decrease the price of its outputs for cluster-participants, in order to receive tax concessions and other privileges from the government. The participants were chosen by the local department of entrepreneurship, which is a coordinator of the metallurgy cluster policy. The whole process is very bureaucratic and time-consuming (Tuleukbayeva, 2007). However, the passivity of entrepreneurs was defined as a reason of unsuccessful cluster implementation by the Minister of Industry and Trade of the Republic of Kazakhstan (Orazbakov, 2007).

At the beginning of cluster policy implementation in metallurgy sector, the ten new projects were launched. For instance, Aktogayski ore mining has been established with a capacity of 50 million tons of ore. In addition, the project of silicon production was

realized in the framework of the “30 corporate leaders” program. Despite the government’s efforts to diversify the economy, most of the production output is still intended for export due to lack facilities for further silicon processing in Kazakhstan.

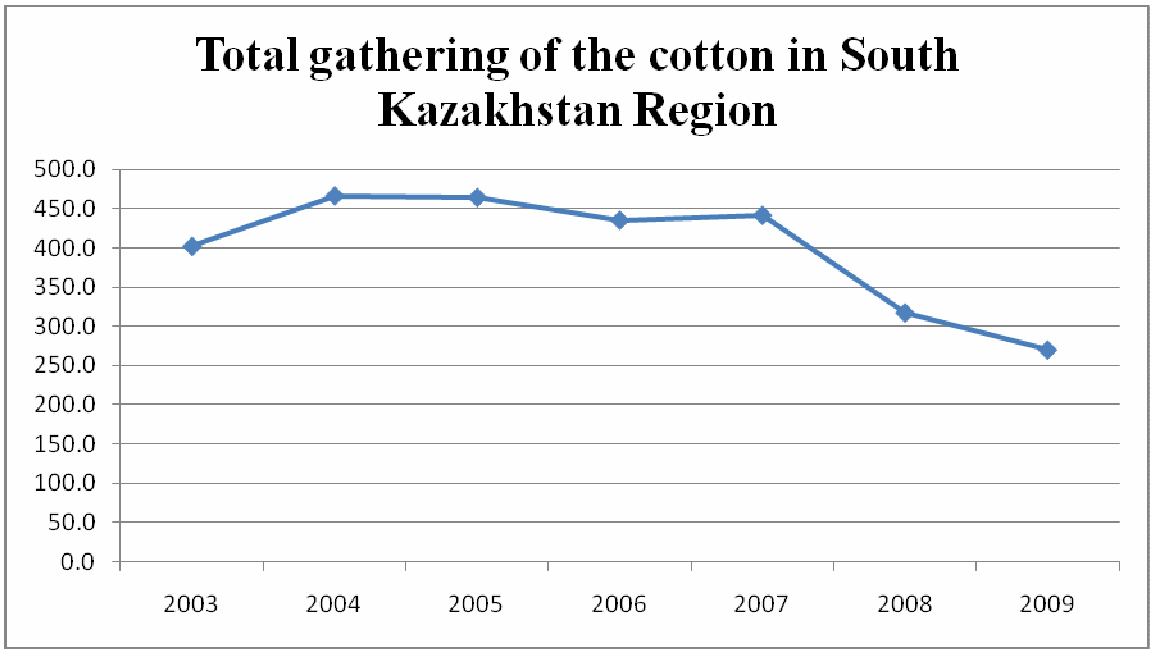
3.1.2 Textile cluster

The textile industry is largely represented by the production of cotton because 90% of it is intended for export. The key countries that export are Russia, Belarus, and Ukraine because of the fact that they have good facilities for more difficult processing of raw cotton. By manufacturing cotton, they receive a majority of the surplus value, leaving Kazakhstan with role of raw materials supplier. Moreover, Kazakhstan does not have the competitive advantage in this sector. First of all, the quality of Kazakhstan’s cotton is very low and it is used only for the production of clothing for work. Secondly, it is much cheaper to produce cotton in Uzbekistan, Tajikistan, and Turkmenistan. The average salary in those countries is less than fivefold of the salary in Kazakhstan. According to specialists, Kazakhstan’s cotton is more inferior than those in Uzbekistan and Turkmenistan in terms of price, quality and consumer characteristics. Quality and consumer properties of Kazakhstan’s cotton are determined by the natural conditions of the regions. Moreover, the production is characterized by a low level of mechanization, lack of modern technology and relevant knowledge for cultivation. Approximately 90 percent of the crop gathers manually, which makes production extremely labour intensive. The government provides 10 percent credit for this sector but the profit still cannot cover all production costs.

South Kazakhstan is the only region that has the potential to produce textiles. In addition, this region has the necessary labour force since it is the most populated region of the country. Production of cotton is increasing annual. From 1990–1995, the annual production was 250 thousand tons of cotton then in 2007 this number raised to 450 thousand tons. In 2008 there was a decline in production due to the anomalous hot summer (Figure 6).

As a part of cluster policy, a free economic zone, “Ontustic”, has been initiated by the government. Tax preferences, exemption from duties and state investments have been provided for cluster’s participants on the territory of this zone (СЭЗ "Онтустік" и развитие хлопкового кластера - в центре внимания Правительства РК [Ontustyk and development of cotton cluster is in the center of attention of the Government of Kazakhstan], 2005). The eight companies of processing cotton are planned to launch in 2010. Since 2007, the modern laboratories for assessing the quality of cotton fibre and the scientific research institute of cotton have been launched as well as “KDB-Leasing” company for easier access to finance.

Figure 6. Total Gathering Of The Cotton In South Kazakhstan Region



All textile companies can satisfy only 10 percent of domestic demand in production of textile end goods. They were largely built in Soviet times and worn out by 70-80 percent (Baikazah, 2006). The low productivity, the lack of quality standards, and poor marketing are the key problems of the industry as well. According to the data of the Association of the Light Industry of the Republic of Kazakhstan, the black turnover reaches at 95 per cent (Легкая промышленность Казахстана [Light Industry in Kazakhstan], 2005). In addition, there is a shortage of a highly skilled labour force for development of the textile cluster. Approximately only ten percent of cotton is used by local textile companies such as “Kazakh Russian Textile Alliance", “Melang", "Utex”, “Nimex Textile” (Donskih, 2006). ”Kazakh Russian Textile Alliance" is Joint Venture Company with capacity of 15 million square meters of end product per year. It includes the Kazakhs cotton company, “Myrzakent", and the Russian corporation "Russian Textiles” which has the largest industrial textile holding in Russia. “Utex” is a processing company with a capacity of six thousand tons of processing cotton per year. The production is used for local market and for export to Russia and Ukraine. "Melange" is an integrated company with production capacity with an average of five thousand tons per year. Products are sold in Kazakhstan, Russia and Turkey. «Nimex Textile» is a textile company that processes 12 tons of cotton per year.

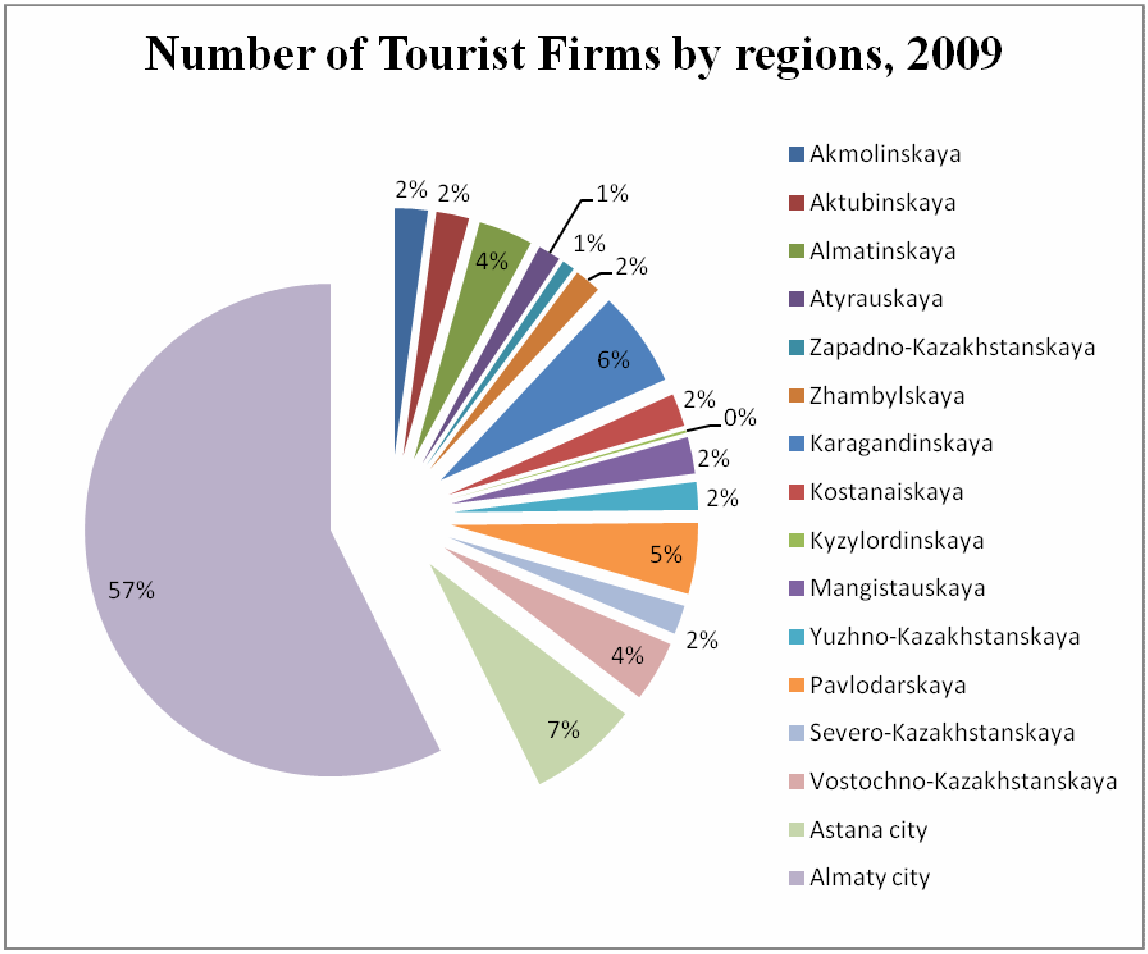
The share of textile industry in GDP is negligible and it reaches only 0.4 percent. For example, in Russia this number is 1 percent, in the developed countries such as Germany, France and the United States the share of textile and light industry in industrial output amount is up to 4 percent. In Italy this number is 12 percent, which allow generates 20 percent of the state budget and satisfies a domestic market at 75-85 percent by their own production. In Turkey and China the share of textile industry in GDP represents 30 percent.

The financing of cluster are carried out by the government through the Development Bank of Kazakhstan. From the beginning of cluster implementation 80 million dollars was invested in this sector. But the textile industry is still not attractive for investors and commercial banks because of the long payback period and capital, intensive type of projects (Казахстан: текстильный кластер не состоялся [Kazakhstan: textile cluster failed], 2007). One of the key purposes of government in textile cluster has been to join small enterprises into larger ones because of the economy of scale. In 2009, they combined around 15 thousand small enterprises. The state financial support has been a key tool to stimulate business to join into large company. The government supported large companies directly and actively (Regional portal of Shimkent city, 2009).

3.1.3 Tourism cluster

The tourism cluster has been initiated by the government where government actually is a donor of project. The pilot tourism cluster has been shaped out in Almaty and the Almaty region (South Kazakhstan region). This region is the most suitable for realization of cluster initiatives due to the existence of the largest concentrations of hotels, sanatoriums, entertainment facilities, nature reserves, mountains, etc. The readiness of the private sector representatives to cooperate for increasing the attractiveness of the region for tourists is an additional argument as to why this region was chosen. As we can see on the Figure 7, the largest number of tourist firms is registered in Almaty. From 2003 until 2009 this number increased by 30 percent. Since 2003, the 196 tourist firms have been opened during this period.

Figure 7. Number Of Tourist Firms By Regions, 2009



Based on the marketing study the following direction of tourist cluster policy were defined (Tourism cluster, n.d.):

— Ecological tourism, using the landscapes of the region

— Cultural and cognitive tourism aimed at uncovering the existing historical and archeological legacy

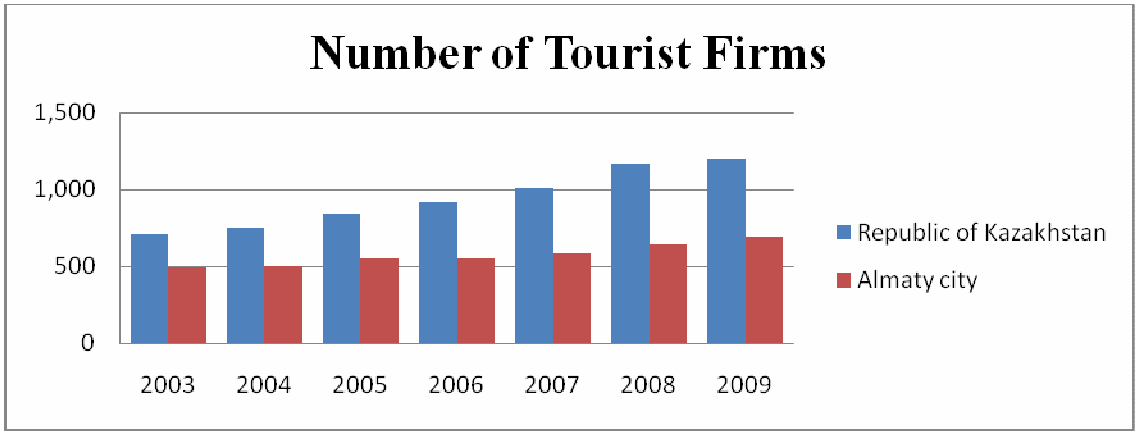
— Business tourism for promotion further development of Almaty city as one of the most important financial and business centers of the Central-Asian region

The Figure 8 shows us that the number of tourist firms is rising rapidly. Since 2003, this number has risen by 40 % in whole Republic and by 30 % in Almaty, respectively. It is clear that the majority of firms have been opened in Almaty city.

A. Bektayev (South Kazakhstan tourism cluster has good prospects, 2009) argued that South Kazakhstan region has such historical monuments and landmarks as Khoja Akhmed Yassaui Mausoleum in Turkestan, the city of Otrar oasis - Otrar, Altyn-tobe and other towns located on the Great Silk Road. It is possible to attract tourists by the modern historical complexes. K. Masimov (South Kazakhstan tourism cluster has good prospects,

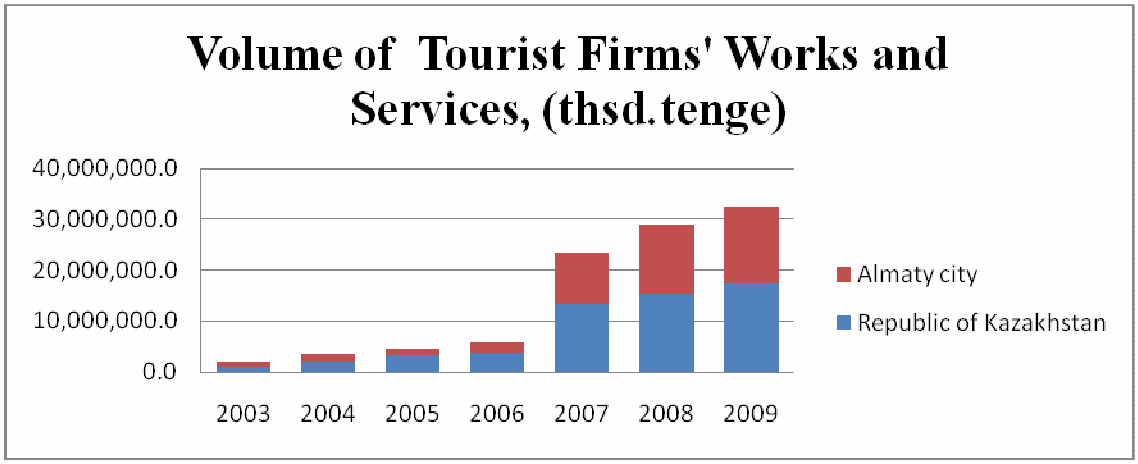
2009) supported this idea and believed that Western China road corridor would become a good basis for tourism development. In the frames of cluster policy, the two modern tourism centers have been created in Shchuchinsk-Borovoye zone and Turkestan (South Kazakhstan tourism cluster has good prospects, 2009). Since 2006, Kazakhstan has adopted the simplification process of visa procedures for foreign residents from 28 states, including former nationals and has defined the terms and definitions for tour operator services and classification for these services

Figure 8. Number Of Tourist Firms, 2003–2009



Before that, tourism sector had never been considered as a profit-provided segment of the economy. In 2006, government began an implementation of wide tourism strategy for two years. The successful results we can see in Figure 9. The volume of tourist firms' works and service has risen dramatically since 2006, due to big updating in the legislation. Since 2006, the law of tourism, the licensing of tourism businesses, the customs code, the operating rules for hotel services, and the new tax code has been developed.

Figure 9. Volume Of Tourist Firms' Works And Services, 2003–2009



In 2007, the government implemented the National Program for Promotion of Tourism for 2007–2011 years. In initial stage, 90 investment projects were considered and analyzed. From that, the eleven most attractive projects were chosen. They were amounted to 386 million dollars and were financed from "Kazyna" Sustainable Development Fund. For improvement of tourism human resources' training level, the Ministry of Tourism and Sport arranged the advanced training courses for tourist staffs. In 2006, the first republic tourism information centre was opened in Astana, and then in Almaty, Turkestan, Aturau and Aktau. Since 2005, the government has been preparing human resources for tourism industry within the state educational program "Bolashak". Over 59 billion tenge (295 million euro) was spent to implement this Program from national budget (About development of tourism in the Republic of Kazakhstan, n.d.). The information in the Figure 10 relates to the number of arrived tourists. As we can see, this number increased by 30% from 2005 to 2006. The growth continued until 2007 and after it tumbled almost twice. Since 2007, the decline has continued.

Despite of Kazakhstan's tourist potential, there are a lot number of administrative problems which is needed to solve, among them registration in migration bodies in Kazakhstan and complications connected with obtaining of visa. Undeveloped infrastructure and marketing was specified by the experts among the factors, hampering development of domestic tourism (Prohorov, 2006).

Figure 10. Number Of Arrived Tourists (non-residents) Served For The Inbound Tourism

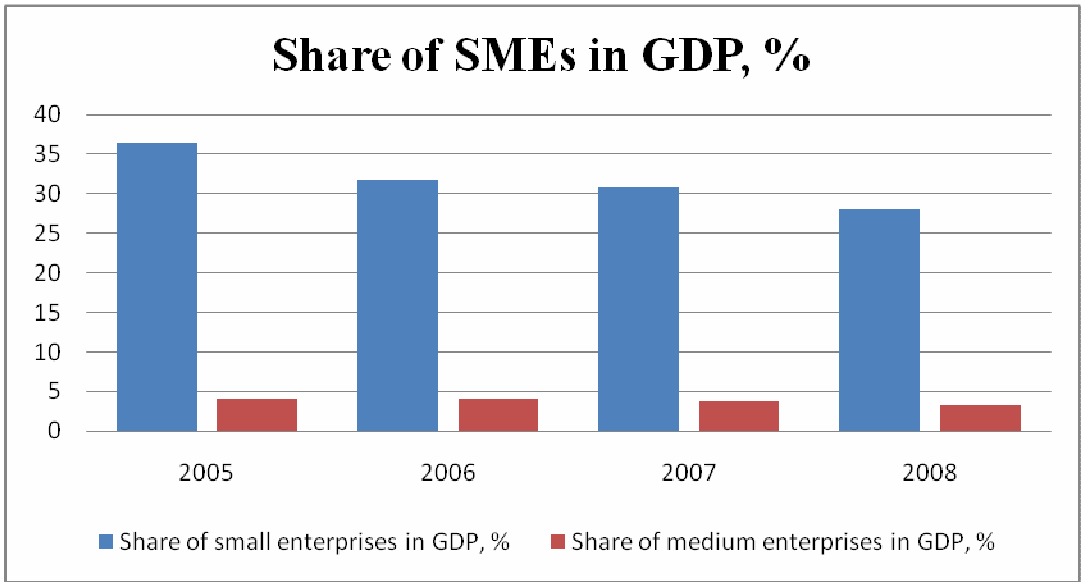
3.1.4 Food processing

The food manufacturing plays a key role in the maintenance of the country food safety. The backlog of the food industry with the growth of internal requirements of food articles can lead to the growth of import. This situation is rather burdensome for a national economy and strengthens its significant dependence from a foreign market (G.Nakipova, 2008, p. 64). In 2003, the study conducted in East regions showed that small enterprises cannot achieve high level of productivity through the economies of scale due to small

volume of outputs. Thus, the cluster policy has been implemented as a tool for joining of small enterprises. According to proponents, geographical proximity of its participants, namely, the agricultural raw material producers and processors makes it possible to apply the cluster approach in the food industry development. For example, the creation and development of dairy products' clusters were targeted in the North-East and South regions (Almaty, East-Kazakhstan, Kostanay, North-Kazakhstan regions). The more appropriate climate in South Kazakhstan makes possible to develop fruits and vegetables production in the south regions (Almaty, Zhambyl, South-Kazakhstan regions), the meat products in the north region (Kostanay, Pavlodar and North-Kazakhstan region), and grain-processing products in the north and central regions (Akmola, Karagandy, Kostanay and North-Kazakhstan regions). The fish production can be developed in Atyrau, East-Kazakhstan, Karaganda and Kzyl-Orda regions because of the abundance of rivers and lakes. Nonetheless, due to the finance limitations and recourse constraints only few clusters were chosen. Based on comprehensive marketing analysis three most "prepared" clusters were defined: grain-processing, fruits and vegetables production, and dairy production.

The government considers clusters as the most effective form of industrial organization, best able to serve as "catalysts to raise productivity and quality in the agro-food sector on the basis of vertical and horizontal integration." (Government of the Republic of Kazakhstan, Konceptsiya ustoychivogo razvitiya agropromyshlennogo kompleksa Respubliki Kazakhstans na 2006–2010, section 2 Currently, the food industry of Kazakhstan consists of more than five thousand industrial enterprises and they provide work to nearly 70,000 people it slightly more than 10 percent of total industrial employment. The share of food sector represents the one quarter of total manufacturing output and amount to 10 percent of overall industry production. Its share in the GDP reaches approximately 6.3 percent in 2009 (The Agency of Statistics of The Republic of Kazakhstan, 2010). The Industry can be characterized by the high concentration of small and medium enterprises rather than big ones. The percentage of large enterprises is only 10 percent in all industry's enterprises. However, the volume of their production is much greater than the total volume of small enterprises, especially in capital-intensive sectors such as grain industry, while small enterprises are predominantly engaged in animal production (78 percent of total output). The availability of high-technology equipment allows them to be more productive in such sectors. The significant role in their success plays the presence of lobbying power. During the privatization process, most enterprises emerged in big business group as a holding, where they could control all phases of production process. Usually they political support and close relationships with state authorities. According to R. Pomfret, ten big holdings together control more than four-fifths of the economy. Furthermore, as we can see in Figure 11, there is a diminishing tendency of share of small and medium enterprises in GDP.

Figure 11. Share of SMEs in GDP, %



The most lucrative agriculture sector is a grain sector. 14 million hectares occupied by grain fields comprises 42.7 percent of all agricultural arable land. Approximately 40 percent of agro-holding companies possess around one-third of grain farmland and provides two-thirds of all grain sold domestically and exported (Kozbagarova & Wandel, 2009, p. 17). For instance, "Ivolga-Holding" controls one million hectares in northern Kazakhstan and another 140,000 hectares in the Russian Federation. Their annual value of grain export makes 500-600 thousand tons, which amount to almost 12 percent in the total export. The holding is a large importer of petroleum products, agricultural machinery, equipment, spare parts, chemical fertilizers (Ivolga-Holding LLC, n.d.).

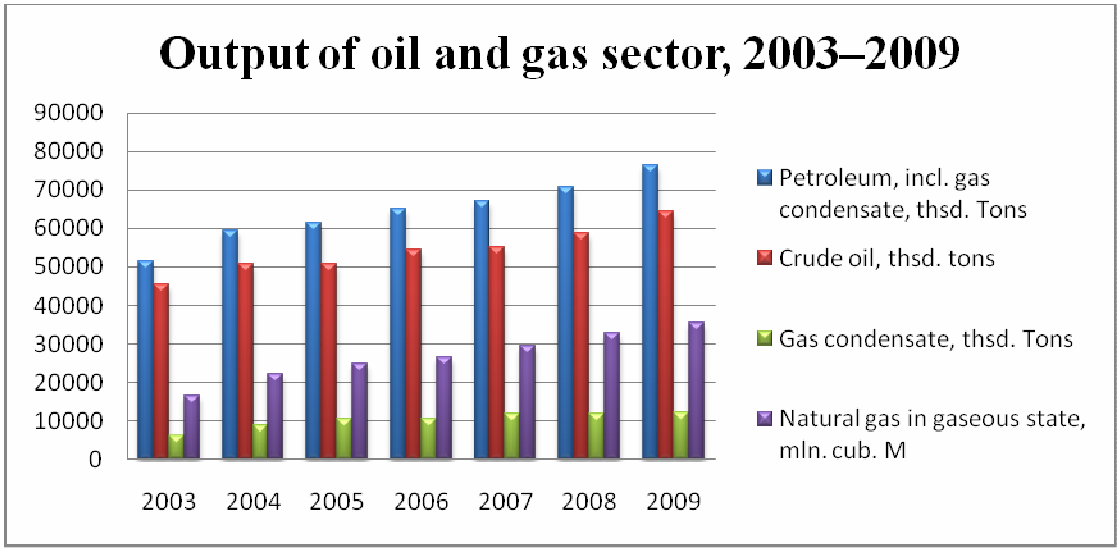
Cluster policy is aimed at realizing state policy on formation and development of the competitive and export-oriented agro-food sector. Along with this, the accent is made on the intensification of the processing of food input and increasing its multi-sidedness by modernizing the industrial capacities and expanding exports to foreign sales markets. The government supports the process of diversification by direct and indirect investments. In 2006, the National holding "KazAgro" was founded to realize the governments' goal in diversification of economy. The objective of holding is to assist in formation and development of clusters in agriculture through investment policy. The holding funds from the state budget, as well as from internal and external equity markets for realization of a cluster policy. In addition, there are several state holdings serving agriculture complex. Food Contract Corporation, KazAgroFinance, KazAgroGranat, KazAgroMarketing, and Cattle-breeding Corporation are all vying to implement the state policy in the agriculture sector. The necessity of such a large number of holdings and corporation is quite questionable. Most of the functions are duplications of one another. If the holdings are the link between the state and the private sector, then the functions of the Ministry of Agriculture are not clear. They have to perform these functions as it is doing in other

countries. Many experts agree that the characteristic of state policy in Kazakhstan is a permanent creation of new institutions or restructuring already existed institutions. Due to the poor performance of ministries, the government creates new a corporation or holdings to increase control in the most profitable sectors of the economy. All the aforementioned holdings were created with 100 percent state participation in the authorized capital

3.1.5 Oil and gas machinery cluster

The increasing dependence from oil sector and as a result a high economic fluctuations forced the government to diversify the economy through the development of high-value added productions in oil and gas industry. The three main deposits of oil and gas in Kazakhstan are located in the western part of the country. The largest onshore oil field is Tengiz, which is on the biggest oil reserves in the world. Its deposits are estimated about 6-9 billion barrels of oil. The other two are the Karachaganak with 2, 2 billion barrels, and the offshore Kashagan, which is the most promising discovery of major hydrocarbon deposits. Despite the fact that Kazakhstan's contribution to the world oil supply is not more than 2 percent, this puts the country among the biggest oil producers and exporters of the world. Potential oil reserves of Kazakhstan are estimated at almost 100-110 million barrels. The oil production in Kazakhstan is growing extremely fast. For example, 45,376 thousand tons in 2003 and 64,350 thousand tons of crude oil were already extracted in 2009. The gas refining has been increased doubled since 2003 (Figure 12). Moreover, the demand for Kazakhstan's hydrocarbons is increasing constantly, where the biggest consumers are China and India. The oil and gas sector includes 62 companies from 20 countries in the exploration, production, and other related services.

Figure 12. Output Of Oil And Gas Sector, 2003–2009



According to the educational institutions, there are few universities preparing specialists for this sector. Kazakh-British Technical University is the most well known. It was

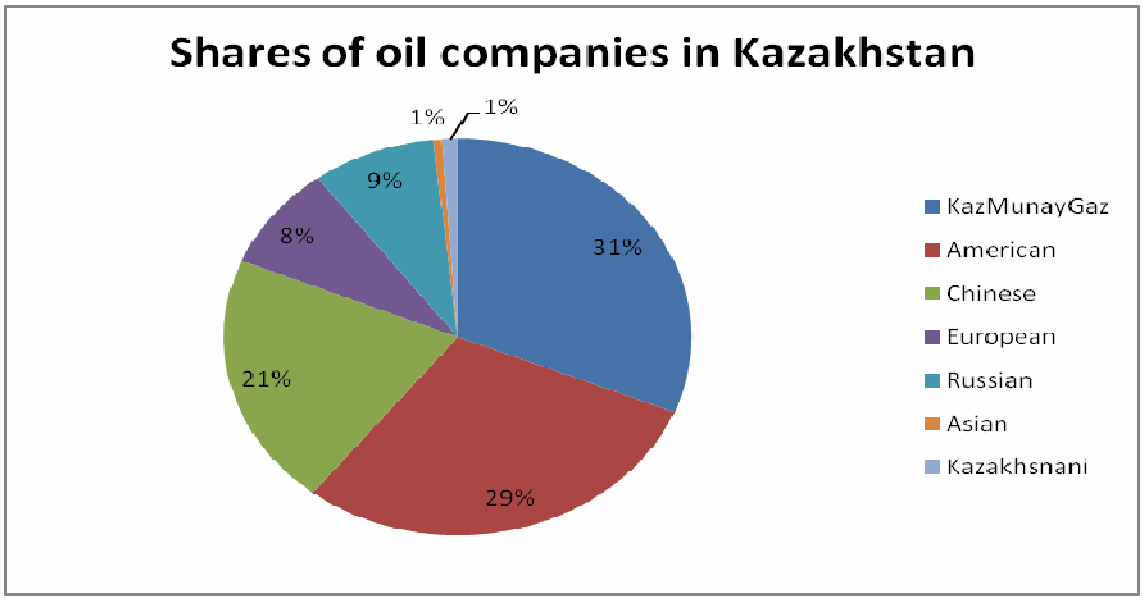
founded in 2001, with the partnership of the United Kingdom. Another university, Kazakh National Technical University, has operated since Soviet Era and serves a similar purpose. However, the educational system is susceptible to corruption and this raises doubts about the quality of education of future specialists (Porter, 2007, p. 19).

In 2002, national company KazMunayGaz was established for the production, transportation, processing, marketing of oil and gas, and it carries out the functions of an authority representing the government in major oil projects. 100 per cent of KazMunayGaz's shares belong to Samruk-Kazyna holding (KazMunayGaz. 15 years of success, 2010). In 2008, the holding's share in crude production was 15.4%. It also covered 100 % of gas transportation, 60 % of national volumes of oil transportation, and 30 % of oil refining (Porter, Kazakhstan Energy Cluster, 2007, p. 20). In addition, KazEnergy and Kazakhstan Petroleum Association maintain a dialogue between firms and the government in order to monitor legislative developments affecting the industry and to reflect industry's opinion on the policy.

Oil and machinery cluster is very developed in terms of technologies and innovations. However, the number of enterprises is substantially low. The share of Kazakhstan's companies in the oil sector is slightly above 30 percent (31.2% KazMunayGaz and 1.11% other Kazakhstani companies) and the rest are owned the United States, Russia, China, and other Asian and European companies. As we can see in Figure 13 the majority of Kazakhstani oil belongs to single company – KazMunayGaz, which is owned by son-in-law of the president of the Republic of Kazakhstan.

In 2006, Atyrau Refinery Company was reconstructed, and it planned to produce a wide range of high quality products. In oil and machinery sector, there are enough companies, which provide necessary services for companies working offshore, such as construction of artificial islands and shipments by barges. Additionally, there are several oil machinery factories producing wellhead equipment, pipeline valves, oil reservoirs and tankers, metal structures, barges, fiber glass pipes, and they provide maintenance and repair services. However despite the fact that a lot of projects have been implemented, there is still a high dependence on the oil sector, especially on crude oil.

Figure 13. Shares Of Oil Companies In Kazakhstan



Source: Adaykz, Доля нефтяных компаний в Казахстане, 2009.

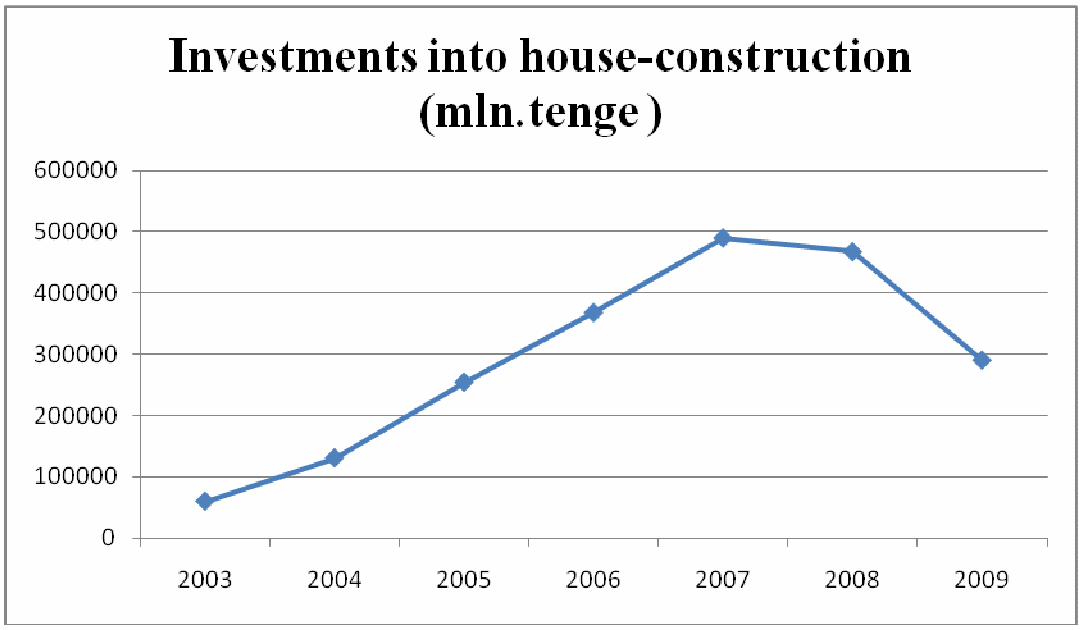
3.1.6 Construction industry and building materials

Construction industry and building materials cluster has been received a rapid development in various regions of the country. In the frame of cluster policy, an industrial park with total area of 600 hectares was established in Astana. The park includes 29 investment projects for the production of construction materials. Today, the government's plan is to implement 12 investment projects by producing construction materials with a total investment volume of about 25 billion tenge. 600 million tenge, annually, are estimates of future tax revenues. Approximately 500 additional work places will be created.

The construction market has grown rapidly since 2000. Incentives for construction growth were state initiatives. Two government programs were developed to solve housing problems. First phase runs from 2005–2007 and second phase from 2008–2010. The first phase was relatively successful, because of the construction boom and rapid economic growth in those years. The second-tier banks received relatively "cheap" money through external borrowing, therefore during first phase, mortgage conditions were very favourable. The second phase is less optimistic due to the financial crisis and decline in economic growth. However, 13 new manufacturing facilities created to produce building materials were launched in that period of time (Иждивенческий подход недопустим [Dependency approach is not valid], 2009). Then, in 2007, during the financial crisis, banks sharply raised their mortgage interest rates and the demand for mortgages declined rapidly. According to the international rating agency STANDARD & POOR'S, the construction industry was most affected by the financial recession (Standards and Poor's, 2009). In 2009, investments into the housing construction sector sharply decreased twice in

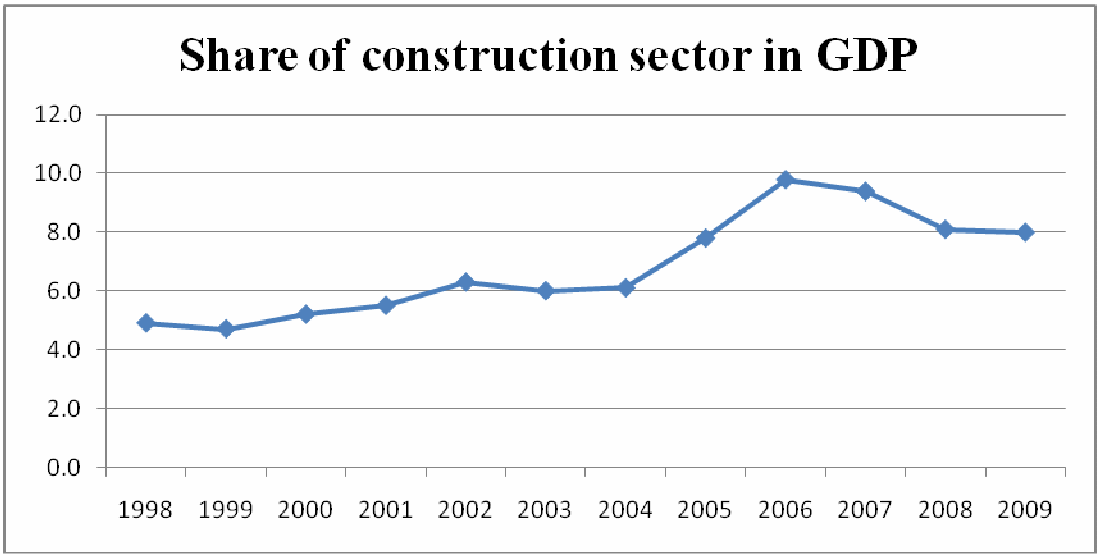
comparison to 2007. However, as we can see in Figure 14, the growth of investments had increased almost eightfold from 2003 to 2007.

Figure 14. Investments Into House-construction



The same picture is in Figure 15, where the share of construction sector in GDP is falling significantly from 2007 after the five years of stable growth by the same reason. During the construction boom labour costs and prices of construction materials had doubled. Moreover prices of new houses had risen eightfold. Yet, labour qualification and quality of construction materials remained unchanged.

Figure 15. Share Of Construction Sector In GDP



In Figure 16, the production volume of bricks silicate and slag has doubled since 2007, from 545 thousand tons in 2003 to 1,214 thousand tons in 2006. In the production of

prefabricated buildings of concrete, the number increased significantly from 2003 to 2007. The growth amounted to almost 30 percent annually. However, the figure dropped by 65 percent in 2006

Figure 16. Output Of Basic Construction Products In The Republic Of Kazakhstan

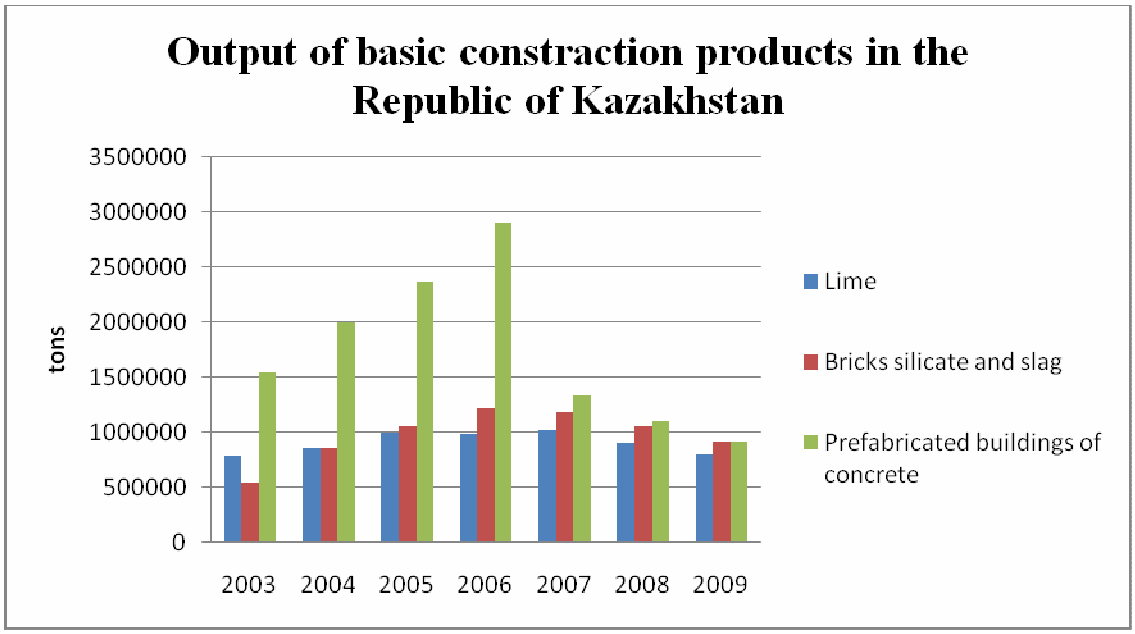
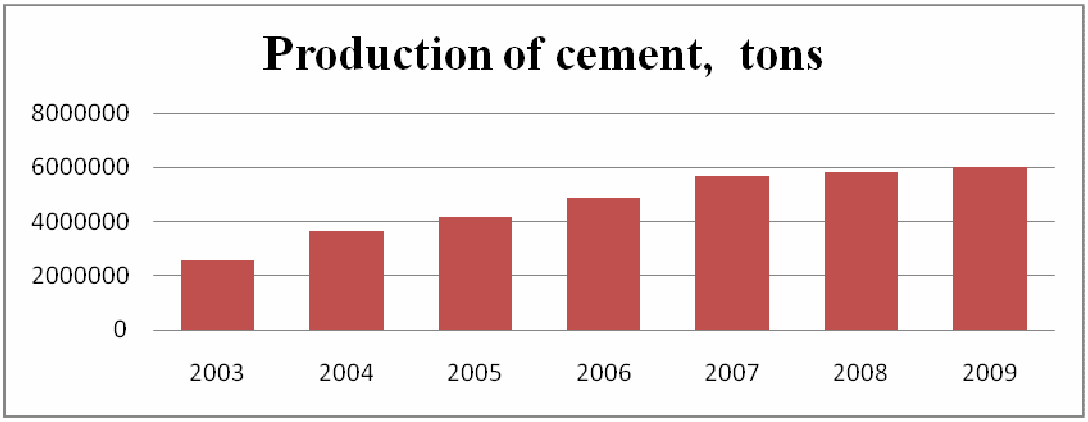


Figure 17 below shows the growth of cement production. As we can see, the cement production was not affected by the country's production decline because of the launching of a new cement factory in Almaty. However, production of the new firm offset the decreasing in existing firms.

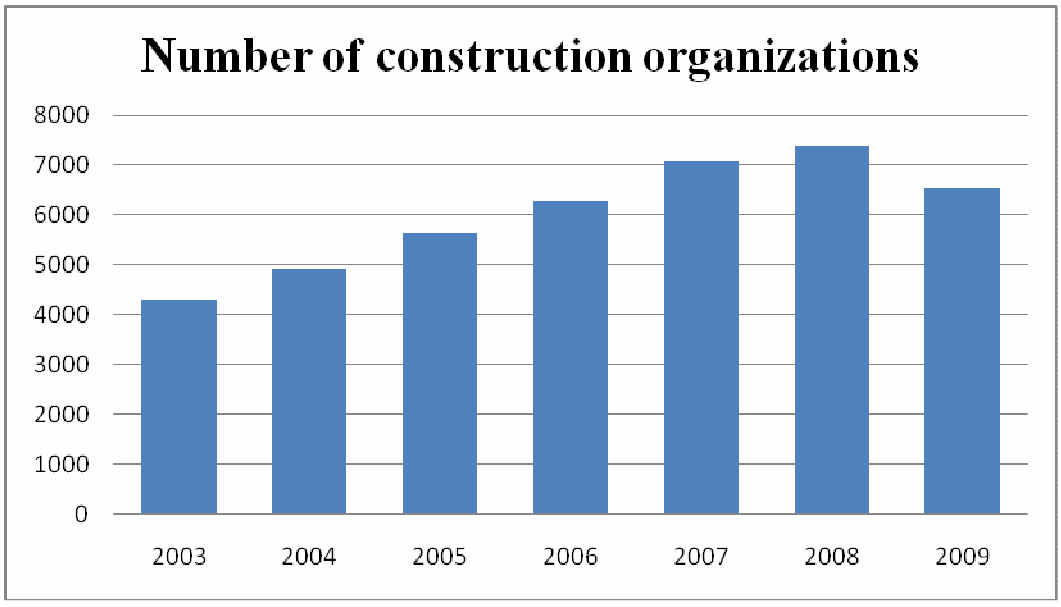
Despite the harmful effect of the crisis on the construction sector, there are prerequisites for the future development of this sector. One of them is that volume of housing stock remains unchanged over the past ten years. In 1998, the housing encompassed 20.8 million square meters of total area. That translates into19.6 square meters per capita. In 2008, a residence was about 18 square meters per capita. One has reason to believe that demand of housing construction will grow

Figure 17. Production Of Cement



In the second phase (2008–2010) of the state program, 13 new manufacturing factories were launched. They were financed by the enterprises' own resources and second-tier bank loans. Currently, the government attempts to revitalize the construction market. For stabilization of the situation, they invested 17 billion tenge to complete the most problematic construction. In addition, they improved the legislative and institutional bodies of the construction sector. As a consequence of tightening the rules for construction organizations, their number declined significantly, leaving only the strongest and biggest companies on the market. Today, in the construction market there are more than six thousand companies (Figure 18). Since 2004, the Construction Portal's function has been to receive any information regarding the construction industry and building materials. The portal offers detailed data about market news, pricing and technological advancements and updates in the contraction field.

Figure 18. Number Of Construction Organizations



3.1.7 Transport and logistics cluster

In order to improve the transport and logistics infrastructure, a new transport strategy has been applied from 2006 until 2015. The transport and logistics cluster was defined as an instrument for achieving a competitive level in the world transport complexes. The cluster covers the whole territory of Kazakhstan where there are companies providing logistics and support services. Kazakhstan's roads and railways are included in the international transport corridors. The country has 21 airports and 14 of them service international flights.

A geographic location of the country provides a big potential for future development of transport and logistics industry. The country located is located in the centre of the Eurasian continent, specifically at the crossroads of two continents - Europe and Asia. Furthermore, it is situated between two of the most important countries of the world: the Russian Federation and the fast-growing China,. Neighboring to the Central Asian states, are the Middle East and South Asia. Twelve out of fourteen of the country's regions are considered the frontier. The experience of advanced and transitional countries shows that the border regions have become areas of fast growth and development. They are the centers of economic activity, which provide significant contribution to the successful integration of these countries in the world economic system. Kazakhstan possesses all the mineral resources necessary for building transport and logistics complexes. Kazakhstan is among the top ten countries of the world reserves of uranium, lead, zinc, copper, oil, coal, chromium, iron, manganese, tin, gold, phosphate, boron and potassium salts. However, despite the abundance of mineral resources, they are distributed unevenly over the country's territory. In addition, a lack of direct access to the sea and ocean increases the transportation costs of the cluster development.

According to policy-makers, Aktau sea port can be used as a multi-modal transportation hub in the international transport corridors such as TRACECA and North-South. Moreover, they argued that for innovation and learning development in country there are appropriate universities and specialized research centers. In addition, positive demographic dynamics and the availability of reserve labor force will promote further development of this sector. In the framework of cluster policy, two pilot projects have been launched. The first one is an organization of transport and logistics centre in Almaty. This project aims to solve a lack of the Terminal Park in the most populated city of the country. The second project is the New Eurasian Transport Initiative «NELTI». The second project aims to develop the transit potential of Kazakhstan by providing "green" transport corridor on the route Beijing - Bakhty – Berlin (Кластер «Транспортная логистика» [Cluster "Transport and Logistics"], n.d.).

The NELTI project aims to increase export and transport potential of EurAsEC. Moreover, the project attempts to facilitate communication between countries-participants in order to

provide access for products to international markets. This will lead to transportation's increased ability to contribute towards international trade and the socio-economic development of the countries. In addition, it will improve customs procedures, introduce a multilateral transport permit system, and provide multi-entry and transit visas for drivers. Beyond Kazakhstan, the project includes more than 145 round trips via territories of 24 countries and 12 road transport companies from 8 countries (Figure 19).

Figure 19. Northern Route Of NELTI Project

Source: International Road Transport Union, 2010.

Janusz Lacny, the President of International Road Transport Union, said: "Currently for dogmatic reasons less than one percent of trade between European and Asian countries is carried through Central Asian countries, which were in earlier days at the heart of world trade. This is due to the fact that it is not widely known that only road transport, with its unique door-to-door, high-quality service, can interconnect all the businesses and regions from the Far East to Europe. The project of revitalizing the Great Silk Road has taken a giant leap forward through the NELTI project" (NELTI - New Eurasian Land Transport Initiative, 2010).

However, in our opinion, the transport and logistics sector cannot be considered as cluster. It develops as national strategy rather than a local one. The cluster policy is not applicable for such a sector because of a lack of geographical proximity and competition. Most of the sector's subjects belong to the government and there are only few main players in this

market. The cluster policy in this sector is functioning as a strategy of government planning. There is not an industrial or free economic zone such as this in other clusters.

Kazakhstan has great opportunities and advantages in this sector. Only instrument to develop this sector has to be different than cluster policy. Kazakhstan has a great chance of becoming a hub country in Central Asia in terms of trade, financial, technological and cultural exchanges. As the centre of the Asian region, the country can attract the capital and foreign investments into the country' economy. There is a possibility of establishing branches of the world's largest companies which are interested in Central Asian market. With increased economic globalization, Kazakhstan could be considered as a transcontinental bridge of economic interaction of European, Asia-Pacific and South Asian economies (Транспортная Стратегия Республики Казахстан [Transport Strategy of the Republic of Kazakhstan], 2005). Further development of the transcontinental and international routes can lead to increased economic integration of the country. This includes the development of new mineral resources and the establishment of production facilities. The dynamic development of the major border cities and areas of the country can attract human resources into the country from neighboring countries like Kyrgyzstan, Uzbekistan, and the Russian Federation. This will have a positive impact on the demographic and economic potential of the country.

Nevertheless, there are a lot of barriers for development of the transport and logistics cluster. One of them is underdevelopment in the existing transportation infrastructure. The transportation system has a high level of obsolescence due to the fact that majority of them have not repaired since Soviet times. Approximately 30 percent of public roads are outdated and require substantial repair while 75 percent of them do not meet the international standards. Moreover, the railways and roads of the country are characterized by the low bandwidth.

If development of these sectors goes in wrong direction it can strengthen the country’s dependency on raw materials. Kazakhstan can become no more than a resource supplier for Europe and Asia (Транспортная Стратегия Республики Казахстан [Transport Strategy of the Republic of Kazakhstan], 2005). In Figure 20 below, we can see a SWOT analysis of the transport and logistics cluster. Figure 20 indicates that there are sustainable prerequisites for development of the sector through a proper government’s strategy.

Figure 20. SWOT Analysis Of Transport And Logistics Industry

Strengths	Weaknesses
Convenient geographic location **12 out 14 regions are border regions** **Resources availability (both natural and human)** **Existence of transport and communication infrastructure** **Positive demographic dynamics**	Poor developed transport infrastructure Uneven distribution of mineral resources Landlocked location
Opportunities	**Threats**
As hub country in terms of trade, financial, technological and cultural exchanges **Further economic integration** **Positive demographic impact**	Strengthen of dependence on raw materials

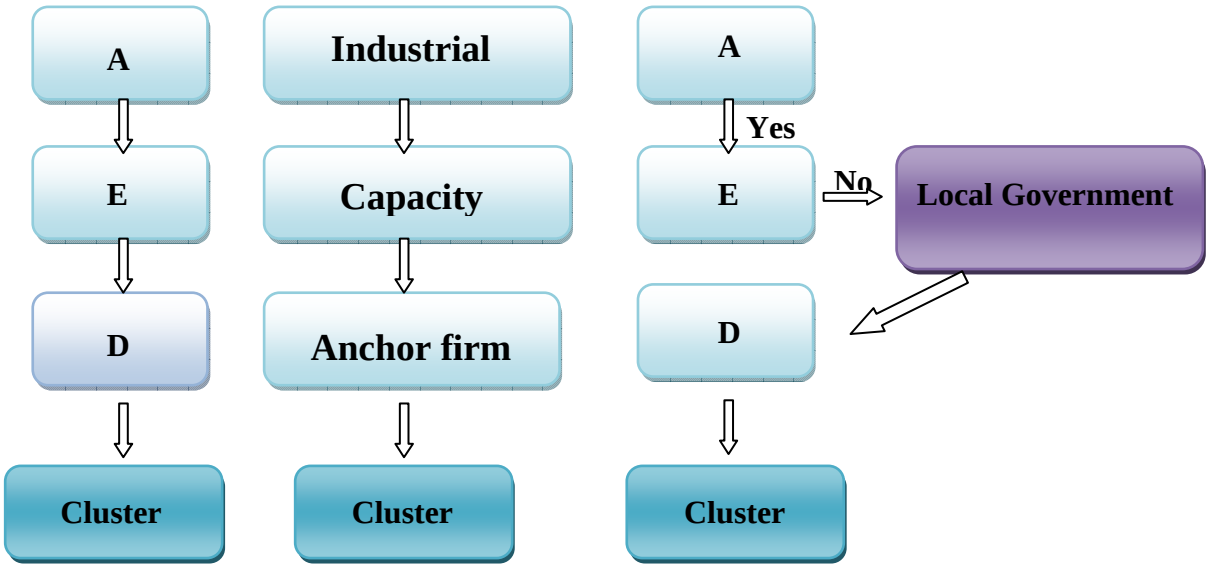
3.2 Flowchart model

The European cluster model is not applicable to Kazakhstan because of the historical and cultural differences and different levels of development. In Kazakhstan, some industries in the social context are poorly developed and critical mass is not significant enough to create the clusters. In agriculture, despite the big number of enterprisers, they are very scattered and underdeveloped. Furthermore, there are no traditions of running family business like in Italy. In most cases of the European cluster policy, the trust and fiduciary relationship played an important role in the success and implementation of the cluster policy and developed a supportive infrastructure. It makes possible to create the clusters spontaneously without any government's intervention. However, in Kazakhstan it is very difficult to establish a cluster complex without promotion from outside. Therefore, the government applied the Asian model of cluster development which is anchored firmly and in related companies. Kazakhstan inherited big industrial companies from the Soviet era. Today, in each industry there are no more than a few companies that produce the majority of industry's output.

A flowchart approach to the industrial cluster policy is quite popular in East Asian countries such as Malaysia, Japan, Thailand, and Vietnam. This model is focused on an importance of the ordering of policy measures. The main role in implementation process is devoted to government and local authorities. Kushiki proposed four steps in order to form clusters. As a first step, ingredients A, B, C, D and E must be determined. The second step is the selection of the minimum number ingredients needed to form the flowchart. Next, is

the steps must be ordered along the flowchart. The last step is the identification of factors at each step of the flowchart if the step goes to "No" (Kuchiki, 2007, p. 5) (Figure 21).

Figure 21. The Flowchart Model



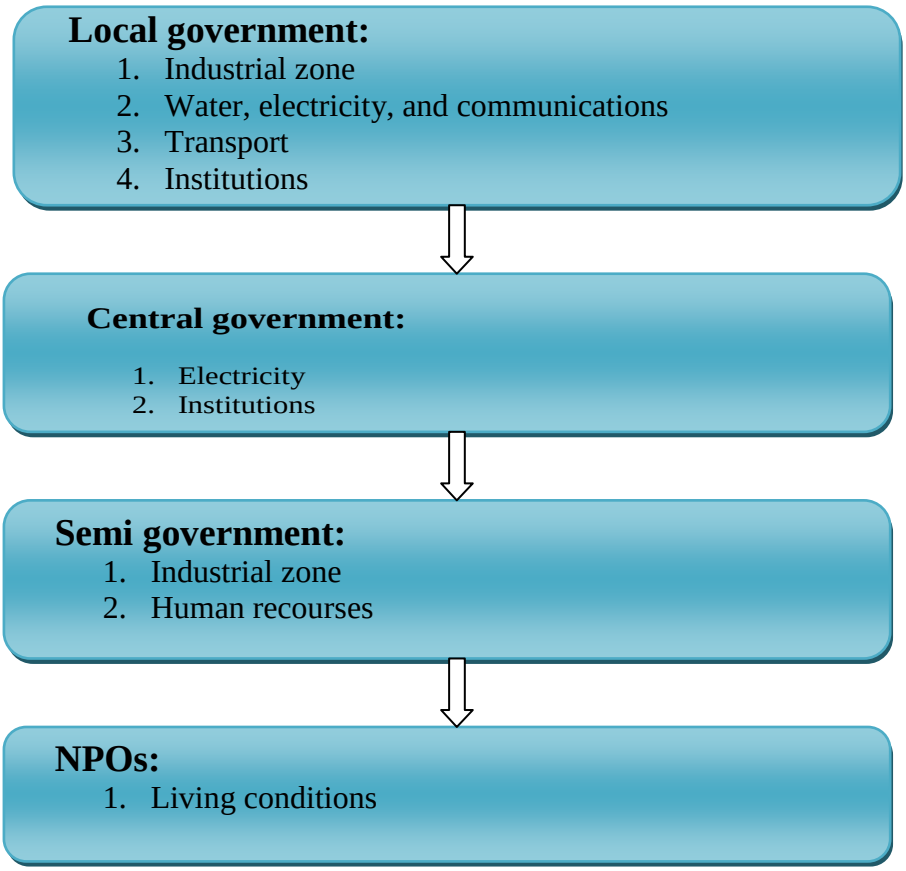
Source:A. Kuchiki, A Flowchart Model to Malaysia's Automobile Industry Cluster Policy, 2007.

According to Kuchiki (2007), there are four conditions for the creation of new clusters: industrial zones, physical and institutional capacity building, anchor firm, and related companies. The approach proposes sufficient conditions for forming industrial clusters and it involves setting a target, ordering the policy measures, and finding factors to implement the policy measures. The first step of flowchart approach is to establish an industrial zone for luring anchor firm. The next step is to promote the industry's related companies to join and invest in the established cluster by building the capacity. The capacity building includes four elements such as constructing physical infrastructure, building institutions, the development of human resources, and the establishment of living conditions appropriate for foreign investors. Although Porter's model represents four basic attributes that affect productivity and innovation, his approach does not pay attention to the role of government in the cluster creation process (Kuchiki, 2005, p. 1).

Infrastructure includes roads, communications, irrigation embankments, schools and office buildings, tube wells, bridges, culverts and electrification to name a few. Institutional building relates to the government's efforts in attracting investors and related firms. At this stage, governments and local authorities have to institutionalize a tax system and provide one-step services for foreign investors. In addition, this involves tax incentives such as low corporate tax rates and tax holidays for a certain period. Human resources are the crucial factor of creating clusters. It includes cheap, unskilled labor and highly skilled managers, researchers as well as professionals. Among all elements of capacity building, the development of human resources is the most time consuming. The last infrastructure is development of living conditions which consists of housing, hospitals, schools, and

shopping and entertainment facilities. The investors' decision to create clusters depends on whether the living conditions are sufficient comfortable, secure, and satisfactory or not (Dinh, 2007, p. 7).

Figure 22. Priorities Of Actors



Source:A. Kuchiki, A Flowchart Model to Malaysia's Automobile Industry Cluster Policy, 2007.

The information in Figure 22 relates to the priorities of each factor in forming clusters. As shown in the graph, the local government plays a crucial role in the cluster creation because it is responsible for establishing industrial zones and institutions, supplying electricity, and facilitating transport. Central government has to provide clusters with electricity and build appropriate institutional system. The main priority of non-profit organization is a development of favorable living conditions for luring investors (Kuchiki, 2007, p. 6).

As we can see on the Appendix B, as the first step we determine whether the industrial zone is established or not. If "no", we have to find out who is responsible for its establishment. If "yes", we return to the main arrow and continue to the next step. The next step is the capacity building. Each element of capacity building is ordered along a flowchart and a decision as to whether or not it exists is made. As in the previous step, if it goes to "no" we choose who is able to accomplish this.

3.3 Application of flowchart model to Kazakhstan economy

To investigate the cluster policy in Kazakhstan, we will determine whether conditions to form clusters exist or not. As we can see in Table 4, there are five conditions for implementing the cluster approach. Based on our research we assess the presence of all conditions in each cluster as range one to five. The number one is presents “very low” level, for instance, the level of geographical concentration. The number two means “low”, three means “moderate”, four means “ high”, and five means “very high”.

Table 4. Assessment Of The Clusters

Preconditions of cluster policy	**Metallurgy**	**Textile**	**Tourism**	**Food-processing**	**Oil and gas machinery**	**Construction materials**	**Transport and logistics**
Existence of competitive enterprises	3	2	3	3	4	3	It is not considered as a cluster
Existence of cluster competitive advantages in region	5	1	4	4	4	3	
Geographical concentration	4	5	5	4	5	4	
Sufficient critical mass	4	5	5	4	2	5	
Existence of interactions and cooperation between participants	2	2	2	2	2	2	

The metallurgy cluster consists of more than 52 companies which are all companies for the extraction, beneficiation and metallurgical processing as well as the financial, marketing, and research infrastructures. Moreover, around these companies are more than 300 concentrated suppliers of equipment and materials including more than 30 enterprises of machine building and metallurgy. From this we can conclude that the clusters possess a sufficient critical mass to form a cluster. However, competitiveness of these companies is quite questionable due to a lack of new technologies and innovations into all stages of the production process. On the other hand, in the depths of the country are more than 50 % of the world’s reserves of tungsten, 23 % of chrome ore, 19 % of lead, 13 % of zinc, 10 % of copper and iron. This gives the country a strong competitive advantage not only regionally, but also internationally. There is a high concentration of firms in food-processing and construction clusters as well. The food-processing cluster has a high level of export and its products are considered competitive. Kazakhstan and Russia combined are leaders in grain production in the Eurasian region. The tourism cluster policy gave this industry a big push in development. Before that time, the tourism sector had never been considered a profit-

provided segment of the economy. This sector has a considerable potential in the local area. Moreover, the number of tourist enterprises has been increasing since the adaptation of the cluster approach in this sector. The oil and machinery cluster is very developed in terms of technologies and innovations. However the number of enterprises is substantially low since the majority of output is produced by a single company (31.2 % KazMunayGaz and 1.11 % other Kazakhstani companies)

Adaptation of the cluster policy involves a development of transport and logistics infrastructure first. This sector has to facilitate and cooperate with other clusters. The government has to consider it as a part of strategic development. However, in Kazakhstan, it was separated as a single cluster, which is incorrect. In the transport and logistics cluster, firms do not have geographical concentration and proximity. Moreover, the majority of transport and logistics subjects belong to the government. According to many researchers and academics, the textile cluster was initially doomed to failure. Because of an extremely cheap labour force and better quality of cotton in neighboring countries (Uzbekistan, Tajikistan, Turkmenistan) development of this industry is unprofitable. In addition, the enterprises are represented by small, stagnated farms. Because of this, the transport and logistics and textile sector is not considered as a cluster in our future assessment of cluster policy.

The next key condition for establishment of a cluster approach is geographical concentration. Evaluation of the geographic concentration has a high mark in all clusters, except construction materials clusters. Due to the fact that most resources are scattered throughout the whole territory of the country, the production facilities are located in a particular area. Moreover, the interaction and cooperation between participants is poorly developed. Kazakhstan has experienced a relatively small way of private business development. In addition, a corruption and bureaucracy hinders business in Kazakhstan.

According to our results of application of the flowchart model to Kazakhstan’s cluster policy, we can conclude that no one, selected sector perfectly fits into the definition of cluster. The most problems are concentrated in capacity building, which is categorized into three groups: infrastructure, institution, human recourses, and living conditions. Infrastructure does not only cover the lack of infrastructure, but also the underdevelopment of existing infrastructure. The vast territory, huge differences in climatic and geographical conditions and low population density make the transportation development in Kazakhstan very expensive. For example, in the oil and machinery cluster, there is still no pipeline connecting the main field in western Kazakhstan with the major oil manufacturers between the northeast and south part of the Republic. The development of a modern infrastructure includes building roads in rural areas, as well as establishing a complex of procurement organizations, wholesale markets, information and marketing services, and financial and insurance institutions. The lack of storage capacities and transportation facilities makes the

shipment of goods considerably costly. The local and central governments have to take responsibilities for solving these issues.

Institutional body is characterized by the lack of access to formal training and financial system, excessive government regulation on business licensing, lack of price and market information, and noncompliance with international standards. The entrepreneurs are highly dependent on state agencies, and, as a result, delegate little to employees and find it difficult to develop long-term commitments with business partners or competitors. The country's mentalities have been inherited from the Soviet era and characterized by the absence of a long-term vision and a fragmented bureaucratic structure. The main problems faced by the majority of small and medium enterprises are the lack of marketing skills and capital. Despite the fact that the government provides various government-sponsored credit schemes, they are not always able or willing to receive any credits from banks or other financial institutions. They are heavily dependent on their own savings. In this situation central government together with local government have to concentrate on the institutional environment that would strengthen a market-driven clusterization process. They have to recognize the entrepreneurship as the economy's driving force and the importance of the appropriate institutional setting. In addition, the institutional issues require to limit government interference, to properly define property rights, and to increase transparency in institution functioning. The main purpose of the government's regulation is setting up and protecting a functioning set of formal and informal institutions. Laws and government policy should be foreseeable. The lack of transparency, bureaucracy, bad governance's arbitrariness, and corruption create an unpredictability and costly environment for prospective entrepreneurs. However, it is relatively easy to establish formal institutions, but very difficult to enforce them (Kozbagarova & Wandel, 2009, p. 45).

Concurrently with infrastructure issue, the human resources remain a fundamental challenge for Kazakhstan. Development of human resources is critical to achieving sustainable economic growth. Therefore the semi-government and government have to concentrate spending into human capital formation and support the foundation of international universities for preparing professional labour force. The big shortage of specialists is especially in the technological and engineering fields. It is unquestionable that the close cooperation between the government and private entrepreneurs characterized successful development in East Asia. Moreover, the rule of law, binding the state from interfering with the private incentives that promote economic activity and guaranteeing private property rights and contract fulfillment, is important for economic growth.

CONCLUSION

It can be said that the objectives of cluster policy in Kazakhstan are mainly focused on strategic and national benefits. For example, the cluster policy in Europe is aimed at improving business environment and business relationships between participants. Kazakhstan's economic policy is more centralized than in developed countries. Therefore the cluster policy has a more macro-oriented focus and strongly depends on overall economic conditions. Instead of market-driven diversification they have applied a strategic government planning and intervention. One of the characteristics is that the cluster policy has a limited number of participating companies which produce the majority of outputs. Large enterprises are noticeably dominating the small and medium enterprises in term of production costs, consumer market, brand recognition, governments support and so on. Infrastructure of clusters is very weak and underdeveloped. Not one cluster initiative has its own website where it could be possible to find supportive information about clusters or process implementation. In comparison, 79 % of cluster initiatives in developed countries have their own websites. Information is available on the different state web pages, which is inconveniet and complicated for searching. To add, the data is incomplete and out-of-date. Also, there is not an individual or group of people who are directly responsible for cluster implementation. All functions are divided between ministries and local authorities, which impedes the process of cluster implementation.

Competition plays an important role in the development and prosperity of market economy. Market economy cannot be effective and economic growth cannot be sustainable without a healthy rivalry. However, Kazakhstan's policy-makers do not pay enough attention to this issue. They agree that cluster policy is an effective measure for achieving competitiveness. Furthermore, they use protective measures as an instrument for the intensification of competition. They believe that high tariffs on imported goods, restrictive quotas, subsidies and state investments can protect domestic industries against foreign competition while increasing competition into country. On the contrary, these methods hinder a natural development of competition and innovation. Protected domestic producers lose incentives to seek new technologies and being competitive on the global market. Therefore, the home industry gets extremely non-competitive. In addition, the qualities of domestic products suffer because of a lack of health competition and consumers pay more for these inferior goods. Finally, the trade protectionism is a great barrier to enjoy the full benefits of international specialization and trade. However, by support of M. Porter, the government chose the seven industries for cluster development and considers the creation of these clusters sufficient to achieve the goal of being competitive.

According to the Porter's concept of national competitiveness, the country succeed not just in individual sectors, but also in a group of related industries or sectors of the economy. The cluster is a complex formed on the basis of geographic concentration of interconnected and mutually supportive businesses and organizations. They use the benefits of their

proximity to ensure competitive position in the markets. In modern conditions the breakthrough in the global market provides no single product or industry, but such a complex of industries. The participants of this complex join efforts to solve common problems to achieve success in global market. Usually they are specialized suppliers, main producers and consumers associated technological chain, although the link between the members of the cluster can be not only vertical (supplier-buyer), but also horizontal (common customers, technologies, intermediaries, infrastructure). Clusters cannot be created solely by decision of authority. They develop and grow by common efforts of private participants-entrepreneurs. Sometimes it takes years or decades. The entrepreneurs should mature for that by interacting, mutually gaining experience, accumulate knowledge, increasing scientific and technical base and develop active marketing. Only be doing this cluster policy can be effective and will give the country competitive advantages (Baikazah, 2006).

Unfortunately, Kazakhstan’s entrepreneurs have not mature yet to this level of trust or an understanding of their investors. Not so much time has been passed since the appearance of Kazakhstan's private business. Business and investment climate is characterized by high level of government interference and lack of equal competitive conditions. The frequent redistribution of property and lack of protection of property rights (investors) due to the strong dependence of judges from government, weak law enforcement, and corruption make difficult to implement cluster policy in Kazakhstan. In order to achieve competitive level of economy the government has to create favourable business and investment climate through structural and institutional reforms. Furthermore, they have to develop infrastructure such as roads, water supply, sewers, power grids, and telecommunications. According to Ketels (2005), the government should not create special conditions for individual clusters. They should be open to all who want to work together to improve their performance. He pointed out that the restriction of competition, such as protectionist measures obstacle the successful development of the cluster.

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APPENDIXES

TABLE OF APPENDIXES

Appendix A: Cluster Definitions

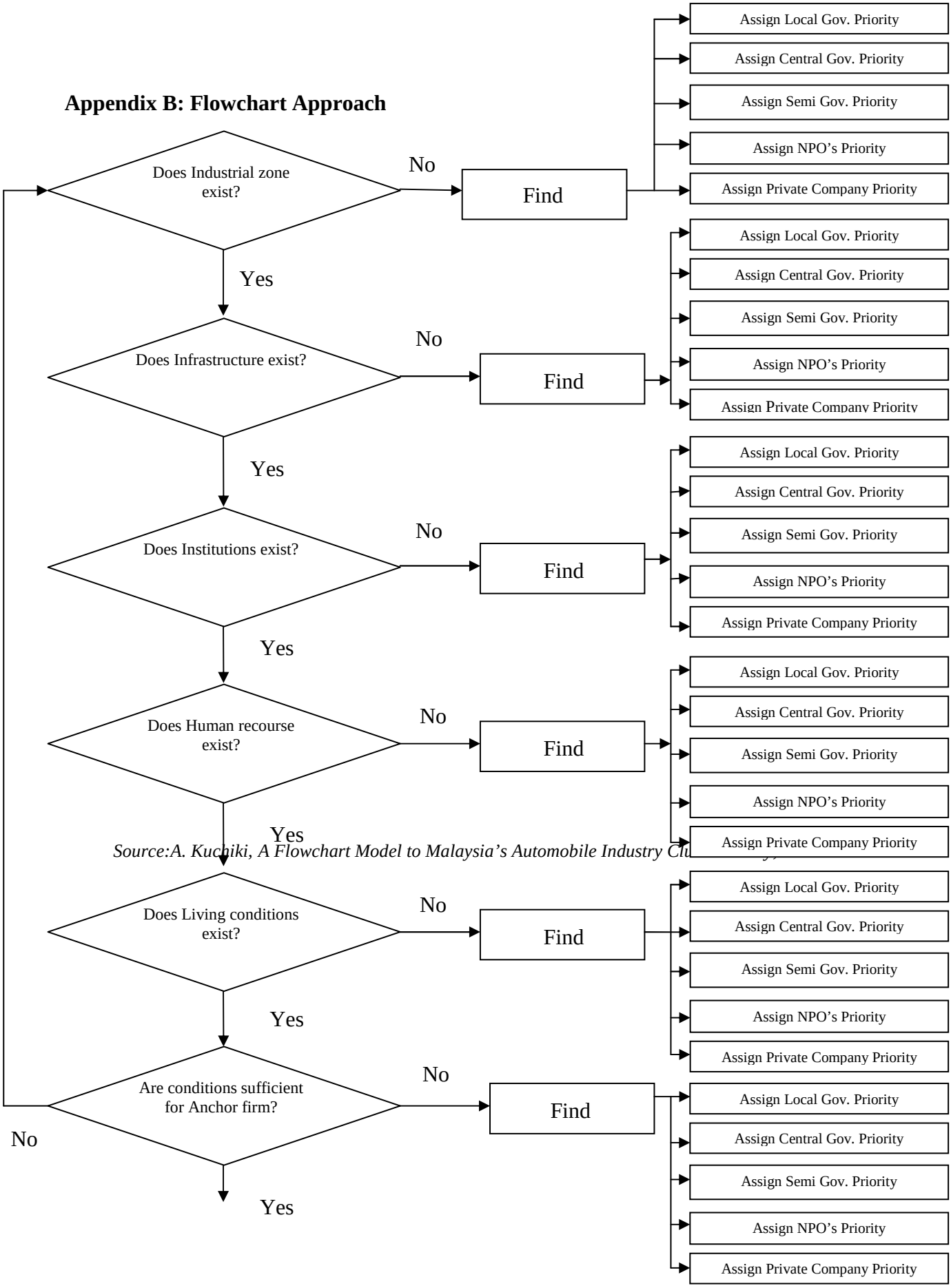
Table 1. Cluster Definitions

Author	Year	Source	Definition
Porter	1990	The competitive advantage of nations	Industrial cluster - a number of branches connected via a buyer-supplier or supplier-buyer, or through common technologies, common procurement or distribution channels, or common labor unions
Schmitz	1992	On the clustering of small firms	Cluster - a group of enterprises belonging to one sector and operating in close proximity to each other
Swann and Prevezer	1996	A comparison of the dynamics of industrial clustering in computing and biotechnology	Clusters are groups of firms within the same industry located in one geographical area.
Enright	1996	Regional clusters and economic development	Regional clusters - industry clusters in which the firm-members are in close proximity to each other.
Rosenfeld	1997	Bringing business clusters into the mainstream of economic development	Cluster - the concentration of firms that are capable of producing a synergetic effect due to their geographical proximity and interdependence.
Porter	1998	On competition	Cluster is defined as geographic concentration of inter-connected companies and institutions working in a common industry.
Feser	1998	Old and new theories of industry clusters	Economic clusters are not only related and supporting industries and institutions, but rather related and supporting institutions that are more competitive on the basis of their relationships.
Swann and Prevezer	1998	The dynamics of industrial clustering	"Cluster" means a large group of firms in related industries in specific locale.
Elsner	1998	An industrial	Cluster - a group of firms that are functionally connected

		policy agenda 2000 and beyond	**both vertically and horizontally. The functional approach emphasizes the quality of existing relationships between firms and institutions supporting the cluster, and these relationships are determined through the market.**
Steiner and Hartmann	**1998**	**Learning with clusters**	**Cluster - a group of complementary firms (in manufacturing or service sectors) of public, private and semi-public research institutes and development institutions, which are related by labor market and/or technological relations.**
Roelandt and den Hertag	**1999**	**Cluster analysis and cluster-based policy making in OECD countries**	**Clusters can be characterized as a network of producers strongly interdependent firms (including specialized suppliers) linked with each other in value-added production chain.**
Simmie and Sennett	**1999**	**Innovation in the London metropolitan region**	**We define an innovative cluster as a large number of related industrial and/or suppliers who have a high level of collaboration, typically through the supply chain, and operating under similar market conditions.**
Bergman and Feser	**1999**	**Industrial and regional clusters**	**Industrial clusters can be defined as a group of profit and nonprofit organizations, for which group membership is an important element of competitiveness.**
Bergman and Feser	**1999**	**Industrial and regional clusters**	**Regional clusters – industry's clusters that are concentrated geographically, usually within the region, which forms a city area, labor market and other functional business units.**
Egan	**2000**	**Toronto Competes: An Assessment of Toronto's Global Competitiveness**	**Cluster - a form of industrial organization, which depends on a network of highly specialized, interconnected firms in the private sector and public sector agencies.**
Crouch and Farrell	**2001**	**Great Britain: falling through the holes in the network concept**	**A more general concept of the cluster implies something broader: the tendency of firms locate close to each other, although without the possession of a particularly important presence in the area**
Van den Berg, Braun and van Winden	**2001**	**Growth clusters in European cities**	**The popular term - the cluster is most closely associated with local or regional scale networks ... Most definitions share the notion of clusters as a localized network of specialized organizations, whose production processes - are closely linked through the exchange of goods, services and/or**

			knowledge
OECD	**2001**	**World congress on local clusters. Regional clusters in Europe**	**Regional clusters are geographically limited concentrations of interconnected companies and can be used as a keyword for the older concepts like industrial areas, specialized industrial agglomerations, and local production systems**
Visser and Boshma	**2002**	**Clusters and networks as learning devices for individual firms**	**Clusters are defined as geographic concentrations of firms involved in similar and related activities**
Andersson et al.	**2004**	**The cluster policies whitebook**	**Clustering in general is defined as a process of co-location of firms and other actors within a concentrated geographic area, cooperation around specific functional niches and establishing close linkages and working alliances to enhance their collective competitiveness**

Appendix B: Flowchart Approach



Source:A. Kuchiki, A Flowchart Model to Malaysia's Automobile Industry Cl