REPUBLIC OF AZERBAIJAN

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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

INCREASING THE EFFICIENCY OF AZERBAIJAN OIL CLUSTER

Speciality: 5312.01 – Field economy

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GENERAL CHARACTERISTICS OF THE DİSSERTATION WORK

Relevance and degree of study of the topic. In light of rising global challenges and fluctuating energy costs, it is critical to diversify the national economy's structure and minimize the country's reliance on oil. The "National Priorities of Socio-Economic Development: Azerbaijan-2030" approved by the decree of the President of the Republic of Azerbaijan Ilham Aliyev envisages systematic and comprehensive measures to modernize and diversify the structure of the national economy.

According to the Strategic Roadmap for the Development of Heavy Industry and Mechanical Engineering in the Republic of Azerbaijan, it is necessary to accelerate the establishment and development of modern enterprises and production complexes in order to expand the production capacity of a network of competitive enterprises and increase the country's export potential.

As a result, the value chain's efficiency improves, including bettering oil refining processes and building more productive petrochemical plants and facilities, as well as the establishment of new technological parks, industrial parks, and platforms. The construction and growth of industrial clusters, in which a network of competitive national firms may operate efficiently, should be given special emphasis.

Azerbaijan has a lot of potential in the oil refining and petrochemical industries, and the petrochemical complex built at Sumgayit can serve as a strong foundation for forming an oil cluster in the country. By 2030, a modern oil refining complex is expected to be operational. This project has so far seen the completion of a new gas manufacturing plant with a capacity of 12 billion cubic meters per year and a chemical plant with a capacity of 860,000 tons of polymer products per year.

The oil cluster is a complex structure of interconnected businesses and enterprises, with varying levels of profitability and risk, and risks of various natures and origins at various levels. As a result, as oil clusters grow in Azerbaijan, strengthening financial management will be a challenge, both at the national level and at the level of management of individual organizations and enterprises. All of this involves the

performance of scientific work dedicated to the study of the oil cluster, taking into account the particular of the republic's economy.

It should be noted that there are a number of scientific works in the economic literature devoted to this or that aspect of the problem.

In the works of the following Azerbaijani scientists, the concerns of industrial growth of the republic, as well as the substantiation of the refining industry's opportunities for the establishment and development of clusters, including the oil cluster in the republic, have been considered: R.I.Abdullayev, T.N.Aliyev, Sh.T.Aliyev, M.C.Atakishiyeva, E.M.Hajizada, V.T.Novruzova, R.R.Guliyev, G.A.Safarov, B.S.Khıdırov, G.Z.Yuzbashieva and others.

Creation and development of oil clusters, theoretical and methodological issues of ensuring maximum productivity of oil and gas refining industry have been researched by foreign scientists including R.Bakal, H.Baker, G.D. Boush, V.N. Volkov, I.N.Denisov, K.Dickel, V.V.Ilyin, E.O.Kalinin, L.Krayevski, P.Krugman, R.Mann, A.Marshall, G.Martin, A.Mason, R.Mokler, G.Mankiw, S.Menning, V.Petti, M.Porter, M.Friedman, E.Helfer, P.Riman, A.Rove, A.E. Khorokhorin, J.Schumpeter and others.

However, some areas of cluster construction, operation, regulation, and development are still explored in the local literature. Little has been learnt, in particular, regarding the formulation and implementation of cluster development strategies, cluster policy formation and implementation, and the process of state regulation of the cluster as an economic system.

At the same time, it is necessary to provide a deeper scientific justification and understanding of issues related to increasing the efficiency of Azerbaijan's oil cluster in order to develop a more productive oil and gas manufacturing chain and expands the network of competitive oil and gas refining and petrochemical enterprises.

All of this underlines the dissertation's relevance, scientific, and practical value.

The nature of the discussion of many aspects, as well as the fundamental novelty and importance of the problem of formation and development of the oil cluster for reformist Azerbaijan in the context of high scientific and practical significance of its solution, determined the

dissertation topic, goals, and objectives.

The research's purpose and objectives. The dissertation's goal is to investigate the structure of the oil industry's value chain and to develop ideas for the establishment and effective operation of an oil cluster in Azerbaijan. The necessity to solve the following issues has been found in accordance with the study's purpose:

- Study the theoretical and methodological bases of the cluster approach in the economy;
- Characterize the conceptual bases of the value chain;
- Analyze the oil refining and petrochemical technological chain;
- Characterize organizational and economic problems of oil cluster formation in Azerbaijan;
- Analyze the structure of the value chain in the oil industry of the republic;
- Study the development dynamics of the oil and gas and petrochemical industries;
- Analyze and evaluate the current state and development trends of the oil industry refining areas and determine the favorable conditions for the formation of the oil cluster;
- Identify priority areas for improving the management of the country's emerging oil cluster;
- Develop state support measures for the elements of the emerging oil cluster

The object of research is a set of interconnected organizations involved in the formation and development of the oil cluster.

The subject of research– is issues of efficiency of oil cluster activity.

Research methods. Theoretical and methodological basis of the dissertation research are the works of local and foreign scientists on the economics of the oil and petrochemical industry, as well as other related fields; M. Porter's theory of competitive advantage and the concept of value chain were developed within it; There have been studies revealing methodological issues of cluster identification, its structural structure, cluster development formation and state support mechanisms. The study of clustering trends in the national economy also led the author to refer to research conducted by experts from the European Cluster Observatory, the

World Economic Forum, as well as the experience of existing clusters and cluster partners (MediconValley, EACP, SiliconEurope, 3BI, etc.).

The study uses traditional and modern methods of system, logic, comparative analysis methods, efficiency determination, business planning, accounting of related effects. Furthermore, grouping methods, network and cluster research methods have been used in the preparation of the dissertation.

The study's **hypothesis** is that the development and effective implementation of cluster strategy lays the foundation for boosting the competitiveness of national products produced under similar conditions, not only in domestic but also in international markets.

The main provisions of the defense. The following are the primary defense provisions that include new or novel aspects:

- In connection with the new global challenges of the national economy, more universal and effective forms of business development are required - one of these forms is the cluster institution;
- National features of cluster formation in Azerbaijan allow to substantiate the strategic directions of oil cluster formation in the republic;
- Justification of boosting the value chain's efficiency by improved management in the oil cluster units; analysis and assessment of the value chain, which is one of the main components of cluster change;
- Successful implementation of cluster change in the country's economic system requires a clear definition of the competitive advantage of the developing cluster;
- Systematic and comprehensive study of intra-cluster processes and its entire development period, classification of oil cluster entities in the context of management and technological aspects;
- Structural-logical model of oil clustering in the republic, which allows to increase the efficiency and effectiveness of management decisions;
- Substantiation of new approaches and mechanisms to attract investment in various sectors of the oil refining industry and the created oil cluster entities;
- Substantiation of the main principles and conditions of oil cluster formation, taking into account the sector's priorities for long-term development and increasing competitiveness by maximizing the

combination of infrastructure, institutional, and organizational-economic factors, increasing finished product exports while minimizing raw material and component imports;

– State support mechanisms and relevant resources for the successful formation and effective development of the oil cluster, the creation of an infrastructure network and an innovative environment;

Scientific novelty of the dissertation.

The research's scientific novelty is the development and validation of scientific-practical approaches to the organization and efficient operation of the oil cluster, taking into account contemporary challenges in terms of increasing the country's oil refining and petrochemical industry productivity.

The following are the most important findings from the dissertation research that are scientifically novel:

– The main competitive advantages have been identified, the directions of spreading the effect of cluster development in the economic system of the country have been identified;
– The concept of cluster policy was developed based on the conceptual provisions of cluster policy and the active role of the state in cluster diagnosis, support of cluster initiatives, stimulation of cluster development, and monitoring of its effectiveness in the oil sector, with the goal of developing high-tech oil refining and petrochemical industry and forming advanced economic growth.
– Classification of elements of formation and development of oil cluster in the context of management and technological aspects has been proposed;
– Specific characteristics of the oil cluster as an economic system from the point of view of the value chain of oil refining have been identified;
– Substantiated the importance of mechanisms and structural diversification of the developing oil cluster to attract investment in low-income industries;
– The necessity for value chain rationalization-based management improvement in oil cluster firms has been highlighted and justified.
– Specific forms of production organization, their location, identification of authorities responsible for cluster formation, main directions and forms of cluster approach have been developed as

organizational and economic mechanisms for implementing the cluster approach to increase the competitiveness of local industry;

- The current state of the oil complex has been assessed based on a comparative analysis of the situation in the field of oil production and refining, and the main conditions for the formation and development of the oil cluster have been established, taking into account the specifics of economic, technological, and infrastructural conditions;
- The oil cluster's organizational structure has been designed to take into account each participant's role and position in the process of adapting cluster activities to the requirements of the state's import substitution policy based on industrial diversification. The organizational structure of cluster education is proposed in the form of a model, in which cluster members (participants, foreign agents, central and local governments, public organizations) have the opportunity to participate in the cluster's development (creating healthy competition between the cluster and the external environment) within the cluster;

A set of forms and methods of state support for the formation of the oil cluster in various areas have been proposed: financial-credit and information support; export support in the formation of infrastructure; cluster participants' staff training, advanced training, and retraining; and the establishment of cluster support funds (guarantees, enterprises, microloans).

The research's theoretical and practical relevance. The **theoretical** significance of the research is that the provisions and results presented here help to improve the competitiveness of the Azerbaijani economy through the use of the cluster approach, which allows for a more in-depth examination of the formation and operation of competitive industrial clusters in the national economy.

The **practical** significance of the dissertation research findings is that they can be used by authorities in the formation of national clusters, the development of concepts, and target programs for cluster development as part of the republic's sustainable development strategy; it can also be used as a step-by-step guide to the formation and analysis of an oil cluster by economic entities when deciding on the establishment of an oil cluster. The work's primary elements can serve as an analytical foundation for the formulation of methodological suggestions for

ministries of republic and macroeconomics training courses at universities.

The results of the dissertation's investigation lead to a level of particular science-based recommendations that allow local business to boost its competitiveness through the establishment of cluster structures.

Approval and implementation. The dissertation's main points are represented in 10 scholarly publications, including seven articles and three theses (three of which were published abroad) published in VAK-accredited journals.

The main provisions of the dissertation and separate results of research were discussed and approved at international and national scientific conferences and symposiums: ("increasing the efficiency and development of the national economy" (Baku, 2012) international scientific-practical conference, "Digital economy: modern challenges and real opportunities" (Baku, 2020), " III Republican scientific-practical conference of young researchers" (Baku, 2020).

Some of the obtained results were proposed for practical use in the "Economic evaluation of projects" department of the SOCAR's Research and Design Institute (Implementation reference). The results of the work were also discussed and approved by Nobel Oil Ltd (Implementation reference).

Name of the institution where the dissertation work has been performed. The dissertation has been carried out at the Azerbaijan University**.**

The dissertation's overall volume, including the volume of individual structural parts. The total volume of the dissertation is 223851 characters: introduction (14238 characters), chapter I (68915 characters), chapter II (75219 characters), chapter III (57341 characters), result (8010 characters) and a list of used literature (156).

The structure of the dissertation

Introduction

Chapter I. Theoretical and methodological bases of oil cluster research

1.1. Theoretical bases of cluster approach to economic development processes

1.2. Conceptual bases of value chain research

1.3 Oil refining and petrochemical technology chain

Chapter II. Organizational and economic problems of oil cluster formation in Azerbaijan

2.1. Analysis of the value chain structure in the oil industry

2.2. Development dynamics of oil and gas industry

2.3. Trends of the developing oil cluster in the refining industry of Azerbaijan

Chapter III. Improving cluster policy in Azerbaijan

3.1. Rationalization of the value chain in the emerging oil cluster

3.2. Improving the emerging oil cluster of the country in modern conditions

3.3. State support for the elements of the emerging oil cluster

The result

List of used literature

The main content of the work

The first chapter, titled **"Theoretical and methodological foundations of oil cluster research,"** looks at the features of the conceptual apparatus and the formation of scientific approaches, as well as the theory, methodology, and practice of cluster and cluster policy formation through practical recommendations. The function of oil clusters in economic development as well as their conceptual relevance and potential for improving the efficiency of the oil refining and petrochemical technology chains has been defined.

The cluster, according to the dissertation, is a critical feature of national economic development. Although M. Porter[1] popularized the

[1] *Porter, M.E. The Competitive Advantage of Nations, New York: The Free Press, – 1990 – 857 p.*

term business cluster (also known as Porter cluster, industrial cluster, and competition cluster), the foundations of economic geography and trade are still laid by the classics of economics - the English school of economics A. Smith and D. Ricardo, as well as in the works A. Marshall's works. Clusters can be considered innovative systems of applied value. The existing approaches to clusters in the scientific literature can be divided into three groups, each of which emphasizes one[2] or another aspect of its activity: 1) Limited regional forms of economic activity within related sectors, usually related to one or another enterprise of the knowledge industry. 2) Vertical production chains; fairly narrowly defined sectors where the adjacent stages of the production process form the core of the cluster (for example, the "supplier-assembler-seller-customer" chain). Networks formed around parent companies also fall into the same category. 3) Industries defined in the aggregate of high-level (for instance, "chemical cluster") or higher-level (eg, "agro-industrial cluster") sectors of aggregation.

Clusters affect competitiveness in three ways, according to the study: enhancing the productivity of cluster companies, introducing innovation to the sector, and promoting new business in the industry. The process of cluster growth entails spreading the effect in multiple directions (Fig. 1.).

As for the methodological characteristics and conceptual significance of the value chain, at the company level, a value chain is built on viewing the organization as a collection of processes, the service organization or manufacturing organization as a collection of inputs, transformation processes, and output subsystems. Money, labor, materials, equipment, buildings, land, and management are all involved in the procurement and consumption of resources. A price chain, as defined above, is a classification of operations that are unique to almost every firm[3]. Many organizations function in hundreds, if not thousands, of different methods when converting resources into goods.

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[2]Brown, R. Clusters, Supply Chains and Local Embeddeness in Fyrstad. EUR URB R S, 7(4), – 2000, –p.291-305.

[3] Rowe, A.J. Strategic Management: methodological approach. / A.J. Rowe, A.J. Mason, K.E. Dickel, RBMann, R.J.Mockler. 4th Edition, Addison-Wesley, –1994.–p. 258.

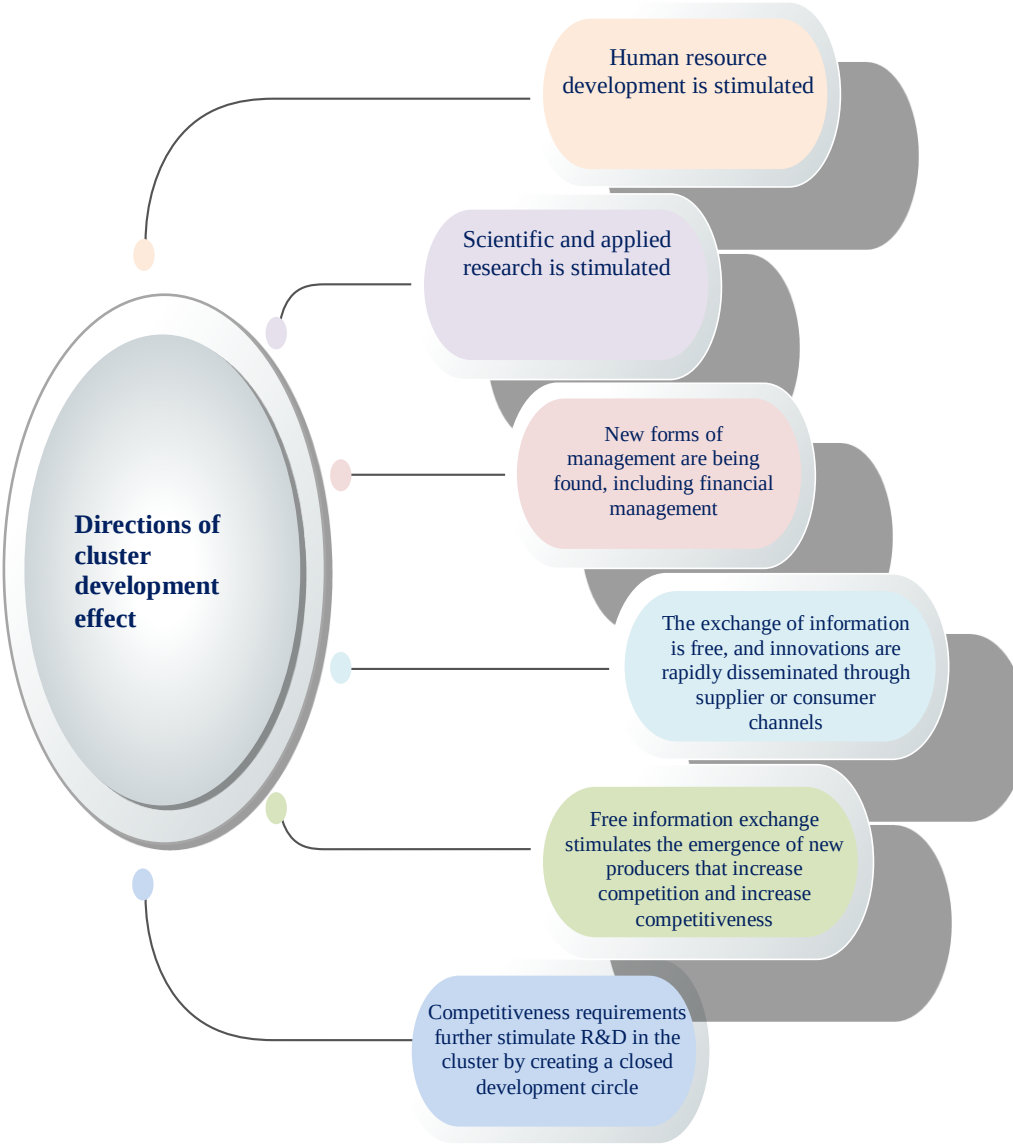

Fig. 1. Block diagram of the effects of cluster development

Source: developed by the auther.

Primary (primary) and secondary (secondary) activities are two types of activities that all businesses must do in some fashion (Fig. 2).

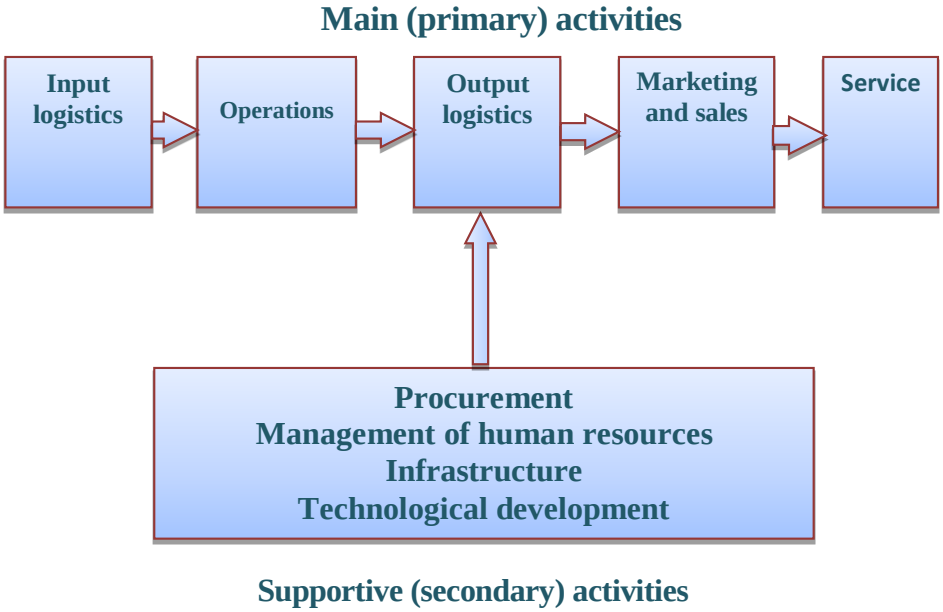

Fig. 2. Classification of activities in the concept of value chains

The documentation of the described value chain and production process serves as the foundation for business quality certification, particularly in the context of the internationally recognized ISO 9001 quality standards, which were revised in 2008 and established the following quality management system requirements for organizations[4]**:**

1) to demonstrate the ability to supply products that meet the needs of consumers and the requirements of competent authorities; 2) to illustrate the intention to increase customer satisfaction through continuous system improvement and the effective implementation of processes that ensure compliance with consumer needs and the requirements of competent authorities.

Thus, the analysis of the cost structure of the company, which

[4] *ISO 9001: 2000. Quality management systems – Requirements: [Electronic resource] URL: www.iso.org/iso/catalogue_detail?csnumber=21823.*

includes firms derived from chain analysis, subcontracts, and external processes, is part of *a value system* with a larger flow of activity from suppliers to buyers:

–Individual actions and the combination of these activities are the origins of a firm's competitive advantage.

–The value chain depicts what the company does and how it does it.

–The value chain is a valuable tool for discovering distinctions between firms that operate in the same area and appear to be similar on the surface.

–The value chain enables you to comprehend the organization's strengths and limitations.

The potential of the oil cluster to increase the efficiency of the **oil refining and petrochemical technology chain** is as follows. An oil cluster is a production and economic system consisting of the industry, enterprise and activity necessary for the oil production industry, which forms the basis of this cluster, as well as for the processing of crude oil and the production of products required outside this cluster.

The author focuses on the processes associated with the technological chain of oil refining. The study offers the following classification of oil-related products: 1) Crude oil; 2) Primary oil refining products. In the literature, oil products are usually understood as the following products; 3) Petrochemical products; 4) other products.

This study explores the following objects, such as elements and subsystems of an oil cluster, based on the system methodology stated above and the author's proposed taxonomy of petroleum products: 1) Oil as a raw material; 2) Petroleum products; 3) Petrochemical products; 4) Oil refining enterprises; 5) Petrochemical enterprises; 6) Production processes; 7) Relationships, connections and interactions between these elements of the oil cluster.

Fig. 3 shows the structure of the petrochemical industry. Certainly, a more detailed classification of oil-based products is possible in oil and oil product refineries, respectively.

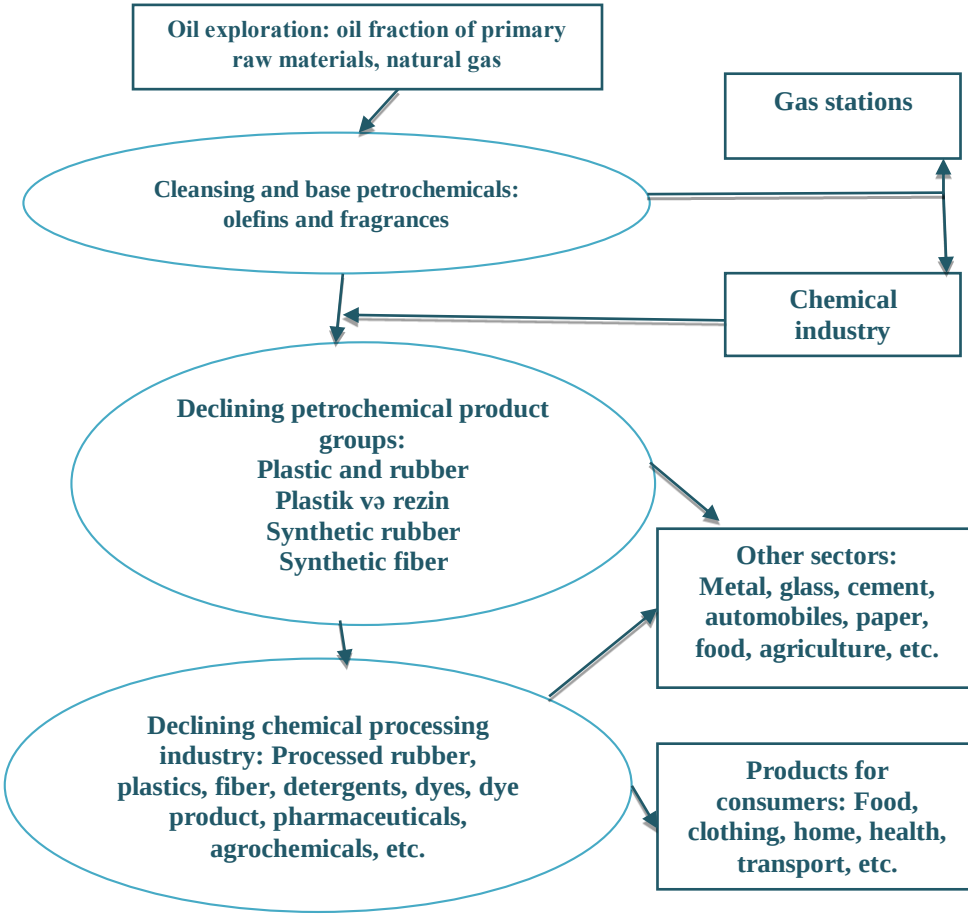

Fig. 3. The structure of the petrochemical industry

The second chapter, **"Organizational and Economic Problems of Oil Cluster Formation in Azerbaijan,"** examines the structure of the oil industry's value chain, analyzes the current state and development trends of the oil and gas and petrochemical industries, considers issues on the development of refining industries's in Azerbaijan, and investigates the environment for the formation of an oil cluster in Azerbaijan.

The importance of the value chain structure in the oil sector is emphasized in this study. In our study, by mentioning the oil cluster's management efficiency, we mean the management of a rationally diversified oil cluster, and, most importantly, ensuring the formation and

development of a competitive oil cluster in both domestic and international markets.

As it is known, the oil industry covers such processes as exploration, production, refining, transportation and marketing of oil products. The majority of industrial products are fuel and oil. The World Bank's study of the oil and gas industry in several countries, including Azerbaijan, suggests the following scheme of the oil value chain (Figure 4):

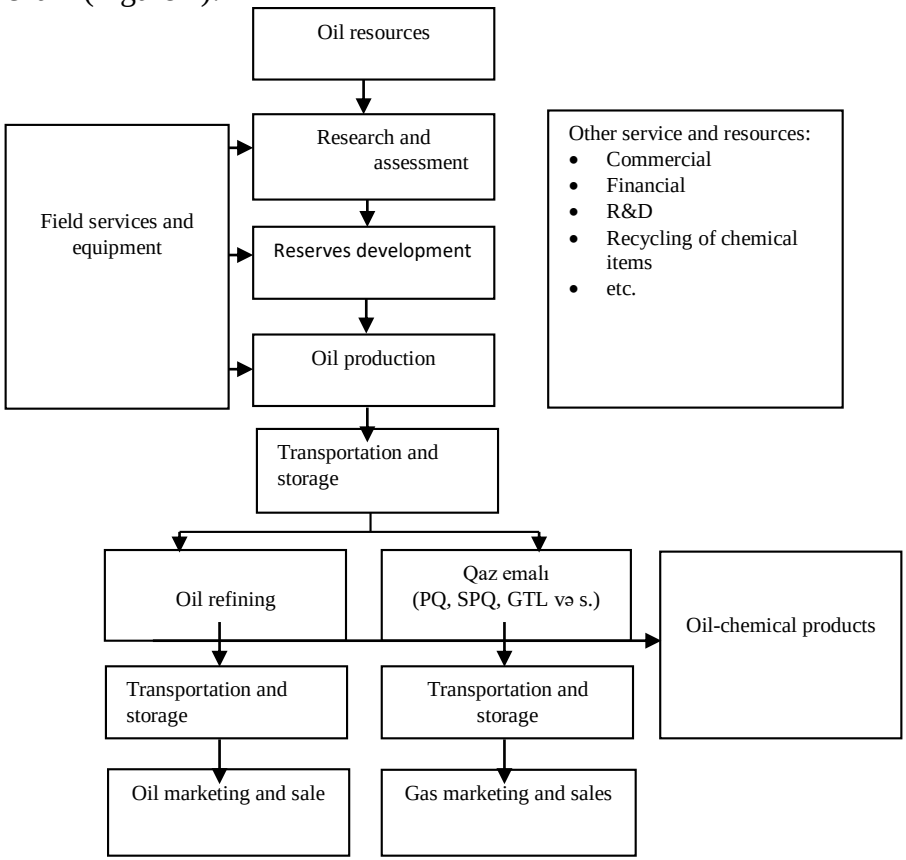

Fig. 4. Value chain of oil[5]

[5]*The Petroleum Sector Value Chain.The World Bank Group–Washington – 2009. – 299 p.*

The key raw material for the oil cluster, according to an **analysis of Azerbaijan's oil and gas production and petrochemical industry**, is oil, and its production has been unfavorable since 2010. Thus, the growth rate of oil production in 2010 fell by 0.8%, in 2011 oil production fell by 10.3% and continued to fall until 2017. The amount of oil produced in 2018 was 38.8 million tons, however the amount produced in 2019 was 37.5 million tons. In contrast to the characteristics of oil production, natural gas refining continued to rise gradually in succeeding years, with production reaching 29.3 billion m3 in 2015 and increasing to 30.5 billion m3 in 2018.

The expansion of the Azerbaijani oil cluster's refining areas is critical in hastening the construction and growth of the cluster in the country. The petrochemical sector in Azerbaijan is one of the most important sources of potential for the growing oil cluster.

The dissertation also reveals that the main focus of research into the oil cluster's development challenges in modern times is not the main oil and gas industry, but the potentially rising and falling sub-sectors of this sector, differentiated by their global competitiveness. In Azerbaijan, the petrochemical industry appears to be more important in the near future as one of the dwindling sectors' brightest representatives.

According to the report, there is a lot of room for expanding the oil cluster's declining areas in Azerbaijan. The country may boost its balance of payments by more than 100 million per year simply by substituting imports. Additionally, the country's export potential must be increased. As a result, given the possibility of increased exports, the impact is considerably higher. Furthermore, if we consider that primary oil and gas refining products can be used as raw materials for higher-order new decreasing regions, we can see the formation of a competitive oil production cluster in both production and export.

The third chapter, **"Improving Cluster Policy in Azerbaijan,"** examines the factors of value chain rationalization in the formed oil cluster, identifies and substantiates priority directions for oil cluster formation and development, presents the author's model for oil cluster formation, and forms and methods of state support. The establishment and improvement of the republic's oil cluster management in modern settings is interpreted (Fig.5).

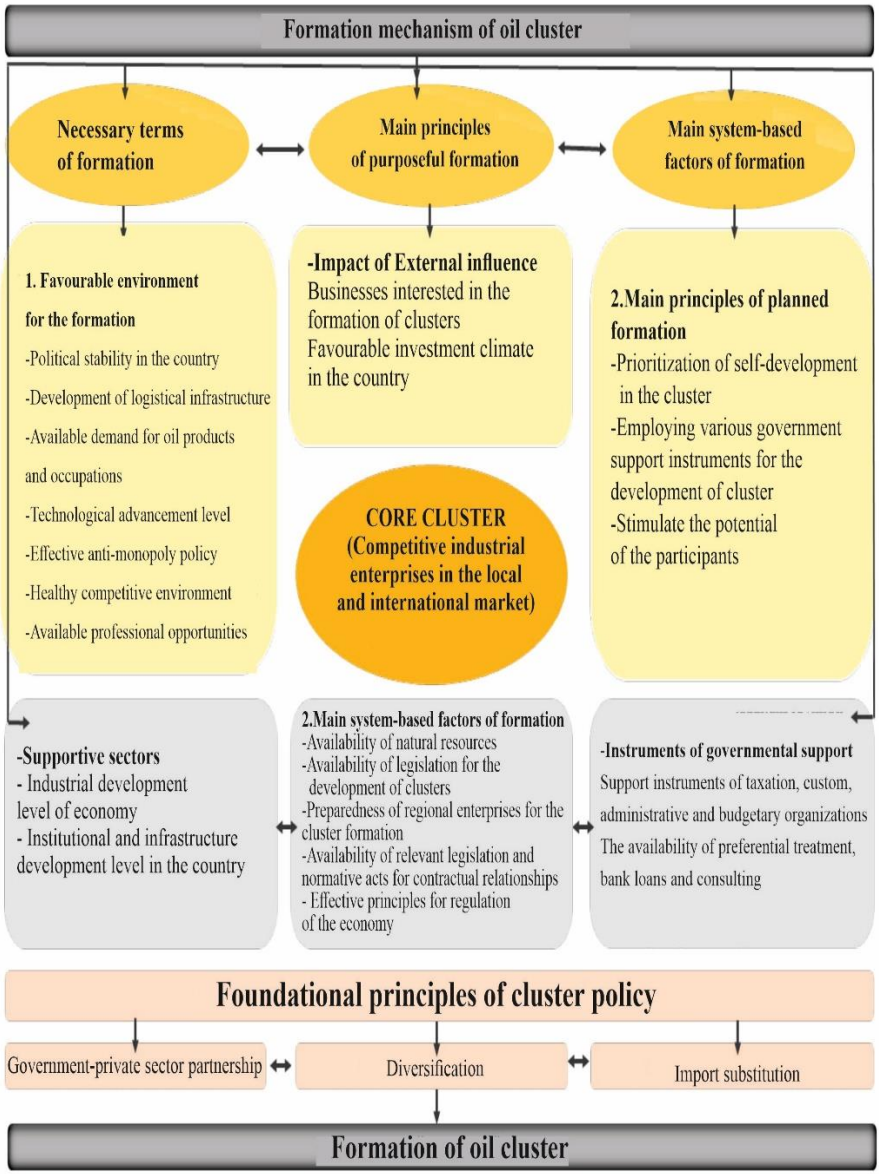

Fig. 5. Model of oil cluster formation in the republic

The creation of the oil cluster, as shown in the diagram, is aimed at making the most of the oil industr's existing potential by improving production, methodological, information, scientific, marketing, and other links between companies in this field and other participants in the single value chain. A synergistic impact is created through close interaction between cluster participants, as well as between the cluster and service and support businesses. The effect is particularly noticeable in Azerbaijan, where the number of businesses in the oil and related industries is increasing, because involving these businesses in the cluster as a single entity increases their efficiency by providing the necessary areas for new businesses to gain access to innovations in the cluster core.

The study of determinants in the rationalization of the value chain in the oil cluster, according to the dissertation, is based on the establishment of low and medium value added chains at the expense of local resources in order to transform the country's enterprises into regionally competitive corporations. To realize the desired improvement in the oil business, it is required to make better use of assets and natural resources in the industrial sector, as well as to apply effective work experience in firms and reduce import dependency. It is necessary to select focus groups on high-value-added items in order to develop local production capacity in this direction. As a result of its involvement in the oil and gas sector, Azerbaijan will become a regional producer in the heavy industry and engineering value chain. First and foremost, variables such as market attractiveness, competitiveness, and profitability should be considered when selecting which components of the country's value chain should be integrated. On the other side, the country's industrial potential, or its ability to manufacture these commodities in the near future must be strengthened.

The oil cluster should be encouraged to engage with other sectors of the national economy in order to assist the development of the national economy. Because the border between targeted support and ineffectual subsidies is blurry, only such a strategy should not be incompatible with healthy competition. The current economic processes in Azerbaijan offer us cause to believe that our country is on the verge of transitioning from

a mono-sector hydrocarbon-based economy to a diversified innovation-based economy.

The examination of the dissertation reveals that the oil cluster is given a prominent place in state plans, implying that, in addition to oil production, the development of oil-related sectors is planned. The commissioning of new enterprises and/or the modernisation of old ones to modern standards is directly related to the strategy's practical success.

The dissertation's findings suggest that in order for the oil cluster's firms to function properly, tailored governmental support for certain sectors of the oil cluster is necessary. Azerbaijan maintains a balanced state policy for the growth of this industry, taking into account the expansion of petrochemical industry's refining capacity and increased export potential. Sumgayit Chemical Industrial Park includes 23 registered residents; more than 20 of them operate and produce industrial products, with a total investment of more than $ 2.3 billion. Large enterprises for the production of polymers have been put into operation, and the SOCAR Polymer Plant for the production of polypropylene and low-pressure polyethylene has been opened.[6] Another important project to build an oil cluster in Azerbaijan at the expense of public investment is a Urea plant. With a daily production capacity of 1,200 tons of ammonia and 2,000 tons of urea with natural gas as the primary raw material, the SOCAR-Urea plant already produces ammonia, liquid, and commercial urea.

In Azerbaijan, the establishment of a cluster mechanism should begin with the design of legislation and government programs to stimulate entrepreneurship, as well as the use of existing institutional frameworks. It's critical to pick oil cluster locations that are relatively competitive and can produce big returns quickly, especially with government help. The active participation of the National Entrepreneurship Development Fund of the Republic of Azerbaijan, the Azerbaijan Investment Company, as well as other large companies operating in the country in this process can produce positive results.

According to the dissertation, the formation and development of the cluster institution involves, first and foremost, strengthening the

[6] *SOCAR Polymer: [Electronic resource] URL: https://www.socarpolymer.az.*

activities of industrial sectors in the country, creating new industrial jobs in these areas, developing non-oil production, stimulating the development of related services, and accelerating and modernizing industrial infrastructure for the socio-economic development of the regions and country.

In general, increasing the effectiveness of the growing oil cluster in Azerbaijan can diversify the structure and increase the economy, as well as expand the refinery network:

- Provides economic growth and development of other related areas of higher order;
- will help solve important social problems such as reducing unemployment and poverty, raising the level of education of the population in accordance with world standards;
- Expands the range of participants and investors in the oil refining sector of the economy;
- Encourages the growth of competitive import-substituting businesses and creates new sources of export potential by expanding the range of available manufacturing goods;
- Rationalizes and diversifies the export structure;
- Reduce the dependence of the state budget on the revenues of the oil sector and increase the role of the non-oil sector in the country's economy, etc.

It should be mentioned that the rationality of the country's macroeconomic elements of development is particularly important in the process of enhancing the projected oil cluster's operations. The final section of the dissertation reflects the fundamental point of this scientific regulation, which is that cluster development of the oil and gas sector, should be one of the goals of national economic growth.

The main results of the dissertation:

1. The cluster concept of economic development is a new way of looking at the national economy in the context of increasing global competition, pointing to new roles for firms, governments, educational and research institutions, and other organizations working to increase competitiveness in a globalized environment that enables domestic businesses to grow their operations into foreign markets.

2. Determining the main competitive advantages and directions of expanding the effect of cluster development in various sectors of the economy is based on the following aspects: 1) clusters become more attractive for the development of entrepreneurial initiatives and business projects; 2) clusters increase efficiency in one or another sector of the country's economy; 3) clusters mobilize domestic and foreign investment resources, motivate their involvement; 4) there is a favorable environment in the clusters for a significant increase in the professionalism of the management of enterprises, etc.

3. 3. The value chain's characteristics are as follows: 1) The value chain begins with the identification of relevant areas for the purpose of conducting research on the availability of oil and gas; 2) following initial exploration, oil fields are assessed, developed, and production begins, which occurs during the Research and Production (E&P) phase; and 3) except this, many ancillary services are included in the E&P process.

4. The main concern of the consumer is to maximize utility, and in this regard, the value defined by M. Porter is considered more constructively. During the chain period, items gain additional value, and their effectiveness, including the firm's profit, is more dependent on manufacturing costs - all of these aspects are weighed in terms of their utility in home, industrial, and commercial activities.

The initial stage of cluster formation includes planning, justification, infrastructure, communication, access and logistics, full marketing, and necessary services, and the second stage includes more supportive activities such as production and technological development, introduction of new technologies and their transfer, and expansion of the cluster circle.

5. As a part of another important stage of the oil refining technological chain, the following is taken into account: 1) formation of oil raw material reserves and sources; 2) provision and organization of primary oil refining production infrastructure, purchase of refined products; 3) ensuring deeper refining of petroleum products through the organization and development of a network of petrochemical enterprises; 4) ensuring the production and purchase of other petroleum and gas refining products (eg, innovative products, nanoproducts, etc.) on the basis of high technologies. Transfer of a competitive network and

high technology lead to a steady flow of local and foreign investment.

6. The state should create and develop a cluster infrastructure to ensure a favorable innovation environment and attract foreign investors. Infrastructure such as transport (pipelines, access to highways and railways, ports, etc.) and storage are important at various stages of the value chain, including production and processing on the one hand and the relationship between manufacturing and the end consumer on the other. Entrepreneurship and business entities in their institutions must be provided with the necessary infrastructure in a comprehensive and systematic manner.

7. Our research leads to the conclusion that cluster development of the oil and gas sector should be one of the priorities of national economic growth in Azerbaijan. This will ensure the economic development of other relevant high-level sectors, as well as the improvement of oil cluster entities; will allow solving important social problems such as reducing unemployment and poverty, raising the level of education of the population in accordance with world standards; will allow to rationalize the export structure; will reduce the dependence of the state budget on the oil sector.

8. In order to stimulate the development of cluster initiatives, as well as to create a favorable environment for the operation of clusters, it is necessary to further develop the strategic directions of cluster policy, as well as to specify actions in the context of tactical issues of cluster development in Azerbaijan. The main areas of support for the formation and development of clusters are:

- Based on study and analysis of methodologies, principles, and approaches to the establishment of national and international cluster systems, improving organizational and methodological documentation for the execution of state cluster policy;

- At the national and territorial levels, develop an effective system for financial support of cluster institutions based on the public-private partnership model;

- Support for the construction of SEZs (Free Economic Zones), industrial parks, and technoparks as vital infrastructure elements for optimal functioning;

- Aid in cluster association members' businesses with the

creation of subcontracting methods and quality management systems;

- Reduced administrative hurdles and increased information and consulting efforts in this field, as well as the implementation of vocational education programs that serve as a foundation for cluster development.

An efficient cluster policy can help handle import substitution difficulties, boost national competitiveness, and pave the way for a speedy transition of the Azerbaijani economy from a resource-intensive to a post-industrial development model.

The main content of the dissertation work is reflected in the following published works:

1. Алиева Т.М. Углеводородные ресурсы в цепочке стоимости. Milli İqtisadiyyatın İnkişafi və Səmərəliliyinin Yüksəldilməsi Beynəlxalq elmi-praktik konfransın materialları / Т.М. Алиева. – Bakı: – 2012. – с. 434-438.

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