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The Importance of Establishing a Cluster System in Improving the Territorial Structure of the Chemical Industry of Fergana Economic District

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Abstract:

The article focused on the importance of creating a cluster system in improving the territorial structure of the chemical industry in the Fergana economic region. It determines the specialization of the regional chemical industry by calculating the number and territorial share of the population in the territorial units of the economic region, the study of the volume and territorial share of the chemical industry. Based on the studied data, a cluster table was developed and proposed to improve the territorial structure of the economic region chemical industry.

Keywords: Fergana economic region, chemical industry, industry and territorial composition, specialization, specialization coefficient, chemical industry cluster system, population, population share, chemical industry output, product share, growth poles, growth points, underdeveloped points.

Introduction. In the rapid development of the chemical industry in the country, taking into account the natural, socio-economic potential and local characteristics of the regions, a number of reforms are being carried out to improve the location of chemical enterprises and their territorial structure. In particular, in accordance with the Decree of the President of the Republic of Uzbekistan No. PF-60 of January 28, 2022 "On the Development Strategy of the New Uzbekistan for 2022-2026" to produce $ 2 billion worth of products in the chemical industry. In particular, the study of the impact of the chemical industry on the socio-economic development of the Fergana economic region, the study of changes in its industry and territorial composition, the development of forecasts, the formation of chemical industrial clusters and the demand for consumer goods. acquires.

Level of study of the topic. A number of studies on the development and improvement of the regional structure of the chemical industry have been conducted and studied extensively by foreign, CIS and Uzbek scientists. In particular, W.Isard, W.Laungardt, A.Lesch, A.Marshall, F.Perrou, M.Porter, A.Weber, as well as M.K.Bandman, N.N.Kolosovsky, I. In the scientific works of such scientists as M. Maergoyz, Yu.G. Saushkin, AT Khrushchev, some issues of industrial development, differences, location and development of industrial production are studied. [2,4,7,8].

Theoretical and practical issues related to the formation and development of industrial hubs in Uzbekistan, industrial production, its territorial organization, its specific problems KN Bedrintsev, NN Sultanov, SK Ziyodullaev, T. Tajimov, AN .Ruziev, A.S.Soliev, E.K.Umarov, O.Abdullaev, S.Khaydarov, L.N.Erdanov, H.S.Mirzaakhmedov, X.M.Abdunazarov, D.R.Ro'zmetov, A.J. .Siddikov, Sh.S.Juraev [2,4].

Purpose of the work. Development of proposals and recommendations for improving the territorial structure of the chemical industry in the Fergana economic region through the formation of a cluster system.

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Main part. In the geographical study of the chemical industry, their regional specialization plays an important role. Because at the heart of specialization lies the division of labor. In the regions, the division of labor occurs as a result of the regular involvement of the population in a particular type of labor. The spread of labor across the region, in turn, leads to the formation of specialized farms. In determining the specialization of farms, specialization indicators are used [67, 68]. Specialization is determined by the ratio of the population of a given region to the share of the population of that region in the total share of products produced in that region. This can be determined mathematically by the following formula: $К_и=М_у/А_у$

Here $К_и$ is the specialization coefficient, $М_у$ – product share and $А_у$ – share population. Occurs when the coefficient of specialization is $К\leq1$, that is, when the share of output is divided into a certain share of the population, the coefficient of specialization is equal to or greater than 1. Through the coefficient of specialization, we tried to determine the degree of specialization of the chemical industry in the region by studying the population and the volume of production of chemical products by regions, cities and districts. These can be determined by observing the data in Table 1 below (see Table 1).

From the data given in Table 1, it can be concluded that the specialization of the chemical industry in the Fergana region (strong) is 128 hectares, and in the Andijan and Namangan regions it is 25.5 and 20.7, respectively. However, only Fergana city and Kokand city (10.8 and 1.04) of Fergana region have a strong specialization on the domestic scale. In the districts, the level of specialization is low, however, this figure is slightly higher than in the rest of the city of Margilan and Uchkuprik district, ie equal to the coefficient of specialization of 0.5.

In Andijan region, the cities of Andijan and Khanabad (4.2 and 1.3, respectively) and Kurgan-Tepe, Izboskan and Ulugnor (3.8; 2.8; 1.7) districts specialize in the study area. Namangan region also has a high level of specialization in terms of cities and districts, ie Namangan city (1.1), Namangan district (6.8) and Chust district (1.9).

From the data in Table 1, it can be concluded that the share of chemical industry in the region in the formation of such specialization within the economic zone is high, but in proportion to the share of the population of this region, due to the high population in the districts of Fergana region. can be explained by its effect on the results. In order to identify the existing problems in this study by region, the potential of clustering was studied on the example of coke and oil refining, chemical products, rubber and plastic products and the main types of pharmaceuticals by type of economic activity. Also, in the practice of modern regional economic development, the ideas of growth poles and centers, growth peripherals are implemented in the creation of free economic zones, technopolises and technoparks. The founders of these ideas are the French F. Perru and the American scientists Walker and Storper [2,3,6]. Growth poles and centers, and growth peripherals, play an important role in the organization of regional clustering. The founder of the theory of cluster development is M. Porter [7, 8]. Therefore, in our research, we propose a table "Regional cluster of chemical industry of Fergana economic region", given in Table 2, determined on the basis of the theoretical views of these scientists using the localization specialization coefficients of regional chemical industry (see Table 2).

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Table 1. **Fergana Economic Region Regional Chemical Industry Specialization (01.01.2021)**

Regions	Population, per thousand people	Population share, percent	volume of production, bln. In soums	volume of production, bln. In soums *фоизда*	Specialization coefficient	Territories	Population, per thousand people	Population share, percent	product volume, billion In soums	product share, percent	Specialization ratio	Regions	Population, per thousand people	Population share, percent	product volume, billion in soums	product share, percent	Specialization ratio
Andijan region	**3188,1**	**100**	**817,9**	**100**	**Ки ≥ 1**	**Namangan Region**	**2867,4**	**100**	**595,9**	**100**	**К и ≥ 1**	**Fergana Region**	**3820,0**	**100**	**4890,1**	**100**	**К и ≥ 1**
cities						*cities*						*cities*					
Andijon	450,0	14,1	483,9	59,1	4,2	Namangan	644,8	22,5	159,9	26,8	1,1	Fergana	293,5	7,7	4066,3	83,1	10,8
Honobod	43,2	1,3	13,9	1,7	1,3	*Districts*						Kokand	256,4	6,7	341,4	7,0	1,04
District						Mingbulak	128,4	4,5	1,3	0,2	0	Kuvasay	94,9	2,5	11,6	0,2	0,08
Oltinkul	180,5	5,7	33,5	4,1	0,7	Kasansay	212,9	7,4	9,4	1,6	0,2	Margilan	238,9	6,2	143,3	3,0	0,5
Andijon	267,1	8,4	14,6	1,8	0,2	Namangan	179,8	6,3	256,4	43,0	6,8	*Districts*					
Balikchi	203,1	6,4	0,0	0,0	0	Namangan	166,1	5,8	1,6	0,3	0,05	Oltiarik	214,4	5,6	22,4	0,4	0,07
Bo`ston	73,1	2,3	0,03	0,0	0	Pop	222,7	7,8	1,09	0,2	0	Qo`shtepa	193,4	5,1	1,9	0,03	0
Buloqboshi	144,5	4,5	0,3	0,06	0	Turakurgan	228,0	8,0	4,7	0,8	0,1	Baghdad	218,9	5,7	7,4	0,15	0,02
Jalolobod	187,9	6,0	7,7	0,9	0,2	Uychi	216,8	7,6	31,8	5,3	0,7	Buvayda	231,1	6,0	1,7	0,03	0
Izboskan	241,2	7,5	173,8	21,2	2,8	Uchkurgan	174,6	6,1	9,1	1,5	0,2	Besharik	230,7	6,0	1,5	0,03	0
Ulugnor	60,5	2,0	28,4	3,5	1,7	Chartak	202,2	7,0	2,4	0,4	0,05	Kuva	261,3	6,8	0,9	0,01	0
Qo`rgontepa	218,4	1,9	58,9	7,2	3,8	Chust	269,3	9,4	108,9	18,3	1,9	Uchkuprik	231,7	6,0	152,5	3,1	0,5
Asaka	332,6	10,4	5,1	1,2	0,11	Yangikurgan	221,8	7,7	9,53	1,6	0,02	Rishtan	204,4	5,3	4,1	0,08	0,01
Marha	175,1	5,5	0,0	0,0	0,0							Sukh	79,	2,	0,0	0,0	0

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mat			5										1	1			
Shaxrixon	303,7	9,5	18,5	2,3	0,2							Toshloq	205,2	5,4	41,2	0,8	0,1
Paxtaobod	195,5	6,1	0,2	0,02	0							Uzbekistan	241,9	6,3	34,0	0,7	0,1
Xojaobod	111,7	3,5	0,0	0,0	0							Fergana	216,3	5,7	3,9	0,07	0,01
												Dangara	176,4	4,6	55,3	1,1	0,2
												Furqat	119,3	3,1	0,4	0,008	0
												Yazyovan	112,2	3,0	0,13	0,002	0,08

Note: Occurred when the specialization coefficient in the table is K≥1, it was developed by the author on the basis of the ratio of the share of the population of the region to the share of production (K = Mu / Au). Data from the State Statistics Committee of Uzbekistan were used.

Based on the data in Table 2, the poles and growth points of the competitive chemical industries in the cities and districts of the regions are shown as follows.

Table 2. **Territorial clusters of chemical industry of Fergana economic region**

Large chemical industry zones	*** Small industrial zones**	*** Specialization**				**Emerging growth points and poles**		
		+	–	≈	~	**Growth poles**	**Growth points**	**Undeveloped points**
Fergana	Fergana c	+	–	≈	~	Fergana city	Margilon city Kuvasoy city, Toshloq	Yozovon r Sukh r Kuva r Rishtan r Kushtepa r Fergana reg
	Margilan c		–	≈	~			
	Kuvasoy c	+	–					
	Toshlok r			≈				
	Fergana r		–	≈				
	Oltiariq r	+	–	≈				
	Yazyovan r		–	≈				
Kokand	Kokand c	+	–	≈	~	Kokand city	Uchkuprik r , Dangara r , Uzbekistan region	Furqat r Baghdad r Beshariq r Buvayda r
	Uchkuprik r	+	–	≈	~			
	Dangara r	+	–	≈	~			
	Uzbekistan r		–	≈				
Andijan	Andijan c	+	–	≈	~	Andijan City	Khonobod c Andijan r Oltinkul r Qurghontepa r Izboskan r Ulugnor r Shahrikhon r	Balikchi r Buston r Bulokboshi r Marhamat r Pakhtaobod r Khujand r
	Khonobod c		–		~			
	Andijan r		–		~			
	Altynkul r	+	–	≈	~			
	Qurghonteppa r	+		≈	~			
	Izboskan r		–	≈	~			
	Ulugnor r	+	–					

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	Asaka r	+			~		Asaka r Jalakuduk r	
	Shahrikhon r	+	–	≈	~			
	Jalakuduk r	+	–	≈	~			
Namangan	Namangan city	+	–	≈	~	Namangan City	Namangan r Chust r Uychi r Kosonsoy r Uchkurgan r Turagurgan r	Mingbulak r Norin r Pop r Chortok r Yangikurgan r
	Namangan reg	+	–	≈	~			
	Chust r	+		≈				
	Uychi r	+		≈				
	Kosonsoy r	+	–	≈	~			
	Uchqurgon r	+		≈				
	Turakurgan r	+		≈				

Note 1: 1. * Districts and cities that do not specialize in the chemical industry within the small industrial zone are not included in this part of the table. 2. * The specialization of the chemical industry by types of economic activity is represented in the table by symbols: a) coke and oil refining with a "+" sign; b) chemical products with the sign "-"; g) rubber and plastic products with the sign "≈"; d) pharmaceuticals are represented by the symbol "~". 3. The table shows the cities and districts with abbreviations. "c" - city, "r" - district. The table was compiled by the author.

In particular, large cities were selected as growth poles, which resulted in two large cities in Fergana Province: Fergana and Kokand, Andijan City in Andijan Province, and Namangan City in Namangan Province. In terms of growth, the districts closest to these cities and their surrounding districts, including the growth pole of Fergana and its environs, Margilan, Quvasoy, Tashlak and Fergana districts, in the underdeveloped areas of Yozyavon, Sokh, Kuva, Rishtan, Fergana, Koshtepa.

The growth pole of the city of Kokand and its environs are the growth points of Uchkuprik, Dangara and Uzbekistan districts, as well as Furkat, Baghdad, Besharik, Buvayda districts in the undeveloped areas. The growth pole of Andijan and its environs are the growth points of Khanabad, Andijan, Altynkul, Kurgantepa, Izbaskan, Ulugnor, Shahrikhan, Asaka, Jalal-Abad districts, and in the undeveloped areas of Balikchi, Boston, Bulakbashi, Marhamat, Boz, Pakhtaabad, Khojaabad districts. Namangan, Chust, Uychi, Kosonsoy, Uchkurgan, Turakurgan districts are divided into the growth pole of the city of Namangan and its environs, Mingbulak, Naryn, Pop, Chartak, Yangikurgan districts are divided into undeveloped areas.

Conclusion. According to the study, the geographical features of the economic zone are primarily due to limited land, water and mineral resources, as well as the peculiarities of demographic capacity and environmental conditions, the growing consumption factor, the availability of high labor resources. In order to improve the territorial structure, we recommend the establishment of regional clusters of the chemical industry.

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