

CLASSIFICATION OF SMALL INDUSTRIAL ZONES ACCORDING TO THE LEVEL OF DEVELOPMENT OF THE REGIONS AND DETERMINATION OF DEVELOPMENT DIRECTIONS

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Abstract: This article focuses on the study of small industrial zones by types and the directions of its development, the stages of technological planning.

Key words: small industrial zone, industrial product, technological plan.

It is envisaged that KZSs will be established in unused production areas of loss-making organizations. KZS are located in a specific geographical area. The socio-economic status of the regions, their level of development plays an important role in determining the type, composition and direction of industrial production of small industrial zones. The level of development of the regions of the Republic of Uzbekistan differs sharply from each other, therefore, it is appropriate to establish the type and direction of KZS based on the socio-economic situation of the regions. For example, excluding the city of Tashkent, the GNI of Tashkent region, which produced the most GNI in 2017 (23,525.3 billion soums), is 4.6 times more than that of Syrdarya region, which produced the least GNI (5,066.4 billion soums), and 2 times more than that of Surkhandarya region. 2 times, 4.1 times more than that of Jizzakh region, 2.2 times more than that of Namangan region.

Regions also differ sharply in terms of industrial production. In this field, Tashkent region takes the leading place after Tashkent city. The indicator of regional industrial production (28,310.2 billion soums) differs by almost 13 times from that of Surkhandarya region (2189.8 billion soums), which produces the least industrial products, and 5.5 times from Khorezm region (3828.0 billion soums). , differs from that of Namangan region (3901.7 billion soums) – by 5.4 times, from that of Jizzakh region – by 9.2 times [SlimovB,B, proverb Electronic Journal]. In the same way, the regions differ sharply in terms of the number of higher education institutions, the number of doctors of science and candidates of science, and the number of scientific research institutes. The role and importance of the level of development of the industry in the regions is very important in the establishment and development of small industrial zones by regions. First, it determines the place of the region in the economy of the republic and future development prospects.

Secondly, it leads to the expansion of other types of production and services in the area.

Thirdly, the nation expands the production of consumer goods and ensures the food security of the population.

Fourth, it creates a foundation for innovative development and innovative business development.

Fifth, the development of industry in the area led to the development of production and social infrastructure.

Sixth, the development of the industry, mainly the development of mechanical engineering, electronics, chemistry and other sectors, ensures scientific and technical progress in the entire economy.

In the industrially developed area, qualified specialist personnel are formed in the field of industry. Therefore, studying the stages of industrial development plays an important role in determining the structure of industrial production of small industrial zones. Each new stage is associated with the creation of a new resource or new technology, which is studied as a technological unit (TU). In general, according to the theory of long oscillations of N.D. Kondratev, the fluctuating development of the entire economy is considered to be related to the change of technological systems (TU), in the works, opinions are shared about six technological systems of the development of industrial production. A closed production cycle is carried out in each TU and it includes all stages from the initial resource to its processing and the release of the finished product. The new TU spreads to other sectors and ensures their development. These TUs serve as initial information in the development of industrial policy and special programs for industrial development of state territorial authorities on the development of industry in small industrial zones according to the level of socio-economic development of the regions.

The first technological period covers the years 1970-1830. The textile industry, mechanical engineering, cast iron production, and the invention of the water engine took place in this period. The driving force behind the development was the production of cast iron and the discovery of the water engine. England was the first place where TU was developed.

Second TU, 1830-1880 years. The invention of the steam engine, the construction of railways, the development of transportation, the construction of machine-steamers, coal, the machine-tool industry, the instrumental industry, and the ferrous metallurgy industry. Propelling factor: steam engine, machine tools, mainly in USA and France.

Third TU, 1880-1930 years. Electrical engineering, heavy machinery, steel smelting and casting, development of power transmission lines and development of inorganic chemistry. Driving factor: electric motor, steel production. The leading country is the USA.

Fourth TU, 1930-1980 years. Automobile and tractor production, synthetic materials, development of organic chemistry, oil production and refining. Driving factor: internal combustion engine, petrochemical. Leading countries: USA, USSR.

Fifth TU, 1980-2000 years. Development of electronics industry, computer technology, fiber optic technology, telecommunications, robotics, gas production and processing, and information service. Driving force: microelectronics components. Leading country: USA, Japan.

Sixth TU, years after 2000. Development of biotechnology, nanotechnology, artificial intelligence system, global information networks, integrated high-speed transport systems based on the achievements of robotics, molecular biology and genetic engineering. Driving force: robotics, nanotechnology. Leading countries: USA, Japan

It is possible to enter the fourth and fifth technological plan of the development of the economy and industrial production of Uzbekistan. The development of the engineering industry (production of cars, tractors, buses, trucks and technical equipment, etc.), the development of cooperation in the industry, leads to the development of small businesses in this area. The development of the electronics and chemical industry lays the groundwork for the innovative development of all other sectors and the development of the gas and gas processing industry. The development of the gas and gas processing industry also leads to the development of other sectors. At the same time, it raises the economy to a higher level in terms of quality. Social and economic integral indices and general integral index were used to determine the level of development of the regions. When calculating them, the following indicators were distinguished: economic indicators - GNI per capita, industrial output per capita, industrial output produced by KBXT per capita, number of KBXT entities per 1000 people in the industrial sector, number of enterprises with foreign capital participation.

Social indicators - the number of higher education institutions, the number of doctors of science, the number of candidates of science, the number of students who have graduated from a higher education institution, and the number of 2nd-year students of master's degrees. If we study the economic indicators of the regions, Tashkent city, Tashkent region, Navoi and Syrdarya regions are the leaders in terms of GNI produced per capita. If we study industrial output per capita, Tashkent city, Tashkent region, and Navoi region have a high index. Andijan region is in 4th place. The low rate corresponds to Khorezm, Jizzakh, Namangan and Surkhandarya regions.

Tashkent city, Tashkent region, Navoi and Syrdarya regions are in the leading position in terms of industrial products produced by KBXT per capita. The indicator of these regions is higher than the indicator of the republic. A low indicator can be observed in Namangan, Kashkadarya, Khorezm, Republic of Karakalpakstan and Surkhandarya regions.

If we study the number of KBXT subjects per 1000 people, the regions that are higher than the average national indicator (1.49) are Tashkent city (4.88), Tashkent region (1.76), Andijan (1.59) and Navoi (1.56). regions can be included. This indicator is very low in the Republic of Karakalpakstan, Samarkand, Surkhandarya and Kashkadarya regions.

The number of enterprises with foreign capital participation and the number of operating enterprises also play an important role in the economic development of the regions. 65.7% of the number of enterprises with foreign capital is in Tashkent city, 10.6% in Tashkent region, 5.1% in Samarkand, 3.6% in Fergana and 3.1% in Andijan region. The percentage of the remaining areas

It does not go to 2%. The largest number of operating enterprises corresponds to the city of Tashkent (21.3%), Tashkent region, Andijan and Fergana regions, about 9%.

According to the analysis, the city of Tashkent is the leader in all economic indicators. The next places belong to Tashkent region, Syrdarya, Andijan, Fergana regions. We observe that the economic indicators of Namangan, Khorezm, Surkhandarya and Jizzakh regions are at a low level.

If we consider the social indicators affecting the establishment and development of small industrial zones in the region, there are 90 higher educational institutions operating in the Republic. (except for the Military Higher Education Institution), it has 4 academies, 27 universities and 18 branches and 7 branches of foreign universities.

41 higher education institutions and branches of foreign higher education institutions are mainly located in Tashkent.

In the second place, the Republic of Karakalpakstan has 7 higher educational institutions, 5 of which are branches. There are 7 branches in Samarkand, of which 3 are branches. There are 3 higher education institutions in Khorezm (total 3, including 2 branches), Tashkent region (total 3, including 1 branch), Namangan, Navoi, Kashkadarya regions. There are 2 higher education institutions in Jizzakh and Surkhandarya regions and 1 in Syrdarya region. So, it can be said that in Tashkent city, Fergana region, Samarkand and Andijan regions, the potential of specialist personnel is very high, especially the city of Tashkent can be singled out.

The number of doctors of science and candidates of science, as well as the number of students completing higher education and master's degrees, play an important role in increasing the scientific and technical potential of the regions. If there are 1470 doctors of science in total in the republic, the largest number of doctors of science belongs to

the city of Tashkent - 907, to Samarkand region - 165 and to Andijan region - 85. Navoi (13), Surkhandarya (12) and Syrdarya (10) regions have the fewest doctors of science. Tashkent city, Tashkent region, Samarkand, Fergana and Andijan regions are the leaders in terms of the number of students who have completed higher education and master's degrees.

The number of students who graduated from higher education institutions was 68,494. 62,900 of them successfully completed the bachelor's degree, 5,594 completed the master's degree, and 67,326 graduates completed the full-time department of higher education institutions. 1168 – 20630 students who graduated part-time studied on the basis of a state grant.

A total of 5,594 students completed the master's degree. 25.6% of those who completed the master's degree are in the field of technical production, 22.6% in the social field, 32.2% in the humanitarian field, 11.9% in the health field, and 5.6% in the field of agriculture and water management.

There are 45 scientific research institutes within the Academy of Sciences of the Republic of Uzbekistan, which are mainly located in the city of Tashkent. There are 94 scientific research organizations participating in the state scientific and technical programs, 95% of them are located in the city of Tashkent, and the rest are located mainly in the Tashkent region.

The index of economic indicators in the cross-section of regions is determined according to the following formula:

$$I_i^k = \frac{X_i^k}{Y_i} \quad k=1, 14; i=1,6$$

where I_i^k – i is the index of the i -th indicator of the k -th region;

X_i^k – amount of the i -th indicator of the k -th region;

Y_i – amount of the i -th indicator for the republic.

The index of the country's index is equal to 1.

The index of economic indicators is presented in Table 3.1. It can be observed from the table that the index of Tashkent city, Tashkent and Navoi regions is higher than the index of the republic. For example, in the city of Tashkent, GDP per capita was produced 2.05 times more than in the republic. It was produced 1.68 times more in Navoi region and 1.07 times more in Tashkent region. In 11 out of 14 regions of the republic, this indicator is lower than the national indicator. The lowest rate corresponds to Jizzakh, Surkhandarya and Namangan regions.

3.4 - table
The index of economic indicators and the indicator of integral index in the cross-section of regions

№	Territories	GDP per capita index	Index of industrial output per capita	KBXT industrial environment index per capita	Index of the number of KBXT entities per 1000 people in the industry	Index of the number of enterprises with foreign capital	Index of the number of operating enterprises	Economic integral index
1.	Republic of Uzbekistan	1	1	1	1	10	10	
2.	Republic of Karakalpakstan	0,59	0,83	0,37	0,52	0,14	0,47	2,92
	Provinces							
3.	Andijan	0,63	1,0	0,86	1,07	0,31	0,92	5,1
4.	Bukhara	0,86	0,77	0,84	0,81	0,16	0,55	3,99
5.	Jizzakh	0,57	0,39	0,61	0,90	0,15	0,42	3,04
6.	Kashkadarya	0,72	0,79	0,45	0,43	0,10	0,65	3,14
7.	Navoi	1,68	3,12	1,47	1,05	0,11	0,33	7,87
8.	Namangan	0,51	0,33	0,57	0,96	0,19	0,70	3,26
9.	Samarkand	0,65	0,56	0,78	0,67	0,51	0,74	3,91
10.	Surkhandarya	0,56	0,2	0,23	0,44	0,10	0,47	2,0
11.	Syr Darya	0,86	0,95	1,07	0,91	0,15	0,33	4,27
12.	Tashkent region	1,07	1,68	1,25	1,18	1,06	0,92	7,16
13.	Ferghana	0,61	0,61	0,63	0,99	0,36	0,90	4,1
14.	Khorezm	0,60	0,48	0,49	0,80	0,09	0,47	2,93
15.	Tashkent city	2,05	2,62	4,68	3,28	6,57	2,13	21,33

Source: Prepared by the author based on the data of the Statistics Committee of the Republic of Uzbekistan.

If we study the industrial product index per capita, we can see that the highest index corresponds to Tashkent city (2.62), Navoi (3.12), Tashkent (1.68) regions. The lowest industrial production per capita was in Jizzakh (0.39), Namangan (0.33) and Surkhandarya (0.2) regions. Industrial production per capita in Surkhandarya region is only 20% of the average of the republic. Development of the industrial sector in these regions is also related to the problem of shortage of qualified specialists.

In the establishment and development of small industrial zones, the level of development of the industrial sector in the regions and the amount of industrial products produced by them in relation to the population are of great importance. If we study the index of this indicator for the city of Tashkent, it is 4.68 times more than the index of the republic. This means that Tashkent city has a much higher potential of personnel with entrepreneurial skills and personnel in the field of industry compared to other regions. The index of Navoi, Tashkent and Syrdarya regions is also higher than the index of the republic. The lowest index can be observed in Khorezm (0.49), Kashkadarya (0.45) and Surkhandarya (0.2) regions. Due to the small number of industrial enterprises in these regions, it is necessary to develop KSZs as Greenfield KSZs (in empty special areas, where nothing has been built) on the basis of special programs of construction and development.

If we study the number of KBXT entities per 1,000 people in the industry sector, the largest number of KBXT entities correspond to the city of Tashkent, and this index is 3.3 times more than the national index. Similarly, Toshket region, Andijan and Navoi regions can be included among the regions with an index higher than the average national index. The lowest index corresponds to Kashkadarya and Surkhandarya regions. The regional index of the number of enterprises with foreign capital and the total number of enterprises operating in the republic is determined by the following formula:

$$I_i^k = \frac{10 \times X_i^k}{Y_i}$$

where: $K= 1,14; i = 1,2$

Republic index is equal to 1. X_i^k – k – area i – indicator amount; Y_i – the amount of the i – indicator for the republic.

Since the regional index indicators are very small and in order to increase their impact on the integrated index to a certain extent, the indices were multiplied by 10. Since 66% of the total enterprises with foreign capital are located in Tashkent, the index value is equal to 6.6, and that of Tashkent region is equal to 1.1. Since the number of such enterprises in the rest of the regions is very small, the index of these regions is much lower, below 0.5, and the index of Samarkand region is equal to 0.51.

If we study the index of the number of operating enterprises in the cross-section of regions, the index of the city of Tashkent is high, it is 2.13 times higher than the average index of the republic, and the index of the rest of the regions is less than 1. The index of economic performance differs to some extent between regions. For example, Kashkadarya and Andijan regions have high GDP per capita and index of industrial output per capita, but index indicators for the number of enterprises with foreign capital participation are much lower. This situation can be observed in all regions. Therefore, it is possible to more accurately assess the level of economic development of regions through an integrated index.

The economic integral index is defined as the sum of the indices of these private indicators:

$$I = \sum_{K=i}^{14} \sum_{Ki=i}^5 X_i^k$$

where: I – economic integral index

X_i^k – the i -th indicator index of the k -th area.

Looking at the value of the economic integral indicator, the regions with the highest index are Tashkent city (21.33), Tashkent region (7.16) and Navoi region (7.87). These regions can be studied as a group of highly economically developed regions. Andijan (5.1), Sirdarya (4.27), Fergana (4.1), Bukhara (4.0), Samarkand (4.0) regions can be included in the group of regions with an average level of economic development.

Namangan (3.26), Kashkadarya (3.14), Jizzakh (3.04), Khorezm (2.93), Surkhandarya (2.0) regions and the Republic of Karakalpakstan (2.92) are considered as economically developed regions. possible

Now we will study the index of the main social indicators representing the possibilities of innovative development of the regions, the possibility of developing industries related to the high technological system Table 3.2. These indices are calculated according to formula (2) given above. We study the regions, the index of the number of higher education institutions located in them. This index is much higher in the city of Tashkent, it is 4.5 times higher than the average national index, because almost half of the higher education institutions are located in the city of Tashkent. The Republic of Karakalpakstan is in the next place (0.78). Samarkand (0.78), Fergana (0.70) and Bukhara (0.56) regions are coming. The index of these regions is lower than the national index, but the number of HEIs in these regions is higher than in other regions. The lowest index corresponds to Jizzakh (0.22), Surkhandarya (0.21) and Syrdarya (0.11) regions.

The highest index for the number of doctors of science corresponds to the city of Tashkent, which is 6.09 times more than the national index. Relatively high index can be observed in Andijan (0.57) and Samarkand (1.01) regions.

The index of Bukhara (0.32) and Fergana (0.30) regions is slightly higher than that of other regions. This index is very low in Khorezm, Navoi, Syrdarya and Surkhandarya regio

Table 3.2
Indices of social indicators in the cross-section of regions

№	Territories	Index of higher educational institutions	Index of teachers with degrees		Index of the number of students who have graduated from higher education institutions	Students of the 2nd year of the master's degree index	Social integral index
			Doctor of Science	Candidate of Science			
1	Republic of Uzbekistan	1*10	1*10	1*10	1*10	1*10	
2	Republic of Karakalpakstan	0,78	0,35	0,69	0,64	0,19	2,65
	Provinces						
3	Andijan	0,43	0,57	0,71	0,60	0,28	2,59
4	Bukhara	0,55	0,32	0,60	0,50	0,25	2,22
5	Jizzakh	0,22	0,13	0,31	0,40	0,06	1,12
6	Kashkadarya	0,32	0,18	0,51	0,51	0,18	1,70
7	Navoi	0,33	0,10	0,24	0,31	0,08	1,06
8	Namangan	0,33	0,16	0,45	0,43	0,11	1,48
9	Samarkand	0,78	1,1	1,40	0,93	0,82	5,03
10	Surkhandarya	0,21	0,10	0,23	0,28	0,07	0,89
11	Syr Darya	0,11	0,10	0,15	0,14	-	0,50
12	Tashkent region	0,33	0,26	0,32	0,25	0,24	1,40
13	Ferghana	0,70	0,30	0,54	0,70	0,14	2,38
14	Khorezm	0,32	0,15	0,35	0,31	0,08	1,21
15	Tashkent city	4,50	6,00	3,50	4,00	7,5	25,50

Source: Information from the State Statistics Committee of the Republic of Uzbekistan

Tashkent city (3.50) and Samarkand region (1.40) are the leaders in the index of candidates of science. In Andijan (0.71), Bukhara (0.60), Fergana (0.54), Kashkadarya regions and the Republic of Karakalpakstan (0.69), this index is somewhat higher compared to other regions. The lowest index can be observed in Navoi (0.24), Surkhandarya (0.23) and Syrdarya (0.15) regions.

If we study the distribution of students who graduated from higher education institutions by regions, the highest index corresponds to the city of Tashkent, which is 4.0 times more than the national index. A relatively high index can be observed in Samarkand (0.93), Andijan (0.60) and Fergana (0.70) regions, as well as in the Republic of Karakalpakstan (0.64). This index is very low in the remaining Surkhandarya (0.28), Tashkent (0.25) and Syrdarya (0.14) regions.

The high index of the number of master's students corresponds to the city of Tashkent (7.5) and the region of Samarkand (0.82). In other regions, this index is much lower.

The social integral index is defined as the sum of the indices of these private indicators:

$$I = \sum_{k=i}^{14} \sum_{Ki=i}^5 X_i^k$$

where: I – social integral index,

X_i^k – the i-index of the area.

Tashkent city (25.5) and Samarkand region (5.0) have the highest social integral index. The possibilities of establishing and developing KSZs for the production of innovative and high-tech industrial products of these regions are very high. The social integral index of the Republic of Karakalpakstan (2.65), Andijan (2.59), Fergana (2.38) and Bukhara (2.22) regions is also higher than the index of other regions.

The lowest social integral index is observed in Jizzakh (1.12), Navoi (1.06), Khorezm (1.21), Surkhandarya (0.89) and Syrdarya (0.50) regions. Here, while the social integral index of Navoi region is low, its economic integral index is much higher. A similar situation can be observed in Tashkent and Andijan regions.

Both the economic integral index and the social integral index indicate that it is possible to raise industrial production in the regions to a qualitatively higher level. In regions where these indices are high, it can be said that these regions have high production potential of high-quality and competitive industrial products. However, the assessment of regions through a single social integral index or a single economic integral index can be biased. Therefore, the general integral index determined by the sum of both integral indices can be divided into types of small industrial zones according to the type of regions, Table 3.3.

Regions are divided into three groups according to the overall integral index. The first group of regions includes regions with a total integrated index in the range of 7.7-46.8, Table 3.3. Compared to other regions, the GNP and production of industrial products, the number of private enterprises, the number of enterprises with foreign capital and the number of operating enterprises, the number of universities, doctors of science, candidates of science and specialist personnel are much higher in these regions. Therefore, these regions can be considered as "Lokomotiv" regions, which play an important role in the development of the economy of our republic.

Samarkand region is in the first group due to its low economic index and high social index. In this group, it is possible to establish and develop KSZs intended for the production of innovative scientific and high-quality industrial products (electronics, computer parts and other high-quality, competitive industrial products), and the possibility of working in cooperation with domestic and regional industrial enterprises. The establishment of technological parks and business incubators, which are important in introducing scientific achievements to production in these regions, especially in Tashkent, is also a promising direction.

Areas of group II include moderately developed areas. Regions with a general index value between 5.7 and 6.5 are included, that is, Fergana, Bukhara regions and the Republic of Karakalpakstan. The economic and skilled personnel potential of these regions is higher than that of the III group regions. It is desirable to place KBXT entities that process local raw materials, use advanced foreign technology, and have the opportunity to work in cooperation with local large enterprises in the KSZs being established in these regions, which have the opportunity to produce competitive, import-substituting products.

Table 3.3
General integrated indexes of socio-economic development of regions

Territories	General integral index	Economic integral index	Social integral index
In development: Locomotive" regions			
Tashkentcity	46.6	21,3	25,5
Navoiregion	9.0	7,9	1,1
Tashkentregion	8.6	7,2	1.4

Andijanregion	7.7	5,1	2.6
Samarkandregion	8.9	3,9	5.0
Areas with moderate development			
Ferganaregion	6.5	4,1	2.4
Bukhararegion	6.2	4,0	2.2
RepublicofKarakalpakstan	5.7	3.0	2.7
III. Areas with a low level of development			
Namanganregion	4.8	3,3	1.5
Kashkadaryaregion	4.8	3.1	1.7
Syrdaryaregion	4.8	4,3	0.5
Jizzakhregion	4.1	3.1	1.1
Khorezmregion	2.9	2,9	1.2
Surkhandaryaregion	2,9	2,0	0,9
III. Areas with a low level of development			
Namanganregion	4.8	3,3	1.5
Kashkadaryaregion	4.8	3.1	1.7
Syrdaryaregion	4.8	4,3	0.5
Jizzakhregion	4.1	3.1	1.1
Khorezmregion	2.9	2,9	1.2
Surkhandaryaregion	2,9	2,0	0,9

The total integral index of the regions belonging to the III group is in the range of 2.9 - 4.8. These areas can be considered as underdeveloped areas. Attracting KBXT entities, which are complex processing of local raw materials, producing competitive products with high demand, to KZZs established on the basis of Greenfield and Brownfield, to the possibility of working in cooperation with existing industrial enterprises.

Another important issue is that it is expedient to locate KBXT entities that produce products that have a negative impact on the environment, outside the city, in KSZs established in the districts.

In order to prevent social tensions that may arise in these regions, establishment of large industrial enterprises, opening of branches of technical and other higher educational institutions, and establishment of training of qualified specialists are considered promising directions

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