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Nilufar BATIROVA

International Islamic Academy of Uzbekistan, nilu808@mail.ru

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Nilufar BATIROVA,
*INTERNATIONAL ISLAMIC ACADEMY OF
 UZBEKISTAN,*
*Senior lecturer of the department Islamic economics
 and finance, pilgrimage tourism
 e-mail: nilu808@mail.ru*

THE INNOVATIVE DEVELOPMENT OF THE INDUSTRY IN TASHKENT REGION

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Introduction

The process of modernization and the creation of scientific and technological innovations is of great importance for the innovative development of industry in the region. In an economy based on innovation, the cost of industrial production decreases, and the structure of exports changes. Each country seeks to increase the efficiency of the national economy through the creation of technological and modern industries. The region has the opportunity to create innovative products that will strengthen the process of industrialization and increase export potential. The industrial complex is an integral part of the region. The industrial complex of the region is a set of economic entities operating independently within a certain territory, which are an integral part of the regional socio-economic system, producing labor and consumer goods. That is why it is the basis for the economic development of all sectors of the manufacturing industry. Improving and developing regional governance is based on the stimulation of the industrial complex.

Methods

Theoretical and practical aspects of innovative development in the region were compared. Suggestions and recommendations based on an analysis of open statistics. General research methods were used.

Literature Review

The study shows that the innovative development of the region's industry is influenced primarily by factors, which are divided into four groups: economic, technological, social and political. Pavel has believed that human resources should be paid special attention in creating the innovative potential of industries. Smith Dor has called that the resource factor is very important in assessing the innovative development of industrial enterprises [1, p.1]. According to S. Kochetkova [2, p.25], innovative potential means the combined ability of available resources to achieve the innovative goals of industries. Such resources include human,

This article focuses on the development of a system of objective assessment of production activity in the region and its impact on socio-economic infrastructure. The economic potential, the availability of financial resources of the region is analyzed. In particular, the peculiarities of industrial development of Tashkent region are stated. It also analyzes the economic potential of the region one by one. It is written about the necessity of change the principles of state regulation of the scientific sphere for innovative development and effective functioning of the regional industry. International experience is an example of organizational and economic measures that support innovative development of the region's industry. In conclusion, recommendations for innovative development of industry in the region are presented.

industrial and investment resources. In the work of A. Nikolaeva, innovation is defined as a system of factors and conditions necessary for the implementation of innovative processes.

Thus, there are several types of innovative infrastructure formation. One of the main steps in this direction is the formation of scientific parks, research parks, incubators, innovation centers, techno parks, and clusters, which are the result of industrial production and integration of science. In most cases, these facilities represent a large regional scientific and industrial complex that covers all stages of the innovation process.

The main part

The economy of the Tashkent region is difficult to achieve without modern technologies, and this requires the effective use of the intellectual potential of the region, the formation of a single national innovation system aimed at addressing priority issues of socio-economic and scientific-technical development.

In recent years, a number of programs for the modernization and technological updating of the most important industries and large enterprises of the region have been implemented. The ginneries underwent reconstruction and technical re-equipment, increased fiber production, improved product quality and increased labor productivity, modernized workshops and the production of ammonium sulfate, the development of metal products. The areas were expanded, projects for the manufacture of rod and fitting profiles, welding electrodes were implemented.

The region has its own base for the extraction and processing of raw materials, heavy industry, electronics, chemical and petrochemical industries, textile, aviation and tractor industries. This means that we have come to the stage of development of the knowledge economy with emphasis on the widespread use of the results of intellectual labor in the further development of these industries.

World practice shows that the industrial complex is the core of innovation and the basis of economic growth. Therefore, it is necessary to create favorable conditions for the development of high-tech industries in the region. Stage-by-stage formation of new competitive products using scientific, technical and production-technological potential and using foreign experience based on high-tech industries with their own innovative potential of the region. The use of foreign scientific-technical and industrial-technological potential in the region's economy through the development of licenses, the acquisition of high-tech licenses. Technological innovations based on new principles and providing for a change in administrative management are a key element of regional reforms. The high scientific potential of the region is largely ignored due to the low efficiency of innovation processes. Effective use of the intellectual potential of the region requires the formation of a single regional innovation system aimed at addressing priority issues of socio-economic and scientific-technical development.

Currently, the region is focused on increasing the share of high-tech products in industrial production. The experience of developed countries is used in the production of high-tech products. The share of high-tech industries in the region in 2010-2019 Virtually unchanged in the structure of industrial production. However, the growth rate of high-tech products over the past three years has led to a decrease in the share of these products in GRP. The disadvantage is that the share of low-tech industry in the industry is decreasing from year to year.

Table №1
Development of high and medium tech industries in the region [3, p.1]

Industry	Share in industry, %				
	2010	2015	2016	2017	2018
High-tech production	0,1	0,9	0,9	0,8	0,6
Medium high-tech production	15,7	13,9	13,2	16,2	16,1
Medium low-tech production	53,8	47,7	49,6	54,5	62,7
Low-tech production	30,4	37,5	36,3	28,5	20,6

During the study period, in the production of high-tech products, only the production of pharmaceutical products significantly increased, while there was practically no production in the aerospace, chemical industry, computer and manufacturing industries, optics and optical-mechanical devices and apparatuses.

This is a serious flaw. As can be seen from the table, the industrial complex of the Tashkent region is multidimensional, and the analysis shows that the industrial enterprises of the region belong to different technological units. However, according to the data, a large part (2/3) of the industrial sector falls on the non-technological production sector. The industry of the region is gradually moving. Of course, to accelerate the movement of the region from one stage to another, it is desirable to conduct a deeper analysis of the region and assess the innovative potential of the region. Each region may have several factors that impede innovation. On the other hand, one of the main reasons is the underdeveloped infrastructure, lack of market information, the need for new innovations and the lack of qualified personnel, new technologies and resources. Another problem is the high cost of innovation and the high demand for new products in the face of high economic risks.

High concentration of the population in Tashkent region, intersection of highways and historical development made it an important industrial center of the republic. The favorable business environment in recent years has allowed for significant changes in the structure of the economy. The adoption of measures to diversify, modernize, technical and technological upgrade the industry has made it one of the fastest growing industries. The role of the Tashkent region has significantly increased in the structural changes taking place in the country. A number of measures have been taken to improve the economic potential and competitiveness of the region.

The basis of the regional economy is the processing and production of food and agricultural products. The construction materials industry is also developing rapidly. Technical modernization and expansion of production with the efficient use of local raw materials is carried out in the region.

The prevailing region's macroeconomic indicators, such as GRP, industry, agriculture and investment per capital, higher than the national average, and the high share of these indicators in the country reflect the dominance of the region. The average annual cost of employment in the economy is 1289,600 or 45% [4, p.62]. The proximity of the region to the capital contributes to the intensification of internal labor migration and the growth of natural and mechanical movements. The region ranks 4th in the country in terms of the number of economically active population. In 2000-2018, the number of employed in the economy of the region increased by more than 1.3 times. Most of the labor resources by region are in Zangiota, Urtachirchik, Yangiyul districts, Chirchik and Angren.

Regional infrastructure is also a priority. The region has an extensive network of railways and highways. In 2018, cargo turnover by all modes of transport was \$ 1311.8 million. tons, and passenger turnover - 16956.3 mln. passenger miles [5, p.86]. Air transport is also well developed. The highways Tashkent- Angren-Kokand, Tashkent-Chirchik-Burchmulla, Tashkent-Akkurgan-Buka, Tashkent-Chinaz-Gulistan show the developed transport system. Human resources and education are also high and there are large research institutions and institutions in the region. The region is distinguished from other regions of the country by its high quality of education. The presence of many research institutes in the region gives a great appreciation of the region's scientific potential. The region's investment potential is superior to other regions of the country. The implementation of various investment projects contributes to high growth rates of investment in the region. There is a steady increase in investments in the electricity, metallurgy, food and coal industries. Investments in these sectors are focused on the production of machinery, equipment, vehicles, and business equipment. Stable growth of the total volume of attracted investments contributes to the stability of the share of total investment in the region.

Table №2

The region's share in the country's investment
[3, p.25]

Years	Total investition								Foreign investment and loans							
	2000	2005	2010	2015	2016	2017	2018	2000	2005	2010	2015	2016	2017	2018		
Republic	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
Tashkent region	8,1	10,7	9,8	8,2	8,3	8,2	8,7	10,7	8,1	6,1	8,2	5,5	4,2	5,6		

Also, the low rate of growth of foreign investments at the national level leads to the reduction of the regional share in the volume of foreign investments of the republic (from 10.7% in 2000 to 5.6% in 2018) [6, p.73]. However, the share of investments in the industrial sector remains high.

The Tashkent region has a high industrial potential. On its territory a diversified and highly developed industry is established. There are enterprises of ferrous and non-ferrous metallurgy, machine-building,

chemical, electro-power, building materials, light and food industries, covering almost all branches of industry. Over the past five years, the industrial output of the region has increased by 3.63 times, while in the country it has been 3.56 times [7, p.16]. The volume of industrial production per capita made 12160 thousand soums. In the Republic this figure is 6944,7 thousand sums [5, p.68]. This means that the regional average is higher than the national average.

In recent years the industry of the region has been developing rapidly. The gross regional product (GRP) of the region is 9.4% of the country's GDP and per capita 13333.4 thousand. This is 107.8% of the national average. The share of industry in GRP is increasing. Its share is still higher than the country's contribution to GDP (14.3%). The region also produces 10.7% of the country's agricultural output. A lot of work is being done in the region as well. Reforms in industry and agriculture make the region the leading (second) country in terms of export share (11.2%) [5, p.13]. The region's proximity to the capital makes it one of the most profitable regions.

A number of efforts are being made in the region to modernize production and move towards innovative development in economic development. One of the key areas for innovation is the industrial complex. This network enables the development and implementation of scientific and technological developments, the effective use of the achievements of technical development, and the formation of a new approach to industrial complex management. Every year the number of enterprises producing innovative products, works and services is increasing. In 2017, innovative product production increased 7.5 times compared to 2010 [8, p.1]. Particular attention was paid to the intensification of industrial modernization measures following the global financial and economic crisis. Therefore, important laws and decisions were adopted during this period, which influenced the development of industrial sectors. This has made industry one of the fastest growing industries in the region. Currently, the light and food industries, machine building and metal processing, chemical, ferrous and non-ferrous metallurgy are growing rapidly. As a result of increased exports of metallurgical products, the share of these sectors in industrial production increased, while their share in the export of goods increased from 5% to 7.4% (2018 y). With the increasing demand for solvency, the imbalance of domestic prices with imports has become one of the factors in the development of the food industry. The share of the construction materials industry in the regional industrial production remained low, reaching 5,3% (2018 y).

Table 3

The contribution of industrial sectors in total industrial production (%) [5, p.17]

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Industry, including	100	100	100	100	100	100	100	100	100
Electricity	1,9	0,1	0,1	10,4	11,4	11,9	11,31	10,7	9,7
Fuel	2,0	2,3	2,4	2,5	2,4	2,7	2,10	2,2	1,7
Metallurgy Industry	42	41,7	40,8	29,2	28,2	26,6	25,2	33	43,9
Chemistry and Petro-chemistry	10,4	10,0	10,0	8,7	8,8	7,9	8,40	9,1	7,4
Mechanical Engineering and Metalworking	5,3	6,0	6,3	9,0	8,0	6,9	5,86	7,9	9,4
Woodworking and paper industry	1,5	1,7	1,8	2,0	1,5	1,4	1,44	2,3	1,6
Building Materials	7,9	7,3	8,5	10,5	8,5	7,1	8,46	7,8	6,6
Light industry	13,6	10,3	9,3	8,8	9,5	9,3	10,02	9,9	8,5
The food industry	15,3	17,7	17,9	16,0	18,8	22,4	26,41	16,3	10,3
Other	0,1	2,9	2,9	2,9	2,9	3,8	0,82	0,9	0,8

Despite the fact that the region's industrial sector remains stable, mining and quarrying increased by 8.0%, processing - by 17.2%, electricity, gas, steam and air conditioning - by 13.5%, and water supply. , a 25.4% increase in sewer system, waste collection and disposal [5, p.17]. Availability of raw materials such as coal, kaolin, iron, copper, lead, lithium, glass, has led to a high share of mining in the industry. (The mining and quarrying industry in the country is 12.43%.) The coal industry also produces paper, rubber, glass and plastic products. The industry is dominated by sectors such as electricity, fuel, mechanical engineering, light and food industries, non-ferrous metallurgy. The food industry accounts for almost 20% of the regional industrial output. The region has a special place in the country in the production of fish, cheese and dairy products, canned fruits and vegetables, alcohol, meat and confectionery. The share of the electric power industry in the industrial sector is around 9.7%, and the energy industry's growth from 1.9% to 9.7% indicates that energy independence has been achieved and the processing capacity in the sector has increased. The increase in the share of the machine-building industry from 5.3% to 9.4%, and metallurgy from 42% to 43.9% indicates the effectiveness of modern enterprises. Although the share of the chemical and petrochemical industry, the fuel and paper, and the building materials industry in total industrial production has not changed significantly, economic reforms have been carried out in these areas as well. High rates of growth in the industrial sector during these years have been, to a certain extent, driven by the stimulation of finished products in mechanical engineering, metalworking, ferrous metallurgy, chemical, light and food industries. Production of gas, electricity, coal, steel, cement, and automobiles increased as a result of increased capacity

utilization. Imports of canned meat, as well as clothing, cement, concrete, and fire retardants have significantly decreased as a result of increased food production by local industrial enterprises. The stable demand for ferrous and non-ferrous metals in the foreign market and the need to saturate domestic markets with national products, as well as the development of localized production, have been important factors in the growth of the metallurgical complex. The region is also the leader in the country in the mining industry. Hydropower and power stations, located in Kibray district and Angren city, account for 23,3 % of the total electricity. The Angren coal-mining deposit fully meets the demand for these raw materials.

Growth in industrial output is not due to extensive factors, but a well-thought-out consecutive policy in the market economy, attracting foreign investment, deep structural changes in the economy, modernization and renewal of production, creation of new export-oriented sectors and enterprises. and development of private entrepreneurship. Special emphasis was placed on innovative development of industrial production.

In terms of innovative products, Tashkent region ranks fourth in the country (6.4%). In 2017, Tashkent region's enterprises introduced 219 types of technological innovations. Of these, 106 were made by small businesses and microfirms [8, p.5]. These changes are mainly reflected in the industrial sector of the region. This will keep the industry from growing, with the bulk of GRP at stake.

Regions play an important role in getting the region one of the leading places in the country. 15 districts and 7 cities are higher than in other regions of the country in terms of development of industrial potential. Industrial enterprises located in Zangiota, Ahangaran, Chirchik, Bekabad and Almalik are of great importance in achieving high industrial output. The use of new equipment and technologies at these enterprises contributes to the steady growth of labor productivity. This contributes to the industry's 43.1% share in GRP (including construction) [9, p.15]. This significant contribution is made possible by the development of such industries as ferrous metallurgy, chemistry, cellulose and paper, food, machinebuilding, printing and glass.

Production structure of the district, living conditions of the population, management mechanisms, economic interrelations of districts with other districts determine the possibilities of development of the region. The economic potential of districts and cities, the availability of financial resources, and the level

of implementation of scientific and technological progress are one of the key factors of regional industrial development. Among districts and cities, Almalyk, Bekabad, Chirchik, Akhangaran, Angren, Zangiota, Kibray districts are clearly ahead of other industrial production areas.

These regions are rich in minerals, as well as industry specialization, high labor potential and high level of investment.

Consequently, Almalyk, Chirchik, Akhangaran and Angren, Bekabad cities are important regions in the region to ensure balanced development. Almalyk, Bekabad, Akhangaran, Chirchik, Nurafshon, Angren and Zangiota districts are the leaders in per capita industrial production and provide 75% of the region's industrial output. The advantage of these regions in regional industrial production is the location of large enterprises of national importance, proximity to the capital, and high production infrastructure. Year-to-date growth of industrial production in the context of districts indicates the increasing industrial potential of the region. The opening of large export-oriented industrial enterprises in Ahangaran, Nurafshan, Chirchik and Zangiota and Kibray districts from 2000 to 2018 has had a positive impact on the growth of industrial production in the food, metallurgy and chemical industries.

Despite the proximity of the region to the capital, favorable geographical location and potential, industrial development in the Ahangaran, Buka, Bekabad, Kuyichirchik, Akkurgan, Parkent, Pskent, Urtachirchik and Chinoz districts remains low (5.7%). In these areas, per capita industrial output is also low. These districts are mainly used for cotton processing and sewing.

The development of agriculture in the region has led to the development of food and light industry, and the presence of mineral deposits in the metallurgical, chemical, and electrical industries. However, the fact that only three provincial cities produce 56% of the whole region (Almalyk, Bekabad and Chirchik) shows an uneven distribution of industrial production across the region. Agricultural production in these cities is even less than 2%.

The districts that make up a small share of industrial production (Ahangaran, Buka, Bekabad, Kuyichirchik, Akkurgan, Parkent, Pskent) account for almost half (43.3%) of agricultural production. The share of regions in regional industrial production has not changed for years. This indicates that some of the regional districts are specialized in industry, others

are in agriculture, and large industrial enterprises are uneven across the region. This difference in the share of industrial production of the districts in the region is explained by the wide distribution of labor resources, natural resources and financial opportunities across the region. Innovative industry development is one of the solutions to address this situation positively, and to reduce the disparity between districts.

In order to increase the volume of innovative products and services, as well as to increase the share of high-tech industrial products, the process of costing technological, organizational and marketing innovations is being effectively implemented in the region.

Table 5

Technological, marketing and organizational costs of innovation in the region [10, p 230]

№		2014	2015	2016	2017	2018
1	All the costs, mln. sum	351217,5	547656,4	463908,9	295498,4	1055526,0
In composition						
2	Technological costs, %	99,4	99,99	99,97	99,77	99,95
3	Marketing costs, %	-	0,002	0,01	0,01	-
4	Organizational costs, %	0,6	0,008	0,02	0,22	0,05

In 2018, 61.4% of total innovation costs spending was directed to industry. In particular, 43% of total expenses are in the medium and low technology sector and 5% in high and medium technology. Almost a quarter of the total innovation costs in the country was directed to industry of the region. And almost all the costs of innovation in the region (99.94%) are focused on technological costs. The main part of technological costs is directed to the acquisition of machinery and equipment for the industrial sector.

Very little part (0.75%) is spent on designing production, acquiring new technologies and acquiring software [11, p. 226].

A source of funding is also important for the innovative development of industry in the region. It can also affect the regional budget. The analysis shows that the main sources of financing the costs of innovation are own funds.

Table 6

**Sources of costs for technological, marketing
and organizational innovations in the region [11, p.
246]**

№	Sources	2014	2015	2016	2017	2018
1	Own sources	47,8	39,4	39,8	67,6	83,5
2	Foreign capital	-	0,24	-	15,3	4,7
3	Credit of Banks	32,2	36,4	14,2	11,1	6,4
4	Budget sources	20,0	23,96	46	4,8	5,0
5	Another sources				1,2	0,4

Noteworthy is the low innovation activity of local authorities in financing innovation. This situation, as in many other regions, indicates that the region is subsidized. Such a budget cannot be called a developing budget. Therefore, it is not surprising that most technological innovations are focused on the purchase of equipment. In order for local manufacturers to surpass foreign competitors, the main costs of technological growth should be the acquisition of technology, training and modernization of the material and technical base. The table above shows a low share of technological costs for GRP, high rates of depreciation of fixed assets and a shortage of skilled workers, which causes inhibition when introducing industrial innovations [12, p.62]. If one of the reasons for the innovative development of industry in the region is financial, then the other is production. This is due to the high level of depreciation of fixed assets of industrial enterprises for financial reasons. To increase the innovative potential of industrial enterprises, first of all, it is necessary to replace equipment with the most modern equipment. It is difficult to achieve innovative progress in the production process without the use of new technologies. Human capital is also the creator of new products. In the modern economy, there is a shortage of qualified personnel. Continuous development and promotion of human capital will have a positive impact on the future of the enterprise.

Results

From the above analysis, the following main conclusions can be drawn:

- state funding for technological innovation costs is negligible (at the level of 19.1% of the country in 2018);

- all innovations in the region are provided by the enterprises themselves;

- the main part of the technological costs are spent on the purchase of machinery and equipment (75.9%).

Conclusion

Consequently, the economy of the region should be supported not only by the fuel and energy sector, but also by leading industries in achieving the goal of maintaining and developing the existing industrial and technological potential in the innovative development of the region. Therefore, one of the main directions of state policy in the process of innovative industrial development of the region is not only support for industrial production, but also financial support to achieve this strategy.

The development of innovative products in the region can be characterized by the following trends:

1. Inadequate financing of innovation. Resource capabilities of industrial enterprises in the region are one of the key factors in the development of innovation.

2. A small number of enterprises engaged in innovative activities. The average percent of enterprises in producing innovative products is 1%.

3. The analysis shows that the flexibility of large companies to carry out innovative activities is considered high. One of the main reasons for this is the availability of financial resources and opportunities for intelligent personnel. Large enterprises are producing 51% of innovative products [13, p.12].

4. Low level of integration of participants in the innovation process. An important role in the effective implementation of the innovation system is the integration of knowledge, research and innovation with participating companies, universities and investors in the creation, expansion and effective use of knowledge.

5. Low innovation efficiency. Without the connection of science and industry, it is impossible to develop high-tech industries and strengthen their position in the global market for high-tech products. Therefore, it is necessary to create favorable conditions for the development of competitive production on the basis of innovative strategic development of key industries.

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