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DESIGNING INDUSTRIAL ZONES AND ECOLOGICAL PROBLEMS IN THE GUBA DISTRICT OF THE REPUBLIC OF AZERBAIJAN

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ПРОЕКТИРОВАНИЕ ПРОМЫШЛЕННЫХ ЗОН И ЭКОЛОГИЧЕСКИЕ ПРОБЛЕМЫ В ГУБИНСКОМ РАЙОНЕ АЗЕРБАЙДЖАНА

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Abstract. As in the Republic of Azerbaijan, appropriate measures are being taken in the Guba district in the field of environmental policy, environmental security, and efficient use of natural resources that meet the needs of society and require environmental protection in order to achieve sustainable socio-economic development. Therefore, the interaction of society with nature, the optimization of the impact of these relations, and the search for solutions are considered as one of the important issues. In this case, the main attention should be paid to the organization of the designing the industrial zones Phin the Guba district. Because the correct designing of industrial zones helps to organize work, protect the environment, and achieve sustainable socio-economic benefits. The article presented as a result of research in this area examines the volume of industrial products produced in the Guba district, the retail trade turnover of local production and export products, design of industrial zones, and environmental problems during production.

Аннотация. Как в Азербайджанской Республике, так и в Губинском районе принимаются соответствующие меры в области экологической политики, экологической безопасности и эффективного использования природных ресурсов, которые отвечают потребностям общества и требуют защиты окружающей среды для достижения устойчивого социально-экономического развития региона. Поэтому взаимодействие общества с природой, оптимизация воздействия этих отношений и поиск решений рассматриваются как один из важных факторов развития. В этом случае основное внимание надо уделять организации проектирования промышленных зон в Губинском районе. Потому что правильное проектирование промышленных зон помогает организовать новые рабочие места, защищать окружающую среду и добиться устойчивых социально-экономических выгод. В статье, исследуются объемы промышленной продукции, розничный товарооборот местной и экспортной продукции, проектирование промышленных зон и экологические проблемы при производстве в Губинском районе.

Keywords: industrial zones, industrial products, production, trade, environmental problems.

Ключевые слова: промышленные зоны, промышленная продукция, производство, торговля, экологические проблемы.

The design of industrial zones affects the improvement of the economy and the formation of regional economic policy. On this basis, the regional structure of the economy constantly changes, production and infrastructure are rebuilt and expanded, the territorial organization of industry expands, and the structure of the regional economy changes qualitatively. This process also affects the formation of inter-district and intra-district production relations.

The design of industrial zones is formed because of the influence of both natural and economic regularity within a certain area. This is a clear example of the territorial organization of economic sectors, especially industry, in accordance with economic laws. That is, the design of industrial zones is not only an objective direction but can be applied by laws that determine their nature. At the concrete stage of the development of the regional economy, the socio-economic conditions of the region are also considered.

Industrial territories in different planning zones of cities have distinctive features. The central planning zone is characterized by the presence of monuments of industrial architecture. The middle planning zones are characterized by the proximity of the residential area with large industrial enterprises. Peripheral industrial zones are distinguished by heaps of closed industrial areas, isolation from public and residential areas of the city, and psychological alienation of the periphery for the townspeople [1].

The following techniques are distinguished for the adaptation of industrial zones to modern conditions and their favorable relationship with the surrounding objects in the structure of the urban environment [9]:

–modification — involves changing the shape, configuration or proportions of both the entire object and its individual parts.

–replacement — the introduction of new forms, structures, materials, etc. to replace the old ones.

–elimination or addition — changing the number of forms, structures, and functions with the possibility of adding new ones.

–combination — a combination of ideas, properties, functional components, and elements of an object with one another.

–inversion — consideration of the problem by contradiction with the possibility of overturning.

The design of industrial zones in market economic relations, the mechanism of territorial organization of industry, and the use of regularities implies the choice of the correct and efficient organization of production in the territory. In this case, the chosen method should allow the large-scale manifestation of the production area, the regularities should be implemented in interaction with one another [7]. By adhering to this principle, it is possible to achieve efficient territorial organization of natural and economic resources available in the territory of the Guba district and reduce transport costs. This will help solve the most pressing socio-economic problems in the transition to a free economy based on market principles, ensure the balance of socio-economic development of the regions, solve the problem of efficient use of available labor resources, prevent migration, and help solve social problems.

Analysis

The geopolitical significance of the Guba district is related to its location in the contact zone of the continents of Europe and Asia, in the geographical area close to the Russian Federation, as well as on the North-South international transport corridor.

Guba district is located on the north-eastern slopes of the Greater Caucasus, between the watershed line of the Main Caucasus Mountains and the Samur-Davachi lowland, on the north-eastern slopes of Shahdag, at an altitude of 600 meters above sea level, on the banks of the Gudyalchay River, and 168 km from Baku. The district borders with Gusar district at a distance of 70 km from the north and north-west, Khachmaz district — at a distance of 25 km from the north-east, Shabran district at a distance of 68 km from the east, Khizi district at a distance of 3 km from the south-east, Shamakhi district at a distance of 30 km from the south, Ismayilli district at a distance of 40 km from the south, and Gabala district at a distance of 15 km from the south-west.

Guba region was founded on August 8, 1930. Its total area makes 2.61 thousand km² and its population is 173.4 thousand people (2019). The majority of the region's population is Azerbaijani (79.2%). 9.1% of the population are Tatars, 5.9% are Lezgins, 1.8% are Jews, 1.4% are Khinaligs, 1.4% are Turks, 0.5% are Kyrgyz, and 0,7% are representatives of other nationalities. There are 1 city, 7 settlements, and 149 villages in the district [8].

The largest settlements of Guba district are Guba city, Girmizy Gasaba, and Gonagkand settlement.

The city of Guba is located on the banks of the Gudyal River, at an altitude of 600 m above sea level. Guba has been considered a settlement since the 12th century and a city since the second half of the 18th century. The city of Guba is located 28 km from the Khachmaz railway station. The population growth rate in the city is very weak. The city's economy is based on the fruit and vegetable canning industry, a brick factory, electrical engineering, a carpet factory, etc. [5].

At present, the industrial zones of Guba city make up a small part of the city. However, there are enough production facilities in the city that have the potential to expand in the future or create new industrial zones. These opportunities are available both within the city and in areas close to the city (Figure 1).

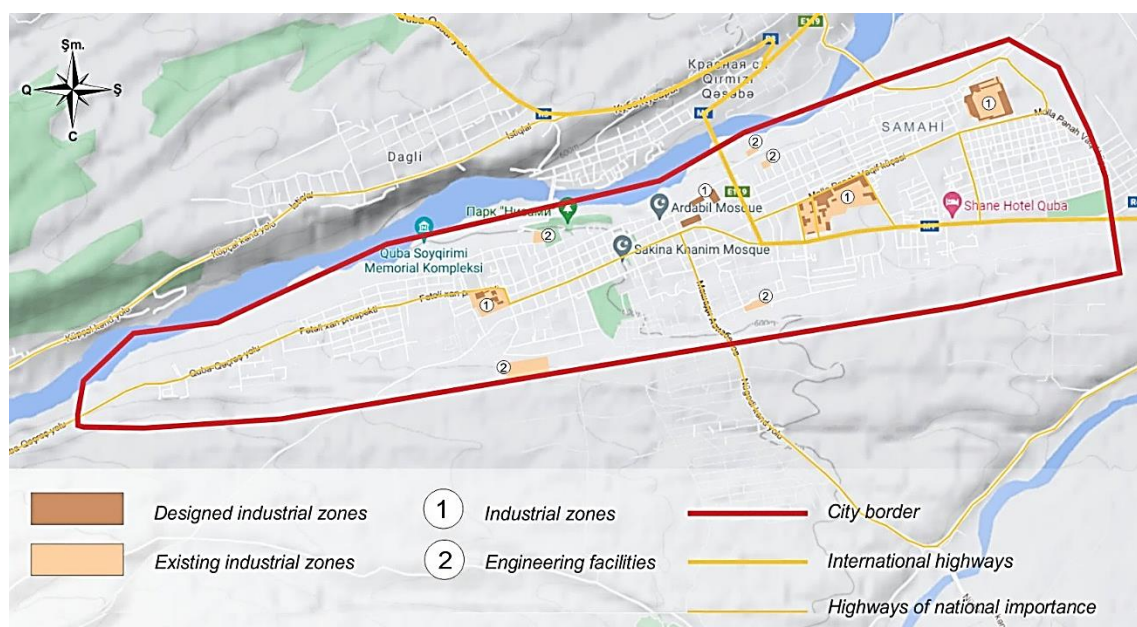


Figure 1. Design map of industrial zones of Guba city

The territorial composition of the industrial zone consists of industrial districts formed based on a combination of industrial enterprises, ancillary and service facilities, and engineering facilities. Industrial zones are formed in these regions, which have undergone great development, in the

conditions of strong industrial development. However, the studied the Guba district lags far behind in this regard. The lack of high-level industrial development in the area, as well as the relatively low pace of development, has not led to the formation of industrial zones and industrial strips in the area.

There are no ore mineral resources in the territory of the Guba district. As a result of geological prospecting works in the area, it was determined that there are promising oil fields in the Gusar-Davachi synclinorium. However, the process of their production is not underway yet. Along with oil reserves, there has been identified oil shale on the northern slope of the Gaytag-Goja Range in the Guba region between Aghsuchay (the right tributary of the Gudyalchay) and Garachay Rivers, natural gas — around the village of Khinalig, and peat reserves around the upper right bank of the Babachay River. In addition, there are quartz sands around the village of Budug, marble limestone in the Tangialti-Gonagkand zone, gravel, as well as sand, clay, and limestone in the deposits of rivers flowing through the administrative district. Moreover, the Guba district is rich in resort and recreation resources and great potential for their development. The locals and people of neighbouring areas mainly use the hot mineral springs around the Khaltan and Chimi villages of the Guba district for treatment in the summer months.

According to the statistics of 2019, the production of industrial products in the Guba district in kind are represented by electricity (383.8 million kWh), gravel, crushed stone, small river rocks, and flint (170.6 thousand tons), canned fruits and vegetables (1690.7 tons), carpets, and carpet products (0.05 thousand m²) [8, p. 434].

It should be noted that the growth trend was observed in other industries in 2010-2019, except for the production of carpets and carpet products, albeit slightly. However, canned tomatoes (tomato paste) were 129.4 tons in 2017, and currently, their statistics are not kept because the enterprise does not produce industrial products (Table 1). This means big problems in terms of regional socio-economic development.

Table 1

INDUSTRIAL PRODUCTS PRODUCED IN THE GUBA DISTRICT

<i>Indicators</i>	<i>2010</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>
Electricity, million kWh	231,2	345,0	340,5	384,2	337,4	383,8
Gravel, crushed stone, small river rocks, and flint, thousand tons	92,7	33,5	24,3	76,8	97,4	170,6
Canned fruits and vegetables, tons	795,0	1200,0	1627,0	1895,2	1105,7	1690,7
Carpets, and carpet products, thousand m ²	0,07	0,09	0,05	0,05	0,04	0,05
Canned tomatoes (tomato paste), tons	—	—	—	129,4	—	—

Source: [8, p. 434]

While analyzing the production of industrial products in the Guba district in kind, it could be stated that there is a significant growth over the relevant years. However, in the retail trade turnover, this indicator manifests itself on the other hand, and the retail trade turnover has always increased. Thus, while the retail trade turnover in the Guba district in 2010 was AZN 194.1 million, it increased and reached AZN 453.3 million in 2019. This indicator is also reflected in the trade turnover per capita. In the analysis of the relevant years, the indicators were AZN 1253.18 and AZN 2625.07 [8, p. 430]. It has also helped to increase the share of local products. At present, the share of local products in the retail trade turnover in the Guba district is 78%. This is a very large number. In retail trade, imports account for only 22% (Figure 2).

Despite these figures, the share of retail trade in the country's total retail trade turnover fell from 1.46% to 1.15%. At the same time, considering the requirements of not only the industrial potential, but also the quality of the products formed in a short period of time against the background of market relations, should be carried out in accordance with world standards by ensuring the production of final products.

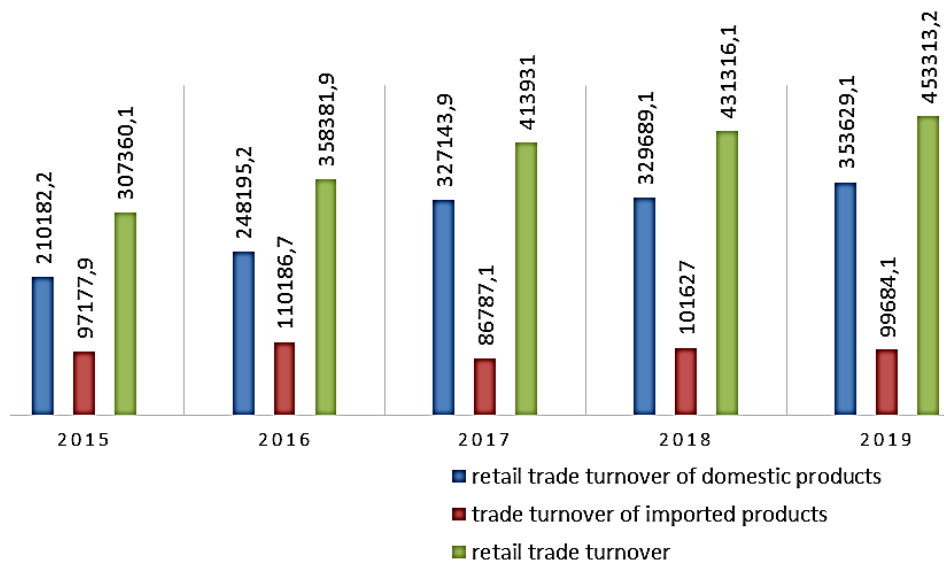


Figure 2. Retail trade turnover of local production and export products in the Guba district, thousand manats [8, p. 430]

In addition to the above-mentioned, in connection with the significant expansion of winemaking, mineral water filling, and production of soft drinks in the Guba district, the production of glass containers should also play an important role in the industrial structure of the region.

By regional structure, we mean the creation of production areas in accordance with the industrial potential of the region, ensuring the solution of existing problems, and ensuring that the infrastructure does not lag demand. In some cases, this does not justify itself. For instance, the products of Guba cannery, Miri Pak, Nika-S, Azerbaijan-Turkey ZMS LTD, and Most-Sanaye LLC meet international standards for their quality and design. However, to develop entrepreneurship in the region, it is necessary to take measures to improve the structure of industries that can give high economic results, to create short-term and long-term targeted programs or projects in this direction [4]. From this point of view, it is necessary to constantly carry out relevant work and take measures on improving the design structure of industrial zones in the Guba district.

Environmental Challenges

Pollution zones of industrial enterprises should be established, as a rule, by calculating the dispersion in the atmosphere of harmful substances emitted from sources after using the latest effective cleaning agents [3, p. 6]. In most cases, pollution is the waste of various industries, formed along with finished products because of processing various natural resources — fuel, raw materials, oxygen, air, water, etc. [2, p. 21].

Along with the socio-economic factors considered during the formation of industrial zones in the Guba district, the ecological condition of the area should also be studied. These include the emission of pollutants from stationary sources into the atmosphere, pollutants emitted into the

atmosphere from motor vehicles, water taken and used from natural sources, wastewater, household waste collected by public utilities, etc.

While conducting a statistical analysis of 2010–2019, it could be seen that environmental problems in the Guba district have increased in almost all areas. This increase was mostly reflected in the amount of household waste collected by public utility companies. Thus, the increase during the studied years was 14.3 times. In other areas, the growth is small. The amount of pollutants directly in production is very small. This is due to the relatively weak development of production facilities, as well as the provision of newly established production facilities with modern technology.

Table 2

ENVIRONMENTAL PROBLEMS IN THE INDUSTRIAL ZONES OF THE GUBA DISTRICT

<i>Indicators</i>	2010	2015	2016	2017	2018	2019
Emission of pollutants from stationary sources into the atmosphere, thousand tons	0,50	0,7	0,8	0,9	1,3	1,4
Pollutants emitted into the atmosphere by motor transport, thousand tons	—	9,6	11,2	12,7	13,2	14,9
Water used, million m ³	53,1	53,1	54,8	52,5	57,2	62,6
of which:						
- for domestic purposes	1,2	1,6	1,3	0,9	1,2	1,3
- for production	—	0,1	—	0,2	0,02	0,05
- for irrigation and agriculture	51,9	51,4	53,5	51,4	56,0	61,3
Wastewater discharged, million m ³	0,8	1,1	1,1	1,1	1,4	1,2
Water loss during transportation, million m ³	19,34	20,9	19,4	21,6	22,8	24,2
The amount of household waste collected by utility companies, thousand m ³	4,4	29,5	30,8	24,7	50,8	62,9

Source: [8, p. 429]

The economic downturn in the industry has caused a temporary decrease in urban pollution and environmental tensions. However, with the development of the market, the stabilization of the economy and the growth of motorization, the level of urban pollution will increase, causing a danger to the health and life of the population [6, p. 4]. From this point of view, the environmental factor should not be forgotten in the design of industrial zones, and the environmental factor should always be considered as one of the main directions of regional policy.

Results

Guba region has a favorable natural-geographical and socio-economic base for the development of industrial zones and the improvement of their sectoral structure. The agro-industry based on the processing of agricultural products in the area plays an important role in improving the social situation of the population through the development of its industries. In the social division of labor, the region specializes in the industry, agriculture, and light and food industries based on local raw materials, and the production of construction materials.

By rapidly developing the most advanced, progressive, and promising industries in the Guba district and significantly increasing their efficiency, it is possible to eliminate the negative situation in the region's economy, increase industrial production, and provide employment for the able-bodied population. The region has a natural-economic base and production infrastructure opportunities for future growth of industrial production. However, because of the underutilization of

these opportunities, certain problems have arisen in the complex development of industry in the region. Despite the presence of rich local natural resources and other opportunities, the share of industrial products produced is insignificant compared to other regions of the country.

There are many potential opportunities for large-scale development of vegetable and fruit growing, which is well adapted to the natural conditions of the Guba district, and the canning industry based on their raw materials. The expected great potential of the canning industry creates a need for technological equipment, packaging, as well as the organization of services for the canning industry in the region. At the same time, it is necessary to make proper use of the opportunities for efficient and full use of the ever-increasing labor resources in the Guba district.

Despite certain environmental problems in the Guba district, the share of industrial zones in pollution is very small. This was due to the small number of industrial enterprises operating in the region, and the provision of new enterprises with modern equipment.

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