The influence of socio-demographic and external factors on the change of urban parameters of the Luhansk region

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Abstract. The scale and nature of changes in the urban planning parameters of the Luhansk region under the influence of socio-demographic and external factors are studied. The actual development trends of the Lysychansk-Rubizhne-Sievierodonetsk agglomeration, the evolution of the regional settlement system, the state and problems of the urban development of the region are determined. To conduct the study, methods of system analysis, analytical comparisons, statistical analysis, urban planning analysis were used. The information base consists of literary and archival sources, cartographic materials. Quantitative and qualitative changes in the main territorial and urban planning parameters of the Luhansk region have been studied. A methodology for assessing and making urban planning decisions is proposed. The urban planning tasks and directions of transformation of the residential environment of the Luhansk region, controlled by Ukraine, are analyzed. Lugansk region in modern conditions is an outsider of socio-economic development. The occupied territories of the Lugansk region of the so-called ORLO (separate districts of the Luhansk region) are in a state of crisis. Industrial, ecological, social degradation is intensifying. This trend can lead to the devastation of settlement systems. The tasks of rational transformation of the territorial-planning organization of the Lugansk region remain relevant. From the intermediate conclusions, it is advisable to single out: the region has significantly changed its functions. The border and the line of demarcation of the JFO will still indefinitely be the determining factor influencing the state and development of the region. The task of the territorial development should be considered at the level of the Lysychansk-Rubizhne-Sievierodonetsk agglomeration and the structure of the region as a whole to ensure the growth of its potential. It is expedient to implement priority tasks according to unconditionally effective options that give a quick and demonstrable result. It can be education, transport infrastructure, anything that raises social standards. It is necessary to achieve a consensus of different groups of the population in the implementation of urban planning tasks and projects.

1. Problem statement

Since 2015, the JFO has been ongoing in the territories of the eastern regions of Ukraine. By the decision of the National Security and Defense Council of Ukraine, it is recommended to use the terminology [1], which indicates the intention of the government to specify the actual state of the conflict situation. The active phase of hostilities was replaced by the stabilization of the demarcation line. (term - the line of hostilities we will not avoid yet). The task of social and economic development, improvement of the territorial organization of the Lugansk and Donetsk...
regions, bringing the planning structure of the region in line with modern conditions and the needs of populated areas remains relevant. [2–10] The industrial cities and territories of the east of Ukraine - the Lugansk and Donetsk regions were in a pre-crisis state, due to the outdated industrial structure. The Russian external aggression, the occupation of the part of the regions led to circumstances, the consequences of which are difficult to assess in economic categories. From the point of view of the engineering and planning organization, the territories of the regions are “cut” by military operations. The relevance of the topic is determined by the curtailment of the settlement system under the conditions of external influences and the depressed economic state on the territory of the Luhansk region. Among certain tendencies of the beginning of the XXI century, one can point to a decrease in the population of the region; deterioration of the economic situation in the industrial region; excessive environmental load on the territory and cities of the region; technically and technologically outdated industry, infrastructure. Primary and separate are the political factors of the state of the situation - the occupation of the part of the territory of the regions. For a detailed analysis of the situation, the development of optimal urban planning solutions, it is necessary to solve a number of scientific problems. It is necessary to find the main territorial and town-planning characteristics. Develop and propose methods and methodologies for making urban planning decisions. To analyze urban planning methods for transforming the living environment of the Luhansk region controlled by Ukraine.

The uncertainty of external influence factors is proposed to be assessed using a multifactorial classification using a stepwise dichotomy.

A comprehensive analysis will make it possible to develop options for forecasting the prospective development of the Lysychansk-Rubizhne-Sievierodonetsk agglomeration, the functional and planning structure of settlement.

2. Purpose, idea and research methodology

2.1. The goal of the research

Study of the scale and nature of changes in urban parameters of the Luhansk region under the influence of socio-demographic and external factors. Determination of current trends in the development of the Lysychansk-Sievierodonetsk agglomeration, the evolution of the regional settlement system, the state and problems of urban development of the region.

2.2. The idea

In the context of the armed conflict that has been going on for 8 years in the territory of the East of Ukraine – the Lugansk and Donetsk regions, a border region is being formed. The total length of the border with the Russian Federation within the Luhansk region is 737 km (39% of the total length of the Ukrainian-Russian border). The demarcation of the JFO has a length of more than 410 km. A new type of regional classification is emerging, which is characterized by restrictive functions - fixing the border, legislative regulation of the regime for crossing the demarcation line, etc. The latest functions of regional typology should be taken into account in the tasks of improving the territorial planning organization of the Lugansk region and urban development. The study of quantitative and qualitative changes of the main factors and factors of urban development is an urgent task.

2.3. Methodology

To conduct the study, methods of system analysis, analytical comparisons, statistical analysis, urban planning analysis were used. The paper studies the quantitative and qualitative nature of the influence of socio-demographic and external factors on the change in the urban planning parameters of the Luhansk region. The information base consists of literary and archival sources, cartographic materials.
2.4. Results

Quantitative and qualitative changes in the main territorial and urban planning parameters of the Lugansk region have been studied. A methodology for assessing and making urban planning decisions is proposed. The urban planning tasks and directions for transforming the living environment of the Luhansk region, controlled by Ukraine, are analyzed. Luhansk region in modern conditions is an outsider of socio-economic development. The occupied territories of the Luhansk region of the so-called ORLO (separate districts of the Luhansk region) are in a state of crisis. Industrial, environmental, social degradation is intensifying. This trend can lead to the devastation of settlement systems. The tasks of rational transformation of the territorial-planning organization of the Luhansk region remain topical. From the intermediate conclusions, it is advisable to single out: the region has significantly changed its functions. The border and the line of demarcation of the JFO will still indefinitely be the determining factor influencing the state and development of the region. The task of territorial development should be considered at the level of the Lysychansk-Rubizhne-Sievierodonetsk agglomeration and the structure of the region as a whole to ensure the growth of its potential.

3. The research results

From the point of view of the tasks of the modern planning organization of the Lugansk and Donetsk regions, it is impossible not to take into account the influence of the functional potential of the town-planning form. \[7, 10–13\] We can assume that there are relevant planning goals that require balanced and timely regulatory actions. The reason and condition is the armed conflict and the occupation of part of the territories of the regions. Military conflicts have their own internal logic, and they are also characterized by unpredictability. However, history has enough examples when the processes of territorial development go hand in hand with an unresolved conflict. The term of the environmental protection has been going on for 8 years, and experts and politicians cannot give an adequate forecast for its completion \[2\]. System-statistical analysis makes it possible to determine the main parameters that determine the functional development of the territory. Lugansk region has an area of 26.7 thousand km² or 4.4% of the territory of Ukraine. ORLO occupies 8.4 thousand km², about 31.5% of the region. Currently, the territory of the Luhansk region is 18.3 thousand km² or 3.1% of the territory of Ukraine and is divided into 4 districts - Svatove, Sievierodonetsk, Starobilsk and Shchastia. Alchevsk, Dovzhansk, Luhansk and Rovenky districts (figure 1) are temporarily not controlled by Ukraine. \[14\]

The region has 37 cities and 109 urbanized settlements, about 780 rural settlements. On the territory controlled by Ukraine there are 12 cities (32%), 26 urban settlements (24%) and 507 rural settlements. (65%) The population of the region is 2121.3 thousand people. (according to the State Statistics Service of Ukraine as of 01.01.2021). The presence of the population in the territory of the region controlled by the Ukrainian government is 666.3 thousand people (31.4% of the population of the region). 280.4 thousand internally displaced persons (13% of the region’s population) have been registered. \[4, 14\]

The level of urbanization of the region reaches 87%. The population density was 83.9/km² in 2014. Due to the lack of reliable statistical data, it is difficult to determine the population density separately for the territories of the region. If we use outdated indicators, then in the territory of the Lugansk region, controlled by Ukraine, the population density is 35/km², in the territory of the ORLO, the density can reach 152-177/km² and less, depending on the actual population.

ORLO has 25 cities, 83 urbanized settlements, 273 rural settlements. The population is difficult to calculate correctly, according to various sources it is 1.2-1.4 million people. 280.4 thousand people received the status of a temporarily displaced person.

Laws of Ukraine cannot operate in the temporarily uncontrolled territory of the region. The problems of regions and internally displaced persons are dealt with by the Ministry of
Reintegration of Temporarily Occupied Territories of Ukraine.

The most urbanized territories remained in the uncontrolled part of the region. Central Luhansk (Alchevsk-Kadiivka-Holubivka-Pervomaisk), Luhansk, South Lugansk agglomeration (Khrustalny-Antratsyt-Rovenky-Dovzhansk), and Sorokyne-Molodomirovskii agglomerations remain outside the influence of the government. Thus, the region “lost” most of the coal mining enterprises.

The administrative and urban center of the region is the Lysichansk-Rubizhne-Sievierodonetsk agglomeration. The functions of the regional center are performed by the city of Severodonetsk. The demarcation line partially coincides with the imaginary line dividing the agricultural north and the industrially urbanized south.

From the industry that gave rise to the industrial Donbass, PJSC “Lysichanskugol” and SOE “Pervomaiskugol” remained in the Lugansk region, the number of operating mines is 12. The production capacity of the mines is from 100 to 700 thousand tons of coal per year, coal is mined...
at depths of 55-900 m. The availability of commercial coal reserves in operating mines varies widely - from 30 to 133 years.

Figure 2 gives an idea of the industrial planning framework of the coal industry of the Luhansk region. Mines are concentrated in coal mining sites. Railway and road communication are subordinated to the tasks of delivery and freight turnover of enterprises. The presence of a transport network determines the possibilities of operation or development of industries with a significant turnover. The conditional demarcation line gives an idea of the scale of the problem.

The structure of industrial production in the Luhansk region at the beginning of the armed conflict indicates a focus on the mining and processing industries. That is, the industry relies on

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**Figure 2.** Layout of the mines in the Luhansk region.
Table 1. Structure of industrial production in the world and Ukraine, %.

| Industry:                        | World | Developed countries | Russia | Ukraine | Luhansk region | Luhansk |
|----------------------------------|-------|---------------------|--------|---------|----------------|---------|
| Mining industry                  | 100   | 100                 | 100    | 100     | 100            | 100     |
| Processing industry, in particular: |      |                     |        |         |                |         |
| Food industry                    | 10.9 (10.7) | 9.5 (9.1)          | 11.1   | 15.5    | 3.3            | 11.4    |
| Consumer goods manufacturing     | 5.5 (7.8) | 4.6 (6.5)           | 1.7    | 1.1     | 0.3            | 1.3     |
| Chemical and petrochemical industry | 13.2 (11.2) | 13.3 (11.6)      | 8.4    | 6.4     | 9.4            | 4.3     |
| Metallurgical industry           | 5.8 (6.9) | 4.2 (6.9)           | 21.6   | 21.9    | 22.0           | 14.8    |
| Machinery                        | 35.9 (29.1) | 45.3 (34.3)       | 8.0    | 12.5    | 5.7            | 15.3    |
| Production of gas, water and electricity | 7.7   | 6.5                 | 8.9    | 18.3    | 7.0            | 35.5    |

As a result of the armed conflict, the region’s industrial production has shrunk by almost five times. Without bias, the obsolete coal and metallurgical industry was in crisis even before the conflict. The coal industry was largely supported by targeted transfers from the state budget - grants and subsidies. [1,2] In the expert community, there is a view that the service life of an average mine does not exceed 100 years. This term predetermines many factors and conditions. The mines of Donbass that are closed have an average service life of 77 years.

Ukraine has pledged until 2035 to throw up the consumption of coal at state-owned power plants as part of the decarbonization of the economy. Thus, the trend to close the mines is determined. It is clear that the process will be lengthy, profitable mines with large balance reserves of coal will work for some time.

For the mono-industry, this will mean a reduction in the territories used, the release of many zones. The consequence of this is a decrease in the population and a decrease in the standard of quality of life. At the same time, the economic crisis does not reduce the amount of infrastructure needed to service housing and utilities infrastructure, social institutions, and commercial establishments. Cities of Ukraine falling into decay face numerous problems in the field of spatial planning [4, 5, 8, 10, 12, 15] in particular:

- The decline of cities, the reduction of population and territories requires the development of projects for new activities in abandoned or abandoned areas. This requires well-balanced decisions from planners aimed at creating new jobs.
- Redundant areas, primarily industrial areas, require master plans to be revised to account for changes in the size of activities or their reduction.
The reduction of cities also leads to a change in the territorial planning structure. Managerial staff do not have the necessary experience, the methodology for developing planning solutions is practically absent.

It becomes economically unprofitable to keep the infrastructure focused on a larger scale. There is a need for a planned reduction in urban infrastructure in accordance with a decrease in population and a decrease in economic activity, which puts forward additional requirements for the urban planning system.

Different countries have different approaches to solving the problems of declining cities. However, urban planning must ensure a methodological approach and consensus reached by the local community.

Of course, the urbanized south of the region fully faces all these problems. But how are they resolved? The state of the economy of the occupied districts of Luhansk region is difficult to describe in detail due to lack of information. One can evaluate the existing trends. Let’s try to highlight the most important and indisputable. Lost economic potential, production volumes need to be analyzed not only in terms of absolute indicators. The qualitative influence of conditional or specific indicators should be taken into account.

The narrow sectoral focus of the coal-mining region cannot secure sustainable and efficient development. The coal and steel industry existed relatively efficiently in the form of vertically integrated corporations. The destruction of the structure caused problems in marketing, certification, supply of raw materials and components. In 2013 coal production in the mines of Donbass amounted to 26.3 million tons, and this accounted for 76% of the total coal production in Ukraine. There are 85 mines left on the territory of ORDLO (separate districts of the Donetsk and Luhansk region). There are 42 mines in the occupied part of the Luhansk region. In particular, all the mines producing anthracite, which is the most valuable type among the coal of the energy group and for which five out of 12 thermal power plants in Ukraine are designed, ended up in the occupied territories. That is, anthracite and a significant share of coking coal are mined in ORDLO. Since 2014, the process of closing mines has been ongoing. So far, less than 40 mines are operating. In ORDO for 2020 19 mines were closed. Figure 2 illustrates the closed mines in the Lugansk region. On social networks residents of ORDO publish information on wage arrears. The total unpaid wages of ORDO miners exceeded 1.5 billion rubles.

Almost all mines have wage arrears, and debts have also been accumulated for large city-forming enterprises. But the average level of wages remains very low - up to 15 thousand Russian rubles. There are practically no investments in the restoration of production capacities and the modernization of production. Settlements for which closed mines performed a city-forming function are rapidly degrading. There are numerous cases when the railroad rails that unite the enterprises of the coal industry are dismantled. At the same time, the processes of dismantling power lines and electric power substations of stopped mines are ongoing. The processes are both spontaneous and organized in nature - under the slogan of infrastructure optimization. In fact, all mines do not work in Alchevsk and Lugansk districts. Work in the mode of drainage and in some places local illegal coal mining - the so-called “kopanki” are an indicator of new problems. More or less stable work is demonstrated by anthracite mines in the south of the region.

The metallurgical complex is in a state of crisis. First of all, the instability of the work of enterprises is recorded, which is a depressing problem for nonstop production. The work level of productive capacity reaches 18-20%. In 2013, the cargo turnover at the Kommunarsk station (Alchevsk city) amounted to 6.5 million tons. The metallurgical complex shipped 4.5 million tons of products. The crisis at the plant leads to the crisis of related enterprises. Qualified personnel are leaving - accidents, failures of units are becoming more frequent, the level of spoilage in production is growing. Troubles are partly covered by regular reorganizations. Leadership changes unpredictably. Consequently, the economic state of the ORLO is characterized as a crisis. If negative trends persist, a catastrophe could be expected in a few years.
It should be noted that a significant part of the resources is consumed as a loan. Natural gas is supplied at reduced rates, almost free of charge to the people. Electricity and water are partly supplied from Ukraine for humanitarian reasons. The debt of ORDLO (to all suppliers) for the consumed electricity as of 08/01/2021 amounted to UAH 23,876,311,000. The debt of ORDLO for consumed water and water supply services (to Ukraine) as of 08/01/2021 reaches UAH 2,098,243,000 [16].

Utility tariffs at ORLO are growing. A characteristic sign is the fact that the cost of natural gas and electricity is growing slightly, and the cost of water has increased many times over - which indicates the source of the resource supply. The low cost of natural gas is due to supplies from the Russian Federation at non-market prices.

Problems in the planning and organizational structure of the territory of the Luhansk region at the current stage:

(i) Controlled part of the Luhansk region:

- Urban planning documentation should be updated taking into account the actual situation
- The development strategy takes into account the border nature of the region and the presence of an armed conflict (JFO zones and lines of demarcation)
- The communication network needs to be updated and upgraded. Reconstruction of the configuration of roads and railway communication is needed
- Persist and has potential for growth in agriculture
- The recreational resource of the region is preserved and has the potential for growth
- The water resource of the region is preserved and has the potential for growth - provided it is used economically
- The forest resources of the region are preserved and have the potential for growth - provided it is used economically
- The mining industry needs to be developed and optimized in accordance with the needs and objectives of the industrial sector of the region
- The Luhansk power station (Shchastia city) provides generation in the region, but the power transmission network needs to be upgraded
- The engineering protection of the border needs to be strengthened
- The industrial development of the region is based on the potential of the existing agglomeration Lysychansk-Rubizhne-Sievierodonets, which should be considered as a regional territorial entity
- There is a process of adaptation of citizens who have received the status of a temporarily displaced person. Some people change place of residence, some people get housing and job
- As a result of the high level of unemployment, there is a migration of labor resources - partly to the regions of Ukraine, partly to the EU countries, partly to the Russian Federation
- Reverse migration to ORLO is almost non-existent

(ii) ORLO (separate districts of the Luhansk region):

- ORLO is outside the influence of the Ukrainian government. The existence (development) of the territory occurs separately, independently
- There is no integration with the Ukrainian economy (impossible)
- It is impossible to determine the timing of the restoration of control
- Social and humanitarian ties predominate
- Possible military escalation (provocation)
- The mining industry is degrading
- The energy branch is degrading
- The railway line is deteriorating
- The ecological state is uncontrollable and deteriorating
- Agriculture remains relevant, but not competitive
- There is no development strategy
- Urban planning documentation has lost its relevance. Upgrading and development is not possible
- The socio-economic condition is deteriorating
- The demographic situation is aggravated at an accelerated pace
- Formed dependencies - 1. from Ukraine, 2. From the Russian Federation
- Dependence on Ukraine is formed in the following areas: power supply (may be reduced at the expense of the Russian Federation); water supply (dependence is critical and cannot be compensated); the direction of coal sales (partially, we are not talking about the stability of supply volumes); social payments - pensions and other types. The general trend is to reduce payments. The reduction in payments means a deterioration in the social standards of the population. (The number of temporarily displaced persons is decreasing. The number of pensioners receiving Ukrainian pensions is decreasing. The scale of payments is decreasing)
- Dependence on the Russian Federation, are formed in the following areas: social payments; gas supply; Material and technical supplies - ensuring the needs of the armed formations; fuel and lubrication materials; compensation for economic losses by infrastructure elements; consumer goods (food, medicines); Reorientation of trade relations
- The ORLO communication network is sufficient
- A few more years of the existence of ORLO will cause a complete restructuring of the mining industry. Uncontrolled and without compensatory and mitigating measures. The consequence for the region will be a significant deterioration in social standards of quality of life

A separate problem remains the ecological state of the territories and districts of the Luhansk region. Mines, quarries, mining of building materials, manufacturing facilities caused changes in the landscape. Industrial areas of Donbass have accumulated about 40% of man-made emissions. Water and air basins are polluted, large areas have been disturbed and undermined, soil erosion is progressing, the regimes of groundwater and rivers have been violated. The colonial type of exploitation of the natural resources of the region had extremely negative consequences for the environment. The high level of urbanization adds to the problems with the disposal of municipal solid waste and with the preservation of the quality of water sources.

The largest amount of industrial waste has accumulated in the area of activity of coal mining enterprises. Only on the state-controlled territory of the region there are 44 rock waste disposal areas, covering an area of more than 900 hectares. The total amount of waste accumulated in them is more than 38 million m³ and continues to grow every year.

Threats from the temporarily occupied territories, where the coal industry is in a catastrophic state, remain a significant environmental problem for the region. The closure of mines occurs haphazardly, without any projects and environmental assessments of the possible impact on the natural environment. At least, there are no announcements of environmental protection projects after the liquidation of mines.

Thus, the situation has frozen into bifurcation points. The situation may break into an uncontrollable crisis with catastrophic consequences, or a program of gradual development of the region’s territory may be implemented. Actually, for both parts of the Lugansk region, the problems are generally similar. However, the difference is in scale, availability of resources and development potential. Table 2 contains an analysis of problems in the planning and organizational structure of the territory in terms of development tasks.
The end of the long Leontief cycle should be taken into account. A change in the technological structure makes it inexpedient to restore obsolete production. It seems more expedient to create new innovative capacities and enterprises. Therefore, it is necessary to create conditions for investors and preserve the infrastructure. The modern economy relies primarily on human potential. The resource base is no longer decisive. Developed territorial infrastructure - communication networks, power lines, pipelines are able to attract modern production - with a favorable state policy to support the region.

The return of control over ORDLO will set a number of tasks that will need to be solved under uncertain conditions:

(i) political and legal uncertainty, including conditions for resumption of control;
(ii) uncertainty of the transition period;
(iii) paragraphs 1 and 2 are likely to provide for the conditions of compensation and rehabilitation of the region, identifying the sources and characteristics of the damage to the region;
(iv) it is impossible to predict whether the significant external factor that will determine the functions of the region will change - that is, the region will either remain a borderland, or it will be possible to establish cross-border cooperation in conditions of softening of relations and no territorial claims;
(v) Urban planning documentation, territorial development will be based on the problems of paragraphs 1, 2 and will be irrelevant or absent;
(vi) The Luhansk region does not have the resources to restore control - administrative and technical;
(vii) there will be a question of compensation (replacement) of resource supply which is now provided by the Russian Federation;
(viii) A significant proportion of temporarily displaced persons will not wish to return;
(ix) One should not expect labor migration to the liberated territories;
(x) Reconstruction of the infrastructure will take a long time, except for critical emergency units;
(xi) One can expect stability from agricultural companies, companies that have maintained economic efficiency. Some mines can operate at the level of profitability;

The objectives of the study, aimed at determining and analyzing public demand for the parameters of changing the urban environment, are based on the generalization of an analytical survey that displays a list of citizens’ requests according to the characteristics of the urban environment.

(i) Safety. For the Luhansk region, first of all, safety from hostilities. Any exacerbation causes a complex of reactions - explicit or hidden
(ii) Housing problem. Temporarily displaced persons actually decide on their own. Many of those who have lost their homes have not been able to obtain or purchase another one.
(iii) Workplaces. Having a paid stable job is an important requirement.
(iv) Social and medical service. It can be noted that social services, the pension fund as a whole have reached a high level of organization of their activities. Medical care is less than satisfactory. This is due to the loss of the base of medical institutions, the problems of the Covid pandemic.
(v) Public transport - convenience, availability of work needs
(vi) Intercity transportation. The requirement to provide multi-vector long-distance communication is important.
(vii) Communal area. The list of requirements for the maintenance of a residential environment is quite clear.
(viii) Trade and retail
(ix) Recreation, rest, tourism.

Table 2. Determination and analysis of public demand for characteristics of the urban environment configuration. Conditions and factors determining the quality of the urban environment.

|   |   |   |
|---|---|---|
| 1 | security\(^1, 9\) | Completely not provided. Demand is not completely met. There is no provision of housing for all.
| 2 | Housing\(^4\) | The condition is unsatisfactory. High unemployment, low wages, wage arrears, labor migration.
| 3 | Working places\(^2, 8\) | Partially satisfactory condition. Somewhat unsatisfactory condition.
| 4 | Social services\(^3, 4, 5\) | Insufficient base of medical institutions. High cost of medical services.
| 5 | Medical service\(^3, 5\) | Partly satisfied. In need of urban planning solutions.
| 6 | Public transport\(^5, 6\) | Partly satisfactory. Insufficient rail links. The situation is partly saved by private intercity transportation.
| 7 | Intercity transport\(^5, 6, 7, 9\) | Partly satisfactory. Unsatisfactory ratio of price to quality of services. A comprehensive program is required.
| 8 | Housing services and utilities\(^5, 7, 8\) | May be considered sufficient.
| 9 | Commerce\(^7\) | Partially satisfactory. There is potential for growth, subject to stringent environmental restrictions.
| 10 | Recreation, leisure, tourism\(^5, 6\) | |

Notes to the table 2

(i) §1 is the determining and deterrent factor for the development of the region.
(ii) §3 depends on the sustainable development of the region. Growth is provided by agglomerations and cities. State and regional policy should be aimed at the creation of new jobs.
(iii) §4, 5 should ensure balanced and professional actions of the central and local authorities.
(iv) 2, 4 do not satisfy the demand.
(v) §4, 5, 6, 7, 8, 10 determine the quality of the living environment, and the actual directions that require development and improvement.
(vi) §6, 7, 8, 10 the source of development is domestic demand, fair competition, creation of conditions for business, demonopolization of the service market.
(vii) §6, 7 the level of development of transport communications affects the satisfaction of the needs of §2, 3, 4, 5, 9, 10.
(viii) §3 has a significant impact on solving the problems of §2, 5, 6, 7, 8, 9, 10 (solventy contributes to the development in this industry)

(ix) §7 The development of an integrated scheme of external transport, intercity communication depends on §1 and the time factor.

(x) It should be noted that in those segments where the competitive environment and private business operate, positive changes or development problems are resolved by the consumer. Yes, it can be noted that in cities there are no problems with mobile communications, Internet services, a network of gas stations, etc.

If we consider the tasks of rational transformation of the territory of the Luhansk region, its spatial-planning structure, it is necessary to determine the factors of influence, restrictions, conditions. Restrictions determine the parametric framework of the object of study - namely, the territory of the Luhansk region, controlled by Ukraine. Conditions affecting restrictions:

- Armed Conflict (JTO);
- Political uncertainty - it is impossible to predict the time and format of the conflict;
- Administrative and territorial reform, outdated and partly obsolete urban planning documentation.

At this stage, the effect of the time factor can be ignored. Urban development is a process, so it is advisable to determine the directions of development and planning guidelines. It is important to take into account the time factor if the development of the two parts of the Luhansk region follows different political vectors. East and West Germany once existed in different political formats, but in a European paradigm of development. South and North Korea are one nation with one language in one region - two different worlds and civilizations.

It is advisable to carry out the primary classification according to the principle of dichotomy - the primary feature is control (political, administrative, zone of validity of the legislation of Ukraine) over the territory. Any urban planning documentation is based on the regulatory and legislative framework. We consider the following restrictions on the basis of whether there will be significant harm or benefit if ignored or taken into account? Changes in the ecological state, changes in the social structure in the ORLO may have an impact on the parameters and objectives of the development of the Lugansk region. In the paradigm of here and now, for example, the problems or tasks of the functioning of public transport or medicine in the ORLO are insignificant. Ecological safety is one of the limiting factors. Any development must secure the stability of ecological indicators. In this sense, it is advisable to conduct environmental monitoring, including the involvement of international organizations to record the actual state of the environment throughout the Lugansk region.

4. Conclusions

The basic directions for the prospective development of the Lysychansk-Rubizhne-Sievierodonetsk agglomeration and the functional planning structure of the settlement have been developed. The uncertainty of external influence factors is proposed to be assessed using a multifactorial classification using a stepwise dichotomy. Urbanized areas are developing more actively than rural areas. Agglomerations and cities have greater potential for development. From a socio-economic point of view, it is more expedient to plan investments in the development of jobs or infrastructure, which contributes to the economic development of the territories. The Lugansk region in modern conditions is an outsider of socio-economic development. The occupied territories of the Lugansk region, the so-called ORLO, are in a state of crisis. Industrial, environmental, social degradation is intensifying. This trend can lead to a deterioration in the quality of life. The surplus population will independently solve migration issues, since the resource of the territory cannot provide modern environmental quality standards for a
high density of people. The loss of a resource (coal mining) will lead to the devastation of settlement systems. The Lugansk region retains the potential of agricultural production and recreation. The industrial potential of the Lysychansk-Rubizhne-Sievierodonetsk agglomeration has prospects for further development. The tasks of rational transformation of the territorial-planning organization of the Lugansk region remain topical. From the intermediate conclusions, it is advisable to single out: the region has significantly changed its functions. The border and line of demarcation of the JFO will still be an outstanding factor influencing the state and development of the region for an indefinite time. The task of territorial development should be considered at the level of the agglomeration formation Lysychansk-Rubizhne-Sievierodonetsk and the structure of the region as a whole to ensure the growth of its potential. It is expedient to implement priority tasks according to unconditionally effective options that give a quick and demonstrable result. It could be education, transport infrastructure, anything that raises social standards. It is necessary to achieve a consensus of different groups of the population in the implementation of urban planning tasks and projects.

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