

Trends in the post-industrial development of the regional center in Siberia

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Abstract—The development and transformation of the post-socialist city is one of the actual problems of modern urbanism. Currently, Tyumen is an actively developing city, provided with all modern improvements, the administrative center of the Tyumen region. Historically, the city serves as an industrial, scientific and technical base of the West Siberian oil and gas complex and has a favorable demographic structure of the population. In the future, it may become the largest innovative engineering oil and gas industry service center of the country.

The aim of the study is to analyze the experience of post-industrial transformation of Tyumen. The article is based on the methodological developments of foreign and Russian scientists, such as n. Bourdieu, Chansawang, Ilchenko M., Kirkby.John.R., Tang Wing-Shing, Catalepton, Monica Pietrzak-Franger, Engel B., Hatherley., Neugebauer, K. S., E. Posokhova.

To carry out the research, such methods as factor analysis, individual expert survey, estimation of the level of development of the social and economic situation of Tyumen were used.

In the article the authors analyzed the experience of post-industrial transformation of the urban space of Tyumen. The research of strengths and weaknesses, opportunities and threats of social and economic development of the studied city is carried out.

On the basis of this analysis were identified a number of patterns of development of Tyumen.

The result of the study is the development of a model of transformation of the urban space of the center of the regional region. In the process of developing a model of planning the territory was determined by the planning structure of the Tyumen municipal district.

Keywords—*post-industrialism, the city, urban studies, innovative development*

I. INTRODUCTION

Post-socialist city development and transformation is one of the actual problems of the modern urbanistics. Present-

day Tyumen is an actively developing, stylish city provided with all modern conveniences, the administrative center of Tyumen region.

According to the Office of the Federal state statistics service for the Tyumen region, Khanty-Mansiysk Autonomous Okrug-Ugra and Yamalo-Nenets Autonomous Okrug, the volume of shipped goods of own production, works and services performed by own forces of organizations (without small businesses) of the city of Tyumen in 2017 increased in current prices compared to 2016 by 5.2% and amounted to 271428.1 million rubles. A significant impact on the volume of shipped goods of own production, works and services performed by own organizations (without small businesses) of the city of Tyumen has the volume of production of petroleum products (158.1 billion rubles), as this sphere of production accounts for 58.3% of the total volume of products shipped by enterprises of the city of Tyumen. The index of industrial production in the city of Tyumen in 2017 compared to 2016 increased by 0.6% and amounted to 100.6%. For 2017 year, the city commissioned 646,5 thousand sq. m. the total area of residential buildings, including 535.9 thousand sq.m. in apartment buildings and 110.7 thousand sq. m. - in individual houses. The estimated turnover of retail trade for January – December 2017 in the city of Tyumen amounted to 230947.0 million rubles (excluding the volume of hidden activities) or 102% in comparable prices to the level of last year (for comparison, retail trade turnover for January – December 2017 porf – 29804 billion rubles or 101.2%). The average volume of purchases (excluding the volume of hidden activities) made by each resident of Tyumen in January – December 2017 amounted to 305.3 thousand rubles (for comparison, in Russia – 203.2 thousand rubles). The average number of employees in large and medium – sized

organizations of the city of Tyumen in January – December 2017 remained almost at the level of the same period last year and amounted to 196.4 thousand people (100.7% by January-December 2016). At the end of December 2017, the registered unemployment rate in Tyumen was 0.45% (1.0% in Russia). The average monthly nominal accrued salary of one employee in Tyumen organizations (without small businesses) for January – December 2017 increased by 7.3% compared to the corresponding period of 2016 and amounted to 54204.9 rubles.

Historically the city performs the function of the industrial and scientific - technical base of the West Siberian oil and gas complex and has a favorable demographic structure of population. In 2015, the population of the city was 768 358 people, which is 8% more than in 2013. The share of the population of Tyumen in the total population of the region is about 20%. In perspective it may become the largest innovation engineering oil-servicing center in the country.

The methodological basis for the analysis, trends and prospects of the post-industrial transformation of city space of Tyumen was the work of foreign and domestic authors such as Pierre Bourdieu [1], Chen Xiaoyan [2], Ilchenko M. [3], Kirkby, R. J. R. [4], Tang, Wing-Shing; [5], KatalinFüzér [6], Monika Pietrzak-Franger [7], Engel B. [9], Hatherley O. [10], Neugebauer C. S. [11], ElenaPosokhova [12].

Tyumen development as the regional center has got a number of social features. First of all, it is lagging in the development: industrialization and urbanization processes in the thirties of the 20-th century occurred aside the city. The first industrial breakthrough happened during the Great Patriotic War. Then, within 1945 - 55 there was a certain period of stagnation.

The major industrial period of development lasted from the midst of the 50-s till the end of the 80-s of the 20-th century.

The city population four times increased. The splash in the development proceeded by three vectors:

- 1) formation of scientific - educational cluster to meet the requirements and interests of the accelerated development of Tyumen regional oil and gas resources;
- 2) formation of the internal industry - machine-building industrial complex, in the first place;
- 3) creation of the logistic-servicing infrastructure and industry to meet the requirements and interests of oil and gas development in the North of the region.

The accelerated industrialization and urbanization of the city space within the period of thirty years resulted, in its turn, in a complex of problems to be acutely revealed by 1990. The key problems were: first, extremely unsuccessful planning of the city landscape disregarding the demand to extend the route network and formation of the natural social environment of the city; second, serious lagging of the social infrastructure development even from the rather low average soviet level.

The Soviet economy collapse brought to the city space contraction. Transition to a new cycle of development has been carried out by the rules envisaged by the realities of the post-industrial economy. The city space contraction was

followed by the system deindustrialization, that, in its turn, significantly changed the ratio center - half periphery - periphery inside the city. After attaining a certain level of development and the population size of 500 thousand and over the city starts transforming into an independent economic system, the requirements and interests of the latter objectively determining transition to a new industrial paradigm.

II. METHODS AND RESEARCH RESULTS

Analysis of the social-economic development of Tyumen city has become the basis to define the strongest and weakest characters of the city, as well as opportunities and risks (threats) of its further development.

The most important strong characters of Tyumen city are:

1. Deployment of the largest oil producing, processing and servicing companies - subsidiary enterprises and affiliated branches of open joint-stock companies: «Gasprom», «TNC BP Management» (subsidiary of «TNC BP Siberia»), «Tyumenneftegas», «Transneft» («Sibnefteprovod»), «LUKOIL» (Tyumen subsidiary «LUKOIL – Uralnefteproduct»), «LUKOIL - Western Siberia».
2. Oil-servicing center status determined by the industrial specialization and location in Tyumen of international engineering-servicing companies - Schlumberger, Halliburton, KCA Dentag, Bentec;
3. Status of the largest oil and gas scientific-research center (over 20 scientific-research institutes and laboratories);
4. Intensive long-term cooperation with Khanty-Mansiisk and Yamalo-Nenetsk autonomous areas by the programs of interregional cooperation delivering multiplicative economic effect. Realization of these programs resulted in keeping to the common economic space for long;
5. Availability and implementation of a complex of interrelated target-oriented regional and municipal programs;
6. Tyumen oil and gas industrial university that could become the base for creation of National research university of hydrocarbon and cryogenic resources;
7. Tyumen state university where the National research university of IT-technologies could be formed;
8. High level of equipping the city with services and utilities - within several years Tyumen has been in the third place in the All-Russian contest for the title «The best improved city of Russia»;
9. Active policy in forming of the architectural aspects of the city: protection of architectural monuments, illumination, reconstruction of the existing and construction of new public gardens and boulevards, application of sense of humour in designing of the city space (avenue of «Siberian cats», office buildings and road indicators (indicator «Headlights and a safety belt»);
10. Active participation in the state policy of energy conservation and increasing of power engineering efficiency;
11. Successful realization of the program «Expanding horizons» to increase the level of IT education of Tyumen regional population and provide access to information

technologies in accordance with the federal program «Information society in 2011 – 2020»;

12. Geographic location of the city with its transportation train roads, federal roadways, the federal international airport in the center of the area with the total population size of more than 0,9mln people.

The weakest characters of Tyumen city are:

1. lack of active system policy of aggressive marketing to promote the city to the regional and federal levels;

2. infrequent participation in federal programs;

3. limited transportation network of the city and weak interconnection between urbanized territories, high housing density causing a certain road congestion;

4. insufficient road density and lack of artificial facilities (roadlines, multilevel road junctions, subway crossings);

5. deficiency of parking places that causes parking rules violations and slowdown in the traffic capacity, blocking of pedestrian areas, deterioration of planting;

6. lack of the international-level exhibition areas with developed infrastructures;

7. lack of logistic centers, a few high-level storage areas, deficiency of specially equipped areas;

8. noncompliance of the system of professional education to the requirements of the city development;

9. low level of provision with social, cultural and sports objects (for instance, pre-school facilities);

Strategic task of innovation development of the city economy demands the use of internal resources; high technology and innovation development. The task could not be solved within a short period and by accepting the common administrative decisions. It is essential to successively create conditions for developing innovation and service economy (postindustrial economy) within a long period.

Tyumen industrial complex has got the immense starting capital to implement world-level modern technologies in the existing and creating enterprises of the city. Building of innovation infrastructure of full value could become one of the major advantages of Tyumen city. The latter could stipulate high attractiveness of the city for intensive innovations.

The existing situation provides all the essential pre-conditions for the successive and successful fulfillment of strategic tasks. It is important to show political will and to coordinate activities of the community - governmental and local authorities, business structures and residents.

Modern economy demands from the city environment to form new patterns of development - Tyumen experience shows how natural processes of development could create the city landscape of a new type.

The first pattern - population migration to suburbs. The traditional type of the city population typical to the thirty years of Tyumen intensive development (1960-1990) presupposed residence in multistory buildings. Within the last 10 years an extremely high cost of the city real estate caused intensive construction of out-of-town houses, the latter becoming the most expedient economic model to solve

housing problems. It was pre-determined by the whole number of factors:

1. two times lower price per square meter in out-of-town houses including land price;

2. possession of a personal plot of land that could be locally transformed;

3. ecologic advantages of out-of-town residence;

4. relative independence of service lines and, as a whole, lower expenses for housing and communal facilities.

This is confirmed by statistics, according to which the area of commissioning of individual residential houses in Tyumen in 2017, increased by 45.3 per cent (76.2 per thousand sq. m. to 110.7 thousand square meters). Individual housing occupies 17.1% of the total amount of housing commissioned.

The second pattern of the city space transformation is launching of mechanisms of territorial innovation development. In long-term prospects (2011-2020) the goals to be set are: innovation development of clusters, creation of the individual architectural look of the city and achievement of the European level of the city provision with modern conveniences.

The West-Siberian oil and gas innovation center should become the ground for technological development and research in oil and gas industry, at the same time being open for advanced development projects from different industries.

Cooperation and interrelation of the West-Siberian oil and gas innovation center with higher educational and scientific -research institutes and industrial enterprises of the city as the basis for technological development of innovation ideas creates the needed conditions for effective development of innovations until their commercial introduction.

It is also expedient to consider integration of the West-Siberian oil and gas innovation center into megaproject "Development corporation of the Ural federal area". For the West-Siberian oil and gas innovation center there exists a real opportunity to become an active participant of the project "Innovation center «Skolkovo» and to actively develop scientific-research cooperation.

In the process of developing of the space planning model there was determined a frame for Tyumen municipal district planning that included the existing social, economic, ecological and transport structures and was coordinated with the space organization of the Russian Federation territory. The model gives information about the area and long-term prospects of its development in accordance with the strategy of socio-economic development of Tyumen district until 2020.

In the basis of the planning model of the municipal district there are two chief axes - the natural planning axis - Tura river, and the urbanized planning axis - Transsiberian railroad «Moscow – Vladivostok». The latter goes through the city center crossing the municipal district from the west to the south-east. The federal roadway Yekaterinburg - Tyumen - Omsk passes by parallelly.

The general plan of Tyumen city development suggests concentric territorial development envisaging a

circular transport planning frame proceeding into the municipal district.

In accordance with the space planning model the following trends of the territory development were determined:

- construction of new federal roadways to provide interregional transportation and integration of separate regional route networks into the united transport system of Russia;
- completion of construction of the bypassing circle of road transport;
- construction of the southern railway by-pass for cargo-carrying trains on the stage between Podiyom and Voinovka stations.

A radial transportation system forms the basis for the composition model of the planning frame. Tyumen city external transportation circle being a central part of the unified planning frame of the municipal district provides the optimum access to the city areas and exit in the external directions.

The third pattern of the city space transformation is represented by formation of Tyumen city agglomeration. Tyumen regional demographic situation has been positive during the last years. In 2016, the population in the region at the end of the year was 3 692 400 people, which is 11.3% more than in 2005. The regional population size increased due to the positive migration processes as well as the natural reproduction. Tyumen and Yalutorovsk cities and Tyumen municipal district contributed into the population reproduction for the most part.

Tyumen municipal district is favorably located. It directly borders on Tyumen city that is the centre of Tyumen agglomeration.

The city growth was caused both by the suburb extension and by the district suburbanization. Conditions of life in the vicinity of the city are drawing closer and closer to the conditions of life in a big city which is the center of attraction. Urbanization is a historical process increasing the role of a city in the society development and stipulating changes in manufacturing location and population rehousing. Modern type of urbanization is not so much defined by high growth of the city population share, as by intensively developing urbanization processes. Now new space forms of the city habitation emerge - megapolices, the city population moves to suburbs.

Extended zoning of territories in priority directions pre-determined zones of outpacing development and points of growth conforming with priority lines of economic development of the municipal district: (agro-industrial complex, timber complex, comprehensive construction complex, machine-building complex, tourist complex and other spheres of economic activity).

The space organization model will serve the basis for the further development of TPS (territorial planning system) of Tyumen municipal district and will make it possible:

1. to carry out territorial, functional and economic development of all the district villages in close coordination with development of Tyumen city;

2. to increase the population size, volumes of housing construction and, as a consequence, to improve standards of living due to the new model of economy.

Tyumen agglomeration formation is one of the prospective forms of the district space development where the central place is occupied by Tyumen city, while groups of villages represent local systems of settling.

Agglomeration is a unified socio-economic and investment space with the common system of social amenities, engineering and transport service and one and indivisible natural-ecological component. Tyumen agglomeration will allow to unite economic potentialities and financial resources to solve the common tasks, exchange technologies, knowledge and specialists, jointly develop transportation and social infrastructures.

Economic and social effects of the agglomeration stage of the district urbanization will give the following advantages to all the municipal units:

- possibility to realize major infrastructural projects of transportation;
- development of information communications, educational and scientific infrastructure;
- possibility to successively "introduce" the city lifestyle (high level of servicing, wide opportunities to choose jobs, medical care and educational institutions) into the villages equally with their natural advantages (ecology, individual housing, etc.).

The project of TPS in Tyumen municipal district allows to accept interrelated decisions on the different levels of planning. Scientific-research paper "Applied scientific research to prepare documents for urban development on the territory of Tyumen municipal district" will provide:

- succession and interconnection of territorial planning decisions on the federal, regional and municipal levels;
- determination of location of the planned regional objects on the municipal territories with regard to the decisions and documents for the municipal territorial planning;
- creation of the unified data bank on the basis of the electronic project to monitor implementation of the planned regional and local objects;
- use of TPS to solve a great number of tasks of the state and municipal management, legal regulation of land property relations on the basis of the accepted decisions regarding urban development, as well as enhancement of information resources of the regional infrastructure of the space data.

III. CONCLUSION

Tyumen represents a special case of successful post-socialist development of the Russian regional capital. Within 20th-the beginning of the 21st centuries the city of Tyumen survived several stages of transformation from a small town through industrial centre of a oil and gas development to post-industrial city combining functions of logistical educational and administrative centre for three Russian regions.

In the period up to 2020 Tyumen should become a "smart city" of the future. The latter is confirmed by the proceeding growth in the quality of life, correct intellectual solutions in economy, municipal management, architecture, etc. There can be identified the following strategic priorities:

- creation of the proper business environment, social and transport infrastructure; successful landscaping and architectural solutions; formation of a «smart city»;
- business encouragement in the innovation sphere; further attraction of international companies; organizational, legislative and administrative decisions;
- uplifting of living standards.

By 2020 in Tyumen city there should be formed: Innovation and investment infrastructures of full value, the proper conditions for the growth of small and average business and innovation development of priority clusters, uplifting of living standards and attaining of the European level of the city improvement. Tyumen will become a modern oil-servicing center, the city with the best infrastructural conditions to attract investments promoting the major projects implementation.

Strategic economic policy supports development of competitive types of business activities and carries out institutional reforms (creation of conditions).

Priorities in the strategy of socio-economic development of Tyumen are: innovation development of the oil and gas cluster and the cluster of international engineering-servicing companies; support of IT-cluster; innovation development of petrochemistry and refining.

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