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THEORETICAL RESULTS OF RESEARCH ON SPATIAL AND TERRITORIAL DEVELOPMENT (with Examples on the European North of Russia)¹

This article focuses primarily on the correlation between the concepts of “spatial” and “territorial” development. It is shown that, while differing in their content, these concepts substantially complement each other when it comes to specific research studies. In this case, the topic of spatial development includes considering the general areas for the location of productive forces, geographic dimension of the specific types of economic activities, economic measurement of distances, linear communications and a network structure of the economy while. In the topic of territorial development, the author introduces the territory itself as a natural and economic capital and territorial economic management based on such capital.

The study of spatial and territorial aspects of socio-economic development in the European North of Russia (ENR) showed that its immediate future is associated not so much with the large projects aimed at creating new fuel and energy, mineral and raw material, or forestry bases, as with the improvement in the existing economic systems based on scientific and technological progress and interregional integration. The progression from developed territories to new Arctic and Northern locations is associated with tremendous costs and requires time for scientific and technical preparation. The modernization of existing production facilities, territorial and production complexes is a priority in the development of productive forces in ENR.

The author proposes to apply the theoretical provisions and practical recommendations formulated as a result of studying the spatial and territorial development in the elaboration of government strategic planning documents. Currently, the practice of strategic planning does not fully consider the substance of such concepts as “spatial development” and “territorial development.” This incompleteness is so significant that overcoming it should be considered as one of the key objectives pursued by the regional policy.

Keywords: space, territory, spatial and territorial development, strategic planning, the European North of Russia

Introduction

The author of this article participated in the implementation of fundamental research programs of Presidium of RAS for 2009–2011 The Fundamental Problems of Spatial Development of the Russian Federation: An Interdisciplinary Synthesis (research supervised by the academicians A. G. Granberg and V. M. Kotlyakov) and for 2012–2014 The Role of Space in the Modernization of Russia: Natural and Socio-Economic Potential (research supervised by the Academician V. M. Kotlyakov). Under the first program, a large team of researchers working in the G.P. Luzin Institute of Economic Problems of the Kola Scientific Center of RAS, Institute of Economics of the Karelian Scientific Center of RAS, Institute of Socio-Economic and Energy Problems of the North of the Scientific Center of the Ural Branch of RAS has elaborated the project The North and its Role in the Spatial Development of Russia. Under the second program, one of the projects entitled Socio-Economic Space of the European North (General Grounds for Modernization and Interregional Integration) has been elaborated at the Institute of Socio-Economic and Energy Problems of the North of the Scientific Center of the Ural Branch of RAS (Corresponding Member of RAS V. N. Lazhentsev, Doctor of Technical Sciences, Doctor of Economics A. N. Kiselenko, PhD in Economics L. V. Chaika).

The consolidated results of the program entitled The Fundamental Problems of Spatial Development of the Russian Federation: An Interdisciplinary Synthesis were presented in [1] written on the basis of extensive scientific and analytical materials and under the influence of collective discussions on the topic of spatial development, which had been repeatedly held under the direction of A. G. Granberg (until 2011), V. M. Kotlyakov and O. B. Glezer. For scientists and practitioners, this paper gives the grounds for reflection on the use of spatial analysis in the practice of distributing the productive forces and planning socio-economic development of the Russian regions. For methodologists, it provides an

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opportunity to reflect on the issue of what is the interdisciplinary synthesis and how is it different from the simple addition of achievements made in the different branches of science.

The results of studies under the second program so far have been published only separately in numerous articles and are waiting for their joint presentation within a monograph.

The “Northern” projects addressed the issues of building a theory of space in relation to socio-economic activities in the extreme and complex natural conditions. We link the topic of the North and the Arctic with the resolution of issues in the area of geopolitics and spatial arrangement of the national economy arising from the block-based structure of the world economy, location of major scientific and technological complexes in Russia and formation of “overlapping” economic and geographic systems (latitudinal and meridional). This project also considered the issues of developing the regional and local economic systems in conjunction with the theories of geo-systems. ENR is considered as a major economic region with very different forms of economic organization and distribution of the population.

As a result, we have the scientific and analytical material, which we will use as a basis in an attempt to formulate the judgments on the correlation between the Spatial and Territorial, as well as on the use of these two interrelated aspects of socio-economic development in the elaboration of strategic planning documents.

On the Theory Described in Terms of Space, Territory and Development

While staying within the research studies on the spatial topic organized by the Russian Academy of Sciences (which required a certain execution discipline, including in terms of used concepts and terminology), the author tried to get a sense of correlation between the Spatial and Territorial. Initially, it seemed that these concepts are the same, although there already have been some known judgments that separated these concepts. We have attempted to look for a specific source in each of them, which served as a basis for highlighting the main points in one or another research subject.

Generally, in science, the Space is treated as a form of existence of matter, the structuredness and extension of material systems. With regard to the socio-economic sphere, this concept has a specific expression. The science and regional policy have been for a long time operating with such concepts as the single economic space, privatized space, spatial behavior, economic density, integration and disintegration of space, etc. What makes the economic sense here are the intentional measurement of distance, organization of interaction between the center and the periphery, the form given to the configuration of economic systems, etc. Perhaps, a more accurate definition of such meaning was given by A. K. Cherkashin: “When arguing about spatial systems, it would be more correct to highlight the qualities of real objects, which are primarily characterized by the basic properties of space, such as the dimensionality, extension, regularity, metrizable, connectedness, continuity, curvature and form” [2, p. 296].

The space is perceived by people as the area of their activities, that has sufficient dimensionality for reproduction of living conditions and development of the economy. The space can be represented as the surface area that accommodates the people and resources of their vital activity or as a 3D cube, including the territory, waters and air. The space of any social process has its own parameters. The integral economic space is the space of activities conducted by a number of economic agents (administrative centers) within the boundaries of their joint and conjugate interaction aimed at achieving the synergy effect.

In view of the needs of individual and society, the space is inherently social, its meaning is broader than its purely economic characteristics. In the end, this means a space, that relates to social consciousness, social stratification and clustering, the spatial behavior of humans, spiritual development, etc. In general, the space is viewed as a space for social action and system of coordinates established by the specific character of activities, conducted by an entity, and its orientation towards life in a safe environment [3]. Much of our life is determined by new forms of spatio-temporal relations in the material and spiritual world. This includes the high mobility of people, great speeds of movement, instant data communication, expanding the circle of conjugating different types of activities, etc.

From a theoretical point of view, the space cannot be equated with the objects; the concept of “space” is not identical with the concept of “territory;” the geographic space is a set of relationships between the objects located in a specific territory and evolving in time [4, p. 98–100].

The Territory (as a limited portion of the solid surface of the Earth) is usually registered in three parameters, such as the spatial basis of activities; the location of natural, human and other resources;

a particular socio-economic reality that differs by its functions from industrial sectors and enterprises. Humans overcome the space, but they develop and improve the territory.

For a state, the territory is a specific part of the Earth's surface that is under its sovereignty, which is separated by the state border and includes the land, internal waters, subsoil, territorial waters and the airspace above them. The key word here is "sovereignty." For an administrative and territorial entity (including the subject of the Russian Federation), the territory is the area under the jurisdiction of regional government and regional units of the central (federal) government that establishes the limited economic autonomy of such entity. At this level, the key concept is the "territory of jurisdiction." For an enterprise, the territory (land) is an economic asset, accounted for in its authorized capital. In this case, the key importance lies with the capital, which is being estimated, amortized and reproduced. For humans, a territory is a place where they live, one of the main sources of their vital activity. For all these entities, the territory involved in the economic turnover represents the wealth (property). However, it would be an error to place the territory only within the framework of national wealth and property relations. The fundamental nature of the concept of "Territory" can also be seen in the formation of essential characteristics of a particular object under the influence of its location within the system of other natural and social givens [5]. V. S. Bochko considered the territory as the deployment environment for the system of human knowledge, moral and cultural values [6].

The Development is a change in the states of the system, a transition from one quality to the structure of another quality, increased complexity of the organization, purposeful and controlled evolution. B.B. Rodoman adds to this definition: "The development as a supreme form of the movement of matter is not only the irreversible, directional change, accompanied by increased complexity and transition to a new quality, but also the implementation of a program, manifestation of built-in opportunities as if they were in an embryonic form, and, in the human society, it is the continuity of many institutions and systems" [7, p. 47]. For economic geography and regional economy, the development is defined as the process of formation and qualitative transformation of territorial economic systems; the process of reproduction of territorial potential of vital activity and optimal mobilization of capabilities in a particular region that takes into account its characteristics and abilities of its population to innovation [8–10]. S. A. Tarkhov presented the territorial development as objective and societal changes of functional nature, and the spatial development—as the evolution of system configuration [11].

If, for a while, we leave aside the terminological definitions and consider this from a practical point of view, we can see that, in the geographic and economic science and practice of regional designing and planning, what is meant here are coordinated and progressive changes in the development and reproduction of natural resources, distribution and internal structure of productive forces, distribution of population and improvement of its vital activity's environment, flows of people, materials and money. This includes the consideration of both of natural and social objects and processes, the integration of knowledge about the geological, geophysical, hydrological, biological, air, technical, economic, social, political, and other areas in order to address the issues of improving the quality of people's life. It also includes addressing the issues of comprehensive socio-economic development of countries and areas, municipalities, urban and rural settlements.

The following methods represent a classic example of such analysis: Probst Concentration Centers represent the balanced layout describing the use of natural and social resources in connection with the location of a particular production facility and selection of its capacity; Komar Natural Resource Cycles describe the turnover of a particular resource (water, forest products, ores, etc.) in the Nature-Population-Economy territorial system; Territorial Production Complexes—Bandman approach is a method of targeted and program-based formation of economic complexes. The science and practice provide many other examples of systemic approach to the assessment, use and reproduction of capacities in specific territories (which, in the opinion of the author, constitute the substance of territorial development), that clearly demonstrate the importance of geo-systemic organization of nature and society.

Of course, there are models, where the "pure" spatial development comes to the fore, such as Thünen's Rings, Weber's Locations, Christaller's Grids, Lösch's Economic Landscapes, Rodoman's Linear Node Systems, Baklanov's Networked Production Structures, Optimizational Intersectoral and Interregional Models of the Institute of Economics and Industrial Engineering of the Siberian Branch of the RAS, etc. These are the models used by economic geographers as a basis for developing the theory of the organization of space (see, for example [12]). And yet, the essence of theories and models proposed by

these authors lies not so much in the spatial forms of economy, as in the substance of questions raised by them — How to distribute, with the maximum benefit, the land resources relative to the centers of consumption of agricultural products while minimizing the transportation costs; What is the optimal position of individual enterprise, given the maximum allowed density of industry's distribution; What is the optimum network of central locations (the hierarchy of cities) and transport communications; Is it possible to optimize the location of market areas by taking into account the interests of all market agents, including the financial institutions in order to obtain the maximum effect by accelerating the capital turnover, etc. The answers to these questions require relevant studies, including geometric and economic measurements, the definition of social and legal conditions (including property rights) for the formation and development of specific distribution systems with regard to individual and combined enterprises. In this case, too, the territory is a key subject of scientific analysis.

The theory, as well as scientific and organizational fundamentals of spatial development, have been very thoroughly examined by P. A. Minakir and A. N. Demyanenko [13]. They demonstrated that, in all times and nearly all classical economic theories, the space was seen as the main parameter of social development. However, they also specifically pointed out that the society has its particular characteristics: for example, the principles of ideological and ethical nature run through the Russian and “Western” economic systems. In the opinion of P.A. Minakir and A.N. Demyanenko, the spatial economics is sort of research program and a platform of interdisciplinary synthesis to study fundamental problems of spatial organization of society by taking into account the properties and qualities of particular countries and regions. If there was suddenly the “territorial economics” (which is extremely undesirable), it would be also necessary to consider it as a “research program” without trying to introduce it into a system of categorized science branches, such as socio-economic geography and regional economics.

The author focuses primarily on territorial development and, from a practical point of view, considers it as a sort of increment to what is provided by the development of enterprises and individual areas of activity. We propose to regulate the territorial development through a selection of specific financial and economic mechanisms, that draw a distinction between corporate and regional strategies. A starting point specific to the mechanisms of territorial development is that such development is organized on the basis of regional ownership and regional cost accounting. When the regions and municipalities act as economic entities, they become a sort of social corporation that provides services to the people. The effectiveness of territorial economic management is measured by the growth and improvement in the quality of total socio-economic capacity within a specific area. The most important aspect in the organization of territorial economic management is the active work with the regional (subjects of the Russian Federation, municipalities, neighborhood communities) property (natural resources, property complexes and financial funds), as well as the measuring the own costs against the own income (this is what distinguishes the regional cost accounting from regional accounting, which reflects the total economic indicators for a particular theory).

The territorial economic management can and should be viewed as one of the main areas of territorial development, but the term “spatial economic management” cannot be used because, in this case, we can refer only to the spatial conditions of territorial economic management. However, to the equal extent, there is both spatial and territorial planning; these are two distinctive correlated types of planning.

Therefore, the topic of territorial development and the topic of spatial development largely overlap, but they do not overlap completely. Only the spatial development deals with the general area of distribution of productive forces, geographic dimension of a specific type of activity, economic measurements of distances, linear communications and other network structures, flight routes, etc. At the same time, the territorial development must include the territory itself as a natural and economic capital. For spatial development, this condition is not required.

The methodology used for studying both the spatial and territorial aspects of socio-economic development is based on building various abstract (ideal) images in the form of multidimensional models that allow to describe the properties of studied objects and establish the patterns of their development [14, 15]. The quality of territories and spaces becomes a matter of management [16].

One of the most important areas of socio-economic development is the modernization, which is improving what we have, and completing the construction of missing elements in a particular system to achieve its better functioning. In the context of our topic, the modernization can be seen in two

ways: the territories and spaces are being modernized (including the formation of better linear and node systems for distribution of population and economy, optimizing the functions of locations, designing and creating natural and artificial landscapes, etc.); the territories and spaces are playing the role of factors in the modernization of production, social sphere and communications (increasing the speed of transportation and data communication, building the pendular production and commuter transportation systems, organizing the remote management, etc.).

Neither of these theoretical points manifest itself as a stand-alone position; their location-specific character always represents a combination of many scientific explanations of actuality and realities of nature and society.

The European North of Russia

The spatial approach to modernizing the European North of Russia (ENR) is implemented in the analysis of interregional integration through improvement of transport infrastructure: the further development of Murmansk and Arkhangelsk seaports as the support bases for the Northern Sea Route, building the Belkomur railway, building and repairing the roads, reconstructing the waterways in the Pechora, Northern Dvina, Sukhona, Vychegda and other rivers, using special types of transport (small aircraft, ground effect vehicles, airships, narrow-gauge railways, monorail transport, hovercraft) [17]. The primary objective in the modernization of power systems is to strengthen the existing basic structures, including building the second circuits of transmission lines to increase their transmission capacity and reliability; reducing losses and overall costs of electricity supply; substituting the expensive fuels, implementing the sources of non-fuel generation (nuclear power, hydro power and bioenergy). [18]

The targeted improvement of spatial relationships is also related to strengthening the interregional integration around the White Sea by taking into account the interests of the Republic of Karelia, Arkhangelsk and Murmansk Regions and by relying on the city of Kotlas while covering the adjacent municipalities of Arkhangelsk, Vologda and Kirov Regions, as well as to organizing the joint use of reindeer pastures by the farms in Komi Republic and Nenets Autonomous Area.

In our study, the territorial approach to the study of national economy, which is traditional for socio-economic geography and regional economics, has been further elaborated within the framework of specific situations and circumstances:

1. The socio-economic situation in the regions of ENR is currently unsatisfactory due to the wasteful use of developed fuel and energy, mineral and raw material bases, forest, fishery and other biological resources, neglect of land resources suitable for agriculture. The natural basis of vital activity for the people who put their roots in this area is threatened precisely by the irrational environmental management, especially when it comes to the excessive burden put on tundra and taiga landscapes.

2. The development of Northern and Arctic territories on the basis of latest scientific and technological achievements and by taking into account the local characteristics of economic management is constrained by low incomes of a significant part of people, especially those living in rural areas, excessive social stratification and negative migration.

3. The social well-being of northerners is so far only slightly associated with the financial results of specialized production companies, given their weak participation in the vital activity of territorial communities. Meanwhile, the regionalism and localization of solutions to social and economic problems are urgently needed as a counterweight to globalization, the danger of which is seen in the exaggerated unification of lifestyles without due consideration for their diversity, including the diversity related to Northern and Arctic lifestyles.

The resolution of these problems lies within the competence of state and local government authorities, but undoubtedly such resolution cannot proceed without self-organization of northerners and building a corresponding self-awareness. These problems concern the state authorities and local self-government authorities, but first and foremost they concern the northerners, their self-awareness and self-organization. The natural course of social and economic development in the ENR is more important than those aspects of domestic Russian colonization, that are determined only by the accumulation of capital and its export to Moscow, St. Petersburg or abroad.

Arkhangelsk, Vologda, and Murmansk Regions, Republic of Karelia and Komi Republic are established regional, administrative, political and socio-economic systems with stable borders. They determine the further layout of regional and local structures: in an upward direction, these are the economic

sub-regions (Karelo-Kola and Dvina-Pechora sub-regions), while in a downward direction, these are the intraregional and intrarepublic areas. Given the relevance of processes in the self-organization of territorial communities of people, we pay particular attention to households, communities and municipalities. So far, they poorly fit into the natural and economic landscape of northern territories of Russia. However, we see a more active territorial public self-governance, which is stimulating the understanding of the high role played by the neighborhood community in the daily life of people, especially in the North.

The main conclusion drawn from the study of spatial and territorial aspects in the development of ENR is as follows: the search for cost-effective sources and incentives for the development of productive forces in the continental ENR is associated today not so much with the major economic projects to create new fuel and energy, mineral and raw material, or forestry bases, as with the improvement of existing economic systems on the basis of scientific and technological progress and interregional integration based on end-to-end communications driven by high-speed transport and improving the reliability of power systems. The movement from developed regions and economic centers to new Arctic and Northern locations is associated with tremendous costs and requires time for scientific and technical preparation. The modernization of existing production facilities, territorial and production complexes, and using them to test innovative technology is a priority in the development of productive forces of ENR.

Spatial and Territorial Planning

It is advisable to translate the results of a theoretical study of spatial and territorial development into the practice of strategic planning. Among 28 documents specified in the Federal Law On the Strategic Planning in the Russian Federation (No. 172 of June 28, 2014), we have identified those that are directly related to spatial and territorial types of planning (see Table).

Table

Documents of Spatial and Territorial Strategic Planning

Document	Document Content
Spatial Development Strategy of the Russian Federation	This document regulates the main areas of distribution of population and productive forces.
Strategy of Socio-Economic Development of Macro-Regions	This document ensures the territorial and temporal alignment of activities provided by the other types of strategies within the boundaries of federal districts, major economic areas, and other large territories of program-based planning.
Federal Territorial Planning Scheme	This document is elaborated in order to ensure the sustainable socio-economic development of the Russian Federation and is based on the Strategy of Socio-Economic Development of the Russian Federation, the Spatial Development Strategy of the Russian Federation, the strategies of socio-economic development of macro-regions, sectoral strategic planning documents of the Russian Federation, including the requirements defined by the Urban Planning Code of the Russian Federation and other regulatory legal acts.
Territorial Planning Scheme of the Subject of the Russian Federation	This document is elaborated in order to ensure the sustainable socio-economic development of the subject of the Russian Federation and is based on the provisions of the Strategy of Socio-Economic Development of the subject of the Russian Federation, the strategies of socio-economic development of macro-regions and sectoral strategic planning documents of the Russian Federation, including the requirements defined by the Urban Planning Code of the Russian Federation and territorial planning schemes of the Russian Federation.
Planning Documents at the Municipal Level	These documents can be elaborated, approved and implemented in the municipal and city districts following a decision of the local self-government authorities and include the strategy of socio-economic development of the municipality, an action plan for its implementation, the forecast of socio-economic development, budget forecast and the program of socio-economic development of the municipality.

Currently, the practice of strategic planning does not fully exhaust such concepts as the spatial development and territorial development. This incompleteness is so substantial that overcoming it should be considered as one of the key objectives of socio-economic geography and regional economics.

If we approach the content of these documents from the perspective of combining the theory of spatial and territorial development with the planning procedure, then, in our opinion, this content should, among other things, include the following:

— At the federal level: The development of general economic regionalization as a method of territorial organization of productive forces that considers the uneven spatial development, threats of emergence of large “dead zones,” the global character of natural processes, large-scale development of mineral, raw material and biological resources, region-forming role of power industry, transport and hydraulic structures, identification of territories of priority development (all of the above is, in fact the preparation of a new GOELRO Plan along with the identification of a number of key regional scientific and industrial complexes viewed as the units of targeted program-based planning);

— At the level of the subject of the Russian Federation: Functional zoning of the territory, optimization of infrastructure networks, natural and economic regionalization, balances of availability and utilization of general use resources, activities in the area of rational environmental management and environmental protection;

— At the municipal level: Overcoming the contradictions in the relations of land use and housing and communal services, reflecting the increasing role of self-government, supporting public initiatives, establishing the norms of social, economic and environmental behavior.

Conclusion

Amid the very unwise reforming of the Russian Academy of Sciences, the research programs and projects in the area of fundamental problems of Russia’s development may remain unrealized. But it is advisable to preserve the cooperation between the different science branches, as it was the case of spatial and territorial development discussed in this article. The benefits of interdisciplinary collaboration can be traced even in the relatively simple example of self-determination made by a researcher with regard to such very common terms and concepts as Space, Territory, Spatial and Territorial Development. Everyone can adopt his/her own position towards their definition. However, it is necessary to consider the common and specific in the interrelated (overlapping) processes. It is not only the matter of theoretic and methodological requirements, but also the issue of practical organization of strategic planning for socio-economic development of Russia and its regions.

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