

DEVELOPMENT STRATEGY

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The North of Russia: distribution of productive forces and space development *

Following the theoretical standpoints by the academician A.G. Granberg, the author considers the main problem of space development in association with the distribution of productive forces. Each of three positions of the North area (circumpolar, latitudinal and meridian) brings up to date some certain aspects of regional politics, notably its arctic vector, regulation of norms and standards of social and production activity, strengthening of integration in the line of “North – South” in order to form a full-blooded Russian market.

Productive forces, social and economic field, economic and geographic projection of the North, interconnection between mineral and raw material and scientific-technical territorial complexes, real and artificial systemacy in the regional policy.



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Introduction

The economists and the economic geographers digress from the themes of development and distribution of productive forces by mistake. In many opinions, the scientific category “productive forces” is typical for Marxist political economy only. It seems that this position is a consequence of exaggerated market thinking when in the forefront one put the factors and conditions of some certain production, the single corporation (firm) most often, not the factors and conditions of social development on the whole. However one should admit – this

category looked a defective one even for the years of planned economy. The general plans of development and distribution of productive forces dated to 1960 – 1980 dealt with Production generally, Economy – less, and Productive forces – least.

At that time the statistics and calculation data touched upon the volume of production, employment number, capital assets capacity, transport capacity and the whole set of information on social infrastructure. The essence of the productive forces as means of transformation of natural thing into social one and as unity

* The basis of the article is the author’s report at the 14th Congress of the Russian Geographic society. The article is written within the framework of the RAS Program “Fundamental problems of area development of Russia: interdisciplinary synthesis”.

of objective and subjective aspects of labour connected by end-to-end technological systems was out of sight. Even well-studied and practically realized social forms of production organization (concentration, specialization, combining, cooperation, integration) were examined rather superficially in the distribution plans and it was step backwards in comparison with the Plan by the State Commission on electrification of Russia. These forms as main source of Society Power had a great importance from the theoretical point of view. But in practice of economic planning it didn't find its proper reflection.

As far back as in 1940-s N.N. Kolosovskiy proved that the productive forces have social and territorial character [2]. In his opinion, the concept "productive forces" can be applied without contradictions only to rather large territories, as they say today, – economically self-sufficient ones. In Russia these are large (main) economical districts (LED) in Russia and not the present subjects of the Federation. At the present time the LED are replaced (it's uncertain for how long) by the federal okrugs. They became account-and-statistical units and organizations in the regions ruled by the president. Their authorities might have a perspective to be expanded in relation to social and economic development. On certain conditions it can be regarded as legitimate.

The above said directly concerns our theme. The North zone, picturesquely speaking, has no its own productive forces in the social and territorial measuring, it has only some separate elements. The North is neither an economic system nor a business entity. From the space point of view it belongs to some more organized thing.

It is necessary to stress that the themes of space development themselves which includes the problems of distribution of productive forces have assumed a fundamental character due to efforts and scientific and organizational activity by Granberg Alexandr Grigoryevich. It was he who managed to work out methodology and methods of economic and mathematical calculations of results of economic activity according to their

apportionment in space by macro-, meso- and microstructures. Under the direction of A.G. Granberg some optimization intersectoral and inter-district models were created and are used in the strategic planning and it made it possible to close the theory of social geography and regional economics to the practice of territorial structure of our country. It looked like he enlivened the formal geographic constructions and filled them with the dynamic of development, rhythms and modes of operation. Alexnadr Grigoryevich paid attention to the rise in value of global geostructures such as "continent-ocean" and all the rest including land area, water area and air area simultaneously in proper time. He made an attempt to give a methodological base for the opportunity for interdisciplinary synthesis of large size – from geology and astrophysics to history and ethno-culture.

As a first approximation *the space development* can be interpreted as progressive changes in the development and distribution of productive forces, in the population settlement, in the development and reproduction of the natural resources, the preservation and provision of the life activity environment. These changes are agreed at the level of world, national, regional and local social and power-holding structures. The progress is reached on the basis of stable development principles, the main ones are *energy economic efficiency, social justice and environmental safety*.

Actualization of "space development" is determined by intensification of the interconnection between nature and society and, respectively, elevation of the importance of interdisciplinary synthesis. The subject of scientific research becomes geologic, geophysics, hydrological, biological, air, technological, economic, social, political and other spheres. The integration of knowledge on various spheres as collective conditions of life activity is supposed to give additional materials to solve the problems of social development.

As for social and economic sphere the concept "space" is defined concretely in some certain social processes: the development of land area, water area and air area, making the

populated universe habitable, production distribution, population settlement, improvement of economic and geographical situation of districts and towns. The overcoming of distances, coupling of center and periphery, making the configuration of economies and safeguarded landscapes etc. make sense from the economic point of view. Space is appraised as welfare and it is commensurate with other material and spiritual values. The economic science more often uses such categories as “integrated market space”, “privatized space”, “spatial behaviour”, “economic density”, “economic function of the locality”, “social function of geographical environment” and others. Here the general philosophical interpretation of the space – a form of the matter, structural properties and spread of material systems – gains perfectly a constructive species when one can speak about space planning.

The problems of space development are urgent for all countries, especially for Russia. Its large size and Eurasian situation determine the necessity to connect both the problems of inside system and the problems of interstate relations.

The northern situation is of special meaning for Russia: 11 out of 17 mill. sq km (64.7%) are the districts of the Extreme North and the areas equated to the districts of the Extreme North. Almost 80% of the mineral and raw material potential of Russia, vast zone of boreal forests (5.5 mill. sq km) and other important natural resources are concentrated here. They give a positive rent, due to which about 70% of gold-exchange reserves of our country are formed. The negative rent is connected with other characteristics: low air temperature, long winter, low radiation balance, wide spread of frozen subsoil, weak development, localized population settlement, long distances and high transport costs. The northern territories as a reserve factor of world community development are of great importance. It determines the suitability of their normative distribution taking into account the ethnological, natural-and-resource and ecological functions.

The guideline of science and regional policy is not only development of natural resources of the North, but also civilized exploration of the territories with the established historical and cultural “centers” (i.e. the focuses of population settlement).

From the standpoint of space development the beginning positions of the North research are also the diversity of the north territories, wide range when estimating their place and role in the internal Russian and world economy. The North is neither an economic system nor an economic entity. The northern and arctic territories are taken as a comprehensive whole only relative to their cold climate, natural-and-resource richness and ethnical peculiarities. As for all the rest attitudes they are different. In the physical and geographical dimension – many latitudinal zones, azonality of mountain territories, solid and localized frozen ground, relict landscapes etc. In the geo-political dimension – national community belonging of the northern territories. In the economic and geographical dimension – different degree of development and exploration of the northern areas, considerable spread of norms and standards of economic activity, mosaic structure of production distribution and population settlement and others.

Under these conditions the system approach to the North study is possible in the whole only when putting some certain elements of artificiality in it, i.e. the point is not actual things but artificial systems. The latter are three projections: circumpolar, latitudinal and meridional.

The circumpolar projection

The Arctic is usually represented like this in the system of the world and national economics and geo-politics.

To the definite degree it presents the positions of Russia advantageously to the part of territory (34.1%), population (48.9%) and volume of gross product (66.7%) (*tab. 1*).

The circumpolar projection of the Arctic space is interesting from another important aspect. Above we showed that if the minerals of the continental North needs to have closer link with national economy for formation of

Table 1. Territory, population and gross product of the Arctic
(the US dollars – purchasing power parity (PPP) in 2002 – 2003)

Country/district of the Arctic	Square		Population		Gross product	
	Thousand sq km	%	Thousand people	%	mill. dollars	%
Total	12575.0	100.0	4058.0	100.0	230.1	100
The USA: Alaska	1516.0	12.1	648.2	16.0	28.6	12.4
Canada: the arctic districts	4191.0	33.3	130.3	3.2	4.3	1.9
Denmark: Greenland	2176.0	17.3	56.7	1.4	1.0	0.4
Iceland	103.0	0.8	288.5	7.1	8.1	3.5
Denmark: the Faeroe Islands	1.0	0.008	47.7	1.2	1.1	0.5
Norway: the arctic districts	107.0	0.9	462.7	11.4	10.2	4.4
Sweden: the arctic districts	99.0	0.8	253.6	6.2	11.0	4.9
Finland: the arctic districts	93.0	0.7	187.8	4.6	12.2	5.3
Russia: the arctic districts	4289.0	34.1	1982.5	48.9	153.6	66.7

Source: The report on the human development in the Arctic: translation from English / ed. A.V. Golovnev. – Ekaterinburg – Salekhard, 2007. – Pp. 27, 70.

full-blooded all-Russian market [5] it should be followed by displacement of external economic connections in the part of the fuel-and-energy and other mineral and raw material resources to the Arctic. The natural conditions are so complicated here and the resource is so large-scale that it certainly needs for wide international cooperation but along with mobilization of the Russian scientific and technical potential and with establishment of legal economic order defending the interests of the country. The Arctic and the management – a problem that G.P. Luzin and his colleagues paid a special attention at [8].

It is necessary to pay attention also at the original interpretation of the Arctic as a new center of human collaboration. A.N. Pilyasov considers that the world cooperation with the common features of economic behavior will be formed around the Arctic Ocean as it took place around the Mediterranean Sea some time [9].

The Arctic vector of national economy certainly has a great influence on the productive forces distribution. If one estimates approximately in the minimum volume the investments in the current economic projects at 150 milliard the USA dollars and the term of their realization at 10 years, it can be 15% out of the investment potential of the North-West federal okrug, 10% – The Ural okrug, 10% – the Siberian okrug and 26% – the Far East okrug. The developed regions will demand a con-

struction of new production bases as well as technical means and technological complexes adapted for the Arctic conditions. Thereupon one should notice that the idea of competition between the towns and districts concerning the service of the arctic projects isn't important for a while. For example, it is impossible to contrast Arkhangelsk with Murmansk. The former is supposedly a winner in the arctic vector of economy. No, it isn't so. Here it is important to specialize to definite technological directions taking into account the advantages of economic and geographical situation of concrete production bases not only the ones of Arkhangelsk and Murmansk but also some other towns.

The latitudinal projection

So far the formation of territorial structure of Russia's economy was generally connected with the theory of economic zoning and the models of program target territorial and production complexes; at less – with the idea of transport and production structures and development tracks; by a negligible margin – with the latitudinal organization of economy (like physiographic zoning). The scientific explanation of the processes of study, development and exploration of the northern territories showed an equal worth of the mentioned approaches.

The latitudinal social and economic zoning in Russia was carried out at the beginning of

Table 2. The social and economic indices of the north situation (the central part of Russia = 100%)

Indices	The Arctic	The Far North	The Middle North	The Near North
Norm of physiological indices in the energy and food materials	130.0	115.0	110.0	105.0
Norm of clothes sets, %	High quality fur	Short fur coats	Clothes with heat-insulating layer	Clothes with moderate heat insulation
Optimal period length, by days	365.0	350.0	250.0	225.0
Region coefficients and long-service bonus (total maximum value), %	N/d	370.0	220.0	170.0
Pension age, years old:				
male (in Russia 60 years old)	55.0	55.0	55.0	55.0
female (in Russia 55 years old)	50.0	50.0	50.0	50.0
Additional leave, days	More than 24	24.0	24.0	16.0
Actual days for open air workers, by % of days lost (according to the facts in the Komi Republic)	35.0	20.0	13.0	5.0

Table 3. The production and economic indices of the north situation (the central part of Russia = 100%)

Indices	The Arctic	The Far North	The Middle North	The Near North
Rise in the cost of construction-and-assembling operations*:				
centre	Not fixed in the documents	183.0	156.0	143.0
periphery		250.0	182.0	163.0
Coefficients against the norms of construction period	more than 2.0	2.0	1.7	1.4
Season stock of retail commodities, by days**	220.0	180.0	117.0	90.0
* T.E. Dmitrieva's calculations [1].				
** Some of the examples taken from the northern territories (in the central part of Russia – 30–35 days).				

1990-s under scientific supervision of G.P. Luzin who gave full characteristics of geographic, climatic and medical-and-biological conditions of life [11]. At present there are four northern zones of discomfort: the Arctic (absolutely discomfort, extremely unfavourable), the Subarctic (extremely discomfort, very unfavourable), the zone equated to the districts of the Extreme North (discomfort, moderate unfavourable), the zone equated to the districts of the North (relatively discomfort, relatively favourable). We believe that it is possible to nominate the northern zones not only in the scientific studies but also in the official documents in the following way: the Arctic, the Far North, the Middle North and the Near North.

The most important social and economic problems for the Arctic and the Far North are unsatisfactory condition of social mediums of smaller peoples and difficulties in the organization of expeditionary, shift and district methods of development of natural resources; for the

Middle North – strategic uncertainty when forming the support production and trading bases as well as the centers for training of experienced personnel for the whole Northern zone; for the Near North and to a definite degree for the pre-northern regions – difficulties when performing the functions of natural and historical functions – to be a new springboard for distribution of processing industry on the basis of both the raw materials of the northern territories and the innovation technologies created in our country and abroad. Taking into account only the ecological factor of distribution of productive forces one can make a conclusion about the inevitable promotion into the zone of the Near North. It also may be a reference to the electronic industry being close to clean air. The example is distribution of the Nokia factories in Oulu, in the north of Finland.

When measuring the northern situation in the latitudinal aspect the starting point is norms, standards and different kinds of correction coef-

ficients. Their social content is connected with the recovery of incremental expenses for life conditions (*tab. 2*); production and economic content – with the costs and their optimization for construction and functioning of the capital assets and the service of capital turnover (*tab. 3*). The geographic expertise is of great importance here, its scientific foundations were created by K.P. Kosmachyov [3] and T.E. Dmintrieva [1; 4].

The meridional projection

To our mind, it is necessary to mark out the meridional mega-structures especially, since they determine the perspective position of the North in the distribution of productive forces of Russia. They are taken as a result of natural and historical movement towards “South-North”.

One can see at the economic map of Russia that when organizing its space the intersections of the latitudinal railroads with big rivers of meridional direction, the northern and the Pacific Ocean sea ways are of great importance. The intersection points are profitable for placement of both the enterprises of all-Russian value and the enterprises with the North development focus. Such construction of the space will be strengthened by the construction of new main railroads, first of all – the North Siberian one, and by the modernization of the present ones – the Trans-Siberian Railroad and the Baykal-Amur Railroad. The North seaway recovery program fits in it well. The program makes it possible to develop new territories in the direction “North-South” [12]. The combination of railway and water ways is complemented by the construction of highways of latitudinal and meridional direction and in some places – by new railroads connecting the southern and northern territories. “Belkomur” is of great importance in the European Russia, the Amur-and-Yakut railroad – in the Asian part of Russia.

Such mega-structures of meridional direction as the Pacific, the Lena, the Yenisei, the Ob'-and-Irtysh, the Eastern Ural, the Western Ural and the Barents-and-Baltic structures can be very important in the integration of space of Russia. They are marked out not to be a classic economic districting but to actualize the prob-

lems of development of transport and production framework of Russia and improvement of territorial structure of economy. They are the problems of development of large Russian river navigation, the Pacific Ocean and the North seaway navigation taking into account new institutional organization of economy in the sphere of transport and new approaches to distribution of productive forces in the pre-northern and near-northern zones with the aim of ecological relief of base industrial belt of Russia.

The example of the Western Ural “meridian” (from the Pechora basin to the Caspian Sea) shows that its separation is joined with new economic matters: the northern orientation of the industrial Urals, the Komi Republic and the Perm territory development balanced by resources and ecological capacity, the optimization of territorial and production structure of oil and gas economy sector (from Naryan-Mar to Orenburg), the development of transport network from the North to the South and others.

The integration within the mentioned meridional structures is somewhat a counterbalance to disruption of Russia's space and distribution of its separate parts in the world political and economic blocks [6]. To strengthen the integration of such direction is a subject of common state policy as well as a function of four federal okrugs: the North-West, the Urals, the Siberian and the Far East ones. It is their structure where the North is represented as a considerable part, especially as for the square and gross regional product (*tab. 4*).

All target programs of the federal and okrug scale consider the northern territories specifically, for example, concerning the scientific-and-technical, social and ecological problems.

The interdependent formation of territorial complexes: mineral-and-raw material and scientific-and-technological ones

A significant part in the organization of the space development belongs to the theory of growth poles (J.-R. Budvil, F. Perru, L. Daven and others). It is based on the agglomeration effects and innovation diffusion (G. Hagerstrand). The theory wasn't recognized for a long

Table 4. The North in the territorial and economic structure of Russia and its federal districts (in a nominal way)

The RF and federal okrugs	Territory		Population, as of 01.01.2009		Gross regional product (the year of 2007)	
	million q km	%	thousand people	%	milliards rubles	%
The Russian FD	17.10	100.0	141904.0	100.0	28254.8	100.0
including the North	10.7	62.6	9834.0	7.2	4556.0	16.1
The North-West FD	1.69	100.0	13462.0	100.0	2788.3	100.0
including the North	1.33	78.7	3750.0	27.9	826.0	30.0
The Urals FD	1.82	100.0	12255.0	100.0	4276.0	100.0
including the North	1.50	82.4	2414.0	19.7	2600.0	60.8
The Siberian FD	5.15	100.0	19545.0	100.0	3027.5	100.0
including the North	2.44	47.4	1100.0	5.6	380.0	12.5
The Far East FD	6.17	100.0	6460.0	100.0	1292.0	100.0
including the North	5.25	85.1	2570.0	39.8	750.0	58.0

* The areas of the Extreme North and the areas equated to them.

time in Russia. It was contrasted with the principle of even distribution of productive forces and equalization of levels of large economic district development. As a result both positions (the European one and the Russian one) were subject to serious scientific criticism since they unfairly claimed to be universal.

At present the problem of distribution of Russia's productive forces is represented the most clearly in two directions.

The first one is formation of mineral-and-raw-material complexes. The most part of them is situated in the north of the country. This direction is connected with faster development of geology, geological technologies and recovery of geological exploration as a large sector of economy [7].

The second direction is formation of large urban agglomerations and innovation scientific-and-technological complexes. The strategic plans on Russia' development include a creation of some large technology towns specializing on "breakthrough" technologies and innovation products. One has made an attempt to bring them out specifically within the areas of Vladivostok – Khabarovsk, Novosibirsk – Tomsk – Krasnoyarsk, Yekaterinburg – Chelyabinsk, Samara – Kazan, Rostov-na-Donu – Krasnodar, Moscow – the Moscow oblast (the example – Skolkovo), St. Petersburg – the Leningrad oblast'.

The Department of regional development of the RF believes that formation of the mentioned structures is its principal task. "Concept of the long-term social and economic development of the RF" (the variant by the Department of economic development of the RF approved by the Russian Government in 2008) includes this area too but it has some more detailed network of territorial and production clusters.

In this case the key issue for the northern regions is the following – aren't they intended for the role of extensive, traditionally raw material development for the sake of intensification and modernization of the mentioned production and technological complexes?

It might happen under the limited human and financial resources. So, along with the plans on formation of large technology towns within the base spatial framework of Russia, it is necessary to declare appropriateness and efficiency of the resource-and-innovation development of the northern periphery having its own scientific-and technological clusters and "growth poles" coinciding with the mentioned mineral-and-raw-material complexes from the territory point of view.

It is possible on the basis of high technologies in the field of energy sector and power saving, mining operations and processing (geological technology), liquid synthetic fuel generating from coals, adsorbent production,

complex use of paraffin, ethane, butane, propane, stink damp and organizing the production of polyvinyl chloride, plastic material, gas sulphur and other products on this basis. It is promising to produce different kinds of ceramics, stone casting, to output basalt and optical fiber and synthesized crystals. Biotechnology and dendrochemistry can be a safe basis for social and economic development of taiga territories [12].

There is no doubt that higher level of technological development of natural and resource sector of economy and diversification of production structure will play a positive part in preservation of the North not only as energetic and raw materials base but also as specific life space for local population.

The economic profit of space integration and the north production experience as its additional condition

The scientific explanation of the laws of geographic division of labour and distribution of productive forces made it possible to interpret the integration as a final stage of all other forms of social organization of economy: concentration, specialization, combination and cooperation. The theory recommends the practice to understand the meaning of objective preconditions for the integration, they are the following: as the development of productive forces progresses some sectors lose the opportunity to focus only at the optimal variants of production distribution; it is getting to be impossible to conduct the isolated placement of the separate enterprises as well as the isolated planning of some regions development [10].

The integration doesn't go on its own account but as a result of target activity with the help of special institutions and particular methods of economy regulation, for example, of coordination and stimulation. The mutual interest of the enterprises and the regions is to obtain a synergetic effect of common activity.

Only the noncontradictory sequence of integration is useful for practice: first – vertical link on the technological basis, then – its hori-

zontal adjustment according to the opportunities of territories' potential consolidation for solving the common economic tasks, and further – working out some joint projects.

On the basis of this explanation the northern and the Arctic resources are necessary to be included the through technological chains over the whole all-Russian space according the geographical peculiarities of latitudinal and meridional mega-structures. It touches not only the main mining and processing industries but also the science, the methods of construction on the frozen grounds, the northern fishing, hunting, farming and raising vegetables under glass, shift development of natural resources, building and operating the winter highways (snow roads), working out and mastering the equipment for winter conditions, winter clothes and footwear etc. The things that are studied and made special for the North can be used in other places efficiently, first of all, in the eastern regions of the country and pre-northern western ones: the Perm' territory, the Kirov, Kostroma, Yaroslavl', Vologda, Tver', Novgorod, Pskov and Leningrad oblasts.

A special position is taken by the interrelation in the field of human population. The pre-northern neighbors are more adapted than the southern regions for settlement and dwelling of the northern migrants. It has been proved by many years' experience and the recommendations of doctors and physiologists who consider that it is not reasonable to change the climatic life conditions dramatically when moving. On the other part, the same regions must be base ones when training the personnel for the North.

Conclusion

The certain northern and arctic territory can obtain some additional impulse of its development if it is examined in different space systems: circumpolar, latitudinal and meridional ones. The distribution of productive forces in the North of Russia will be conditioned in future by not only natural resources of the world and national importance but also formation of infrastructure in the shape of "lattice", i.e.

intersection of latitudinal land ways with large rivers running from the south to the north. Buildup in the existing transport and production framework of Russia with new northern elements is a necessary condition for the integration of its economic space and the formation of full-blooded domestic market.

As for methodology one can make a conclusion that sometimes it is reasonable to use the

method of “artificial systemacy” in geography and regional policy. In the North only local, more seldom, regional economic systems are real ones. But that is not enough for understanding of some common principles and strategic directions of productive forces distribution and legal regulation of social and economic processes. So some special well-thought-out space constructions are necessary.

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