

V. N. Lazhentsev

NORTH HARDSHIP CONDITIONS RATING IN RESEARCH WORKS AND REGIONAL POLICY (ON EXAMPLES OF THE REGIONS RELATED TO RESOURCES)¹

The influence of peculiar features of the North and the Arctic on formation of scope of research works and the directions of regional policy is shown. The assessment of cold (climatic discomfort, permafrost, etc.), periferieness, high natural and resource potential, ethnicity is directed on the studying of traditional problems of demography, the organization of the relations between corporations and territories, the tax and budgetary providing. The problem of choice of measurement techniques of level of economic and social condition is especially allocated. The attempt to coordinate raw specialization of the northern and the arctic regions with the solution of strategic problems of their sustainable development is made.

Keywords: science, North, regional policy, social and economic relations, natural and resource potential, sustainable development

Northern factor in subject matter of research works

Why the North (including the Arctic) is allocated as the special object of science, world, national and regional policy? Because it is of the utmost importance in all respects of activity of the Planet Earth, primarily it has value in the aspects such as climatic, biomedical, natural and resource, ethnocultural ones. Some other natural zones and areas of

the Earth are also specific, and, therefore, are considered particularly in geography, medicine, ecology and economics. It applies to deserts, steppes, the tropics, the Antarctic continent. However for Russia the most signify is the North as it as a whole is mainly a northern country.

The science of Russia, especially academic, is historically closely connected to the North. Now here are nine centers of the Russian Academies of Sciences that effectively function, they include 48 Research Studies Institutes; 74 research organizations are related to branches. The basic Centers of Sciences in Moscow, St. Petersburg, Yekaterinburg, Novosibirsk, Krasnoyarsk, Irkutsk, Chita, Khabarovsk, Vladivostok also carry out investigation of problems of the North which profile is expounded in L. E. Mendeli's work [16].

¹ This article was prepared in the framework of the Program of Presidium of the Russian Academy of Sciences №31, "The role of regional space in modernization of Russia: natural and socioeconomic potential" and integration project of basic research at the Ural Branch of the Russian Academy of Sciences «Instruments and mechanisms for the implementation of socioeconomic policy of the Northern territories» №12-I-2070.

Table 1

Location of the organizations that carry out scientific researches and development in regions of the North of Russia [by 22, pages 784-787]

Regions	Number of the organizations concerned in researches			Number of the organizations		
	2000	2009	Dynamics, %	2000	2009	Dynamics, %
Republic of Karelia	1307	907	69,4	11	16	145,5
Republic of Komi	2170	1889	87,1	17	22	129,4
Arkhangelsk Region	1316	1473	111,9	21	33	157,1
Murmansk Region	2765	2057	74,4	32	24	75,0
Tyumen Region	4935	6923	140,3	58	50	86,2
Republic of Altai	90	156	173,3	4	9	225,0
Republic of Tyva	285	425	149,1	18	13	72,2
Krasnoyarsk Territory (north)*	7300	-	-	3	-	-
The Republic of Sakha (Yakutia)	2662	2258	84,8	24	22	91,7
Kamchatka Krai	993	1207	121,6	16	15	93,8
Khabarovsk Territory (north)*	1100	-	-	3	-	-
Magadan Region	567	566	100,0	8	7	87,5
Sakhalin Region	912	794	87,1	11	15	136,4
Chukot Autonomous Area	58	36	62,1	2	2	100,0

* data for 2004

The scientific potential of the North, despite negative dynamics on a number of regions, in numerical computation remains to relatively high (tab. 1). However, it is necessary to consider that basic researches are carried out generally at the academic institutes, which part compile no more than 10% of the total number of the organizations, leading research works, as the statistics considers.

The Earth science, ecology and physiology, technology of receiving and processing of mineral and plant raw materials, history and archeology, ethnography, geography and regional economy, sociology are priority sciences on the North.

The situation on introduction of research work results into practice is estimated here critically, but; nevertheless, the regional policy regarding the North detect some achievements of a science, as a rule, regarding correction of socioeconomic and production norms and standards [10]. The assessment of the north factor is present in indicators of physiological requirements for energy and food substances, in the selection of sets of clothes, in calculations of duration of the heating period, regional and qualifying period for extra charges to salary, in additional holidays and the nonworking days by reason of weather conditions, in a decrease for five and more years of age of retirement. To the indicators of engineering and manufacturing character, which are subject to northern adjustment, factors of rise in price of installation and construction works,

standards of duration of construction, the norm of amortization, terms of seasonal stocks of the goods are referred. The north factor is present in technical standards and mountain control, construction norms and rules, in pricing, «northern delivery» and seasonal crediting, ecological insurance and the social help.

Listed are the subject of the economical and geographical examination it methodology (with synthesis of experience of economic activity in areas with a difficult and extreme environment) is developed by K. P. Kosmachev [6] and T. E. Dmitriyeva [1]. Expertology in their handling covers not only threshold values of economic indicators, but also concepts of activity (for example a grubbing, distant-pasture cattle tending, special-shift work, pioneer and wave development, a northwarding, etc.). The study carried out by Institute of Geography of the Russian Academy of Sciences and Institute of economic problems of Kola Peninsula's research center of the Russian Academy of Science regarding the measurement and interface of climate indicators, geographical position and social conditions for zoning of level of discomfort of life is reputed as an expert and logic-based («expertological»). [21]. Reassessment of standard indicators of the North factor was not carried out for a long time; therefore, their reliability is opened to question, and the key point — understanding the needs for it on the part of general government and parties of market economy.

Table 2

Projects of basic researches «Arctic» at the Ural Branch of the Russian Academy of Sciences (2012)

Lines of researches	Number of projects	Accountable factors and conditions of Arctic
Reliability of engineering systems, nondestructive control methods	12	Low temperatures of air, permanent frost, complicated ice situation, geomagnetic activity
Construction of electric-chemical generators, getting of hydrogen-bearing gases and composites	3	Low temperatures of air, grade of natural materials
Sustainable development of geologic systems and protection of environment	17	Qualities of tundra, forest tundra, northern Taiga
Formation and reproduction of natural-resources potential	8	Permanent frost, bogginess, saturation of resources
Preservation of historical heritage, ethnoculture development, optimization of demographic and social structure, development and settlement	11	Climatic discomfort, economic remoteness, ethnicity and social stratification

Goal-directed production of scientific knowledge and innovative technologies is necessary for management practice «under the North». Notice, that favorable undertaking in this direction in the 1970–1980th by the State Committee of the USSR for science and equipment, in the early nineties by the Federal Committee of the Russian Federation for the North, remained incomplete. Certainly, it is necessary to note the significant organizational and analytical work of field-specific (northern) committees of the Federation Council and the State Duma, specializing on northern issue of structural divisions of the Ministry of economic development and the Ministries of regional development of the Russian Federation, but they are not the administrative centers and operate indirectly through a set of other management structures.

The precondition for increasing of northern policy is the actualization of the Arctic subject. Thus wise, the Ural Branch of the Russian Academy of Sciences created the list of projects (tab. 2) of fundamental researches the «Arctic» accepted to financing, since 2012. Projects of all institutes of branch (51 project) have passed the competition.

The main method for realization of these projects — application of fundamental knowledge in the solution of scientific-technical and socioeconomic problems in respect of their particular qualities of solution in environments such as low temperatures, the permafrost, a difficult ice situation, activity of geomagnetic fields, low assimilation ability of biogeocenosis, a lack of ultraviolet, ecological functions of geosystems, polyethnic of the population, relatively high specific production and transport expenses. The task consists in the modification standard tools and technologies, including social, to positive, but also — mainly — to negative characteristics of the listed environments.

However, it would be necessary to consider the possibility to entertain and estimate the Arctic conditions, in order that their effect on the statement of the problem of entirely new (searching) subjects enriching the maintenance of this or that branch of knowledge.

As a result, the Ural Branch of the Russian Academy of Sciences will receive more than 50 results of Research works «Arctic», «worthy for practice». However, there is an open-ended question, into what method of norms and rules of design, construction, operation, production and transport, social and ecological services, environmental protections it is necessary to coordinate the received results. The North yet has no such system. It does not mean that it is obligatorily necessary to restore distinctive northern authority, but it assumes the system organization of the conceptual and normative mechanism for regulating economic activity in the North, including within the state system of standards.

Formation of the Arctic subject once again confirmed the need of development of methodology for transferring fundamental knowledge to applied results and then to practice. Attempt of the author to coordinate these three levels of activity through their organizations and agreement technology develop into only designing of schemes of orientation, but not into algorithms [7]. Even more difficult the methodology of interdisciplinary researches is represented. It covering coordination of levels of knowledge and actions, results and methods of different sciences and different practices as it is required for the North. More all difficulties meet in the main sign of an interdisciplinary, namely — to transfer the methods of researches from one scientific discipline to another. Besides, it is not always possible to «divide» poly-, trans- and interdiscipli-

nary, apparently, in the absence of the subjective reasons inducing to such division.

A question of the essence of northern problems represents interest. In the North, it is possible to investigate everything, but it at all does not mean that the North as a special object of the material and inner world is studied. Value of planetary dimension of the Arctic Ocean, the tundra and taiga is limited to their role in formation of Earth climate; in many other aspects, the North factor is shown only at regional and local levels. However, the original hypothesis was formulated by A. N. Pilyasov: round the Arctic Ocean as once round the Mediterranean Sea, the international and interstate civilization capable to self-regulation as uniform social system [18] will be created. It can be considered, but real actions while should be commensurate with geographical scales of separate north regions. Doubtfully it is possible to distribute on all North of the strategy assuming restriction of its mission by nonmilitary, noneconomic and noncommercial interests [12].

If to take into consideration an order of placement of research institutes in the North, we will see that it is set by requirements of formation of specific economic complexes: Karelian — Kola, Dvino — Pechora, Ob — Irtysh, Yenisei, Northeast, Sakhalin; and the large (basic) centers are focused on studying of productive forces such vast regions as the Northwest, the Urals, Siberia, the Far East.

In regions of this country, and especially — in the more north ones, the science from the exact beginning has been growing up from the need of the solution the practical tasks, such as justification the strategy of exploitation of natural resources, formation new production complexes, overcoming climatic and geographical discomfort, preservation and optimum dynamics the population, et cetera.

Acquaintance with subject and type of work of separate scientific centers and institutes of the North allows to estimate the stages and high-quality development of complex regional researches: from inventory to an economic and technological assessment of natural and resource, labor potentials and then to substantiation the large economic projects; from systematization an empirical, scientific and analytical material — to working out of the theory and methodology of studying the regularities of formation and development territorial and economic systems. It may be said of institutes specializing on economic perspective that they have stored experience of the statistical and techno-economic analysis «under specific projects», gradually have mastered the methodology and order-

ing methods of the solution applied tasks with generalizations of theoretical character [8].

Therefore, specification of the northern subjects, including Arctic, occurs within separate sciences and starts from the logic of their development and the possibilities of expansion the research objects by inclusion into them the procedures of estimation the influence of difficult and extreme climatic conditions on investigated objects and processes. The regional policy concerning the North is aimed not only at the territorial isolation of separate objects and processes, but also at the «through» accounting of northern specifics in all types of activities such as scientific-technical, economic and social ones. While, the certain northern territories deserve particular attention as specific (complex) objects of the material and the inner world.

Subject matter of northern policy

The principles and stances of the state policy in the North. In the development of the state policy, the following is basic: priority of public interests and national security; rational environmental management; equation of income and expenses on levels of budgets; compensation of the income half-received by northern areas; the state protectionism — protection of producers and the Northern population, that necessary because of their weak adaptation to a market economy; the account and fixing in the all-Russian economic and social legislation of the northern region specifics; applying the special-purpose program of the solution of the main economic problems.

The following directions of northern policy are universally acknowledged: economy restructuring on the basis of use the natural and other resources including the market conditions, new social and ecological demands; expansion of financial potential by fixing the standards designated part of the income from the use of natural resources, creations the mechanisms of stabilization of financial support to the northern territories; regulation the composition of the population and labor markets; reforming the existing system of northern guarantees; creation the effective system support of the certain small nations, including the sphere of traditional life support and employment expansion in the state and market sectors; improvement the mechanism of delivery cargoes to inaccessible northern regions; scientific and technical development; ensuring research, military-political and economic functions of Arctic and restoration the Northern sea way.

Table 3

The share of plunder of «extractable resources» in tax receipts, charges and other compulsory payments paid in the Komi Republic into the budgetary system of the Russian Federation, %

Budgetary system	2005	2006	2007	2008	2009	2010	2011
The Russian Federation	60	67	60	68	51	51	56
Which includes Republic of Komi	5	5	5	6	3	1	1

Table 4

Ratio federal and regional parts in the total amount of in tax receipts, charges and other compulsory payments in the consolidated budget of the Russian Federation for it northern subjects (selectively), in %

Region	2005		2010	
	federal part	regional part	federal part	regional part
Republic of Komi	65,7	34,3	52,5	47,5
The Murmansk Region	30,8	69,2	12,8	87,2
Khanty-Mansi Autonomous Okrug — Yugra	51,1	48,9	84,0	16,0
Kamchatka Krai	31,9	68,1	14,2	85,8

It ought to be noted the value of the local population support principle according to which it should have the benefit from resources mastering, to be protected from possible damage and receive compensations for the damage. It received scientific basis in the foreign North from the middle of the XX century. Practical implementation of this principle has been expressed in recognition of the historical rights of indigenous people on lands, resources, self-government and achievement of arrangements on territorial claims of these nations. In the Russian practice, the protectionism principle concerning indigenous people's life activity and who live there for a long time «longstanding» community, only have started to be applied. Still indigenous people of the North and Russian «longstanding» communities were not considered as the partners having inalienable rights to lands, resources and self-government by the authorities. Meanwhile, key factors of their sustainable social and economic development consist in it [14, 15, 24].

Traditional subject matter. The most attention is paid to the problems of demographic dynamics at the present time; to interaction of corporations, regional governments and municipalities; to the tax and budgetary relations. We have shown that in the northern regions is essential to pursue not only the resettlement policy, but (as countrywide) to solve problems of birth rate growth and decrease mortality; emphasized, that not natural resources, but the organizing role of production companies is a motive power of territorial development, especially regarding achievement of good value of big, medium and small businesses on the subcontract basis; the disproportion of budgets in northern regions, of their role in the financial resources formation of the country [10] is revealed.

This paper once again gives examples of the specified disproportion with emphases on the income distribution from mining operations on the budgetary system levels.¹

The distribution of natural and resource payments in the budgetary system in particular influences on ratio of federal and regional parts in it (tab. 4). That was characteristic for the 1990th, even more amplifies in 2000–2010, namely: the federal authority chooses for itself easily collected taxes (for example, a tax on mining operations and payments — the customs duty, excises, etc.), that is the functioning of economy not directly connected with efficiency. Ensuring such communication is though delegated to the regional governments and municipalities. But the system of incentives to increase the economic activity for the general welfare sake of the population at this level of public administration is not created yet.

Assessment of levels socio-economic development: The essential role in regional policy is the rating system. It is highly contradictory: when issue concerns the subventions and subsidies, then the regional governments are interested in the lowered positions and including into the group of the depressive or less developed regions; but if measure the level work of governments themselves, then opposite interest is brightly shown. While specified types of estimates have various missions and their own bases [13].

The regional policy is aimed at the creation of worthy living conditions first of all for the person, increases of its level and quality considering national, ethno-cultural, natural and other factors.

¹ The data calculated on materials of Territorial authority of Federal service of the state statistics on the Komi Republic are given in tab. 3 and 4.

Table 5

**Gross Regional Product as an indicator of level of an economic status of northern regions (selectively),
% to average data on the Russian Federation (2009)**

Region	Gross Regional Product per head	Gross Regional Product per one working in economy	Gross Regional Producer one working in economy in respect of sectoral structure of economy
Republic of Komi	126,9	123,9	108,5
The Murmansk Region	105,5	96,4	133,7
Khanty-Mansi Autonomous Okrug — Yugra	527,2	426,1	185,8
Kamchatka Krai	93,9	82,7	140,0

Thus, the economy is crucial as a base of social development. Assessment of economy levels in this case should be focused on the making the potential of social development, and in this plan the total value acquires the choice of authentic indicators.

«In November, 2009 leaders of the countries «Group of Twenty» at the summit in Pittsburgh made the statement about the need of methods development of measurement of social and economic processes, which should reflect social and ecological aspects of economic development more adequately». In this Report the indicator of an internal gross product (gross domestic product) is exposed to particular criticism, this indicator «in principle cannot characterize many aspects of welfare, does not reflect changes in environment, cannot be used for the analysis of sustainable economic development» [3. page 12]. Meanwhile in the Russian practice of rating estimates, the indicator of gross domestic product (gross regional product) continues to be the crucial. The question is not about refusing it as more or less correctly reflects the volume of economic activity, but originally it is necessary for transforming at least «under regional levels» and to exclude from an assessment of effectiveness of authorities activity. It is especially essential for northern regions where economy level (at orientation to gross regional product) almost fully depends on oil and gas production existence.

The first step in the veracity of the indicator, according to our reckoning, could be it calculation for one employed with account of specific (branch) structure. At first level define certain kind of activity in the region concerning its general condition in Russia, and then assess the resulting level of regional development by calculation of certain indicators on unit weight of the corresponding type of economy in the economy structure of a region.

Here is an example of some northern regions (tab. 5).¹

The accounting of a structural component makes a significant impact on an assessment of the state of the economy of the regions; it becomes more authentic and by that induces to an explanation of the reasons of the obvious distinctions in the use of methods of GRP as statistics. For example, in the Komi Republic a third of the added cost is the share of the mining giving a positive effect regarding employment, profit, taxes, in social development of labor collectives and territories. However, here the mining industry has a lower level than all-Russian, as in many other regions its volumes counting on one employed are more significant. Besides in Komi the falling of coal mining, oil and gas are not compensated by equivalent development of new fields. «Aging» an oil and gas complex of the Khanty-Mansi Autonomous Okrug — Yugra also serves as the reason of level lowering of a condition of its economy calculated in respect of the sectoral structure. The structural factor gives an increment of common regional level in Murmansk region at the expense of the fishery and processing of mineral raw materials, in Kamchatka Krai — generally based on the fishery.

It is necessary to modernize field-specific branches of an economy and to raise labor productivity (with coverage of all circle of the main, auxiliary and serving types of economic activity), it is perhaps, the only substantial conclusion which can be made of the provided analysis of gross regional product.

First of all, we will note that the second quinquennium (2006–2010) is less dynamic than the first one (2001–2005). Generally it is connected with the world financial crisis of 2008–2010, which through foreign trade also negatively affected on the northern regions. Demand has sharply decreased; the market of energy and mineral raw material resources has fallen. Capacities

¹ Tab. 5-8 are calculated on: Regions of Russia. Socioeconomic indexes: 2011. Collection of scientific articles (2011). Russian

FSSS. Moscow. The regions having a stable structure of economic activity are chosen. That allows to measure the level of its condition rather correctly.

Table 6

Per capita money income and level of the cost of living in northern regions of Russia (selectively), 2010

Regions	Average income		Level of the cost of living		Ratio of income and the cost of living in the IV quarter	
	one thousand rub/month	in % to the RF	one thousand rub/month	in % to the RF	in times	in % to the RF
Republic of Komi	23,2	122,7	7,56	128,1	3,25	87,1
The Murmansk Region	24,3	128,6	8,43	142,9	3,51	94,1
Khanty-Mansi Autonomous Okrug — Yugra	31,3	165,6	8,81	149,3	4,06	108,8
Kamchatka Krai	26,8	141,8	12,23	207,3	2,76	74,0
In contrast: Russian Federation	18,9	100,0	5,90	100,0	3,73	100,0

Table 7

Ratio of income and the cost of living on groups of the population in northern regions of Russia (selectively), 2010, in times

Regions	First group	Second group	Third group	Fourth group	Fifth group
Republic of Komi	0,77	1,47	2,25	3,45	7,40
The Murmansk Region	0,92	1,51	2,23	3,29	6,56
Khanty-Mansi Autonomous Okrug — Yugra	0,91	1,72	2,61	4,00	8,53
Kamchatka Krai	0,68	1,21	1,74	2,51	4,82
In contrast: Russian Federation	0,83	1,57	2,37	3,60	7,64

of a mining industry are not «preserved» in a crisis situation, and often deduced for the balance of the enterprises in the hope that at the approach of favorable conditions to their place the new equipment and innovative technologies will be established. However, execution of such intention is extremely problematic, also because of low qualification of the available nowadays production personnel and because of a lack of own financial resources.

Gross accumulation of fixed capital in relative measurement (as a percentage to gross regional product) as a whole in terms of the economy of Russia and the majority of its northern regions almost is the same, as well as in the developed European countries. However, it at all does not mean that this fact is positive. In appropriate cases for large-scale and system modernization of the economy of Russia, the accumulation fund in the structure of public reproduction should be not less than 40 % from gross domestic product.

The choice of an indicator of an assessment of the level and quality of life also is a difficult task. Regarding the financial income we refer to their average per capita volume and the ratio of the most authentic indicators to size of a living wage to the subsequent their calculation for groups of the population (tab. 6, 7).

It can be seen according to the represented data, that, in respect of the real income and the living

wage, the north regions (except Khanty-Mansi Autonomous Okrug — Yugra) stand down to many others, but even more characteristic position for them — an indicator of this average correlation is achieved only beginning from the fourth (in the Komi Republic) and the fifth of groups of the population. The last-mentioned is characteristic for the majority of Russia regions; excessive social differentiation everywhere can be considered as a threat to national security. In particular, the life support of the population with the smallest income is connected to a solution to the hardest problems in such fields as the field of employment, work creation with rather high income and the corresponding training, activation of commercial enterprise, the organization of public works for the poor, standard regulation of distinctions in the wage rate and the limit prices for basic consumer goods, restructuring of expenses of the population, increasing of a share of expenses for providing a healthy lifestyle, professional education, the durable goods and housing.

Focused scenario regarding the topic of income is represented in the following way:

— the coefficient factor income differences are no more than 10 times;

— the first class of the population with the least income will have the income that, not below of living wage.

Drive to that «ideal» is also a vector of regional policy in the direction of the social fairness and sustainable development.¹

Subject matter of sustainable development for regions of natural and resource specialization

Since the beginning of the 1970th, the stability has been considered in perspective of the necessity of preservation of geosystem functions that reproduce resources and reproduce environment. The significant theoretical situation has been fixed: the fixity resists to stability (the first — dynamically developing quality, the second — quality of passive system) [24].

In the cross-spectrum analysis of dynamical social stability of natural geosystems, the basic meaning of problems of sustainable development is concluded. Therefore, the characteristic for nowadays of social aspects of the sustainable development², according to our opinion, should not lead to a separation from problems of environmental management and environmental protection ones.

In this regard, it would not be inappropriate to remind that initially the theory of the sustainable development have had on it basis the theory about biogeocenoses, geosystems, natural and resource cycles, economic landscapes, linearly and central systems, standard areas, etc. In a measure, (unfortunately while insufficient) they (the theories) are realized in practice of physiographic and socio-economic regionalization, designing of natural and engineering and socioeconomic regionalization, designing of natural and engineering and territorial production complexes, agricultural regulation, composition of the master plan of cities and areas et cetera.

In attempt to coordinate the saved-up bundle of theoretical and practical knowledge of the general problematic of a sustainable development to specifics of regions of natural and resource type, first of all northern, it will be possible to allocate a number of significant reference points for regional policy:

— identification of the boundary of territorial accounting entity, assessment and planning (design)

¹ N. N. Klyuev have suggested the method of calculation of a difference between standardized value of GRP and the per capita income, that is also necessary to consider in policy of territorial social fairness [5].

² The subject matter of «Rio + 20» Conference on a sustainable development has proved it once again. () (Rio de Janeiro, 20-22 of June 2012).

proceeding from a crucial role of natural geosystems, without being limited only to areas of economic activity;

— the accounting of the natural and historically acquired functions of certain places to change which it is usually inexpedient or expensive (in the North to such places first of all belong especially protected territories);

— combination of economic efficiency, social fairness and ecological security;

— inclosing of less-developed territories to progressive ones at the expense of organization of network structures of social services;

— combination of stationary forms of organization of economy and mobile ones (rotation settlements, district and expeditious methods of mineral deposits);

— understanding of staging of spatial development, the value of timely transition from movement «in breadth» to movement «deep into» (that is connected with a diversification of an economy of already mastered territories);

— overcoming of economic determinism, the accounting of non economic sides of the organization of a northern economy, including on an ethnocultural basis.

The mentioned reference points are first of all necessary for the solution of the northern problems of strategic character. One of them — the problem of development of societies. The historical and cultural cores (societies) that have developed in the North, should continue and serve as the basis for territory development «deep into», its settlement and development on new scientific and processing base³. This

³ In 1996th, the conception of development of the North was formulated by us:

— «from the use of separate natural resources (taking «the best») to a territory settlement (except for a zone of the Arctic and mountain areas of the Subarctic region) and to complex development of territorial combinations of natural resources;

— from uniformity to a variety of northern types of farms and economic management;

— from the resource and raw sources to the social and ecological ones;

— from the paternalism and administrative dictate to self-organizing, self-government and the indirect methods of economic regulation based on the contract relations» [11]. The short definition «from reclaiming to settlement» was presented as a paradigm of territorial development of the North. Now it is considered not only positively, but also critically regarding the Arctic territories (they also should be settled in), the use of various sources of life support (its potential existence should be coordinated to real possibilities of their use), and also concerning the geographical division of labor and equivalent exchange of goods commodity exchanges (it is necessary to

historical acquisition in its basis has such processes as entering, resettlement, a redeployment, economic intervention, and integration.

In respect of a new geography and economy of the North, it is necessary to consider once again the regularities of spontaneous and gradual people migration to the new land areas for the purpose of getting resources for life, sufficient for its reproduction. It cannot be ruled out that population mass exodus from northern territories is the temporary phenomenon. It should be estimated in two ways: as the problem of correcting of the historical past and the response to revolutionary reforming with enormous social losses. Both regularities are departure from appropriate development of the North.

The climatic factor is the natural limiter of economic capabilities. However, only the political power (in case it is irrational) can create intolerable conditions for people through administrative oppression, or by means of taxes and charges. Moreover, the policy of mass resettlement to the North has no positive result, even if it does not carry violent character and supported with different motivations. Therefore, it is important to pay careful attention to the studying and the state supporting of favorable sides of the life activity of the indigenous population¹.

The issue of the reprocessing of natural and resource capacity has also strategic character. The exhausted pattern of utilization of mineral resources is most noticeable in the oil industry. While Russian part of world reserves of oil less than 5% it has more than 15% of global oil production, the correlation of estimated reserves and oil extraction in this country equal to 18 times, when in Canada — 213, Iraq — 192, Kuwait — 116, the United Arab Emirates — 105, Saudi Arabia — 78 times. The mining operation exceeds the mining gain as well in many types of ores and nonmetallic raw materials. The less tense situation concerning stocks is in the gas industry, but also here the reproduction approach to an assessment of the integrated approach of hydrocarbons use is urgent, it is caused by oil and gas chemistry weakness, mistakes in the calculation of the value added into technologically interconnected

consider relative isolation of a number of the local economic systems). One has to agree with this criticism, so much so, that her authors recognize the possibilities of practical overcoming of the specified contradictions [4].

¹ The status of indigenous people and communities of the North means that they historically have been forming in certain territories as market participants and social groups long before the state have started to conduct the described above policy.

production of different kinds of products, price and institutional factors. The crux of the problem consists not only in complete extraction of mineral resources, but also in the social aspects of an economy and activity of the population of certain territories [23]. It is clear that it directly refers to the North where the staple of the perspective fuel and energy, mineral and raw centers of Russia is located.

For the northern population, the crucial role it is the bioresource potential, first of all the boreal forest. The approach of reproduction is connected to many aspects of forest exploitation, but all of them can be projected on a geographical basis. It is referred to allocation of forest areas within the boundaries of in which borders effectually to coordinate technological, economic, social and ecological aspects of a sustainable development of taiga territories, including the sharpest — undesirable change of forest forming species, spruce forest drying, overcoming of difficulties in development of forest location [9]. In the specified work, the frontier of utilization of agroclimatic and water resources is shown.

The prospects for development of the North in some measure depend on the correct combination between state paternalism and mobilisation of internal sources development of north societies. In numerous works on north subject is shown the state crucial role in development of territories with a difficult and extreme natural conditions, it is initially predetermined for all of the time. However, A. N. Pilyasov has attempted to prove the possibility of a shift in emphasis from a national administration to coordination of all active subjects of economic and public work within a framework of particular northern territories [17, 19]. Possibilities of self-developing on the basis of their new (postindustrial) economy [2] are also considered. We consider such concepts as scientific and search ones. The national policy regarding the North for the present is focused on a choice of regulation methods depending on the existing circumstances of the project implementation of economic value. In perspective, it is objectively necessary to estimate fundamentally new forms of the production and social management remote from direct government intervention.

In tab. 8 the directions of the Arctic policy, a number of project proposals to each direction and both those factors and conditions that were considered in their development are presented. The approach of the managers and scientists of the Arkhangelsk region to the formation of strategic plans, projects and master plans allows coordinat-

Design offers of the Arkhangelsk Region to the government program organization «Economic and social development of the Arctic zone of the Russian Federation» (only 41 offers)*

Direction of regional (Arctic) policy	Number of design offers	Accountable factors and conditions of Arctic
Creation of institutional conditions for efficient management and stable balance	7	Remoteness from the main production and transport base of the country, specifics of natural and resource economy
Territorial organization of an economy and cluster-based policy	12	Combination of agglomerative effects and expenses of economic dissociation
Infrastructure development of innovative activity	3	High value of space communication, aspects of condition monitoring of the Arctic territories, translation of innovations
State support of large economic projects	6	High resource acquisition, additional expenditure, priorities of the national economy
Social and national policy, science, education, culture and public health service	8	Specific character of the state of life (coast-dweller identification), ethnic culture, ease space, network structures
Geopolitics	3	International Arctic Institutes, «Tsirkumpolyarnost»
Adaptation and security	2	Climatic changes

* Based on [21].

ing the results of basic researches in regional policy in a constructive way. In the author's opinion, it is possible to fill the subject matter with certain directions of the Arctic policy with a sense of research works, for example, what are noted in the program of the researches «Arctic» of the Ural office of the Russian Academy of Sciences.

Conclusion

The natural and resource profiles of economy of northern and Arctic regions in a combination to their specific climatic, economical and geographical and ethnocultural characteristics predetermine to a large extent the choice of subject of the research works targeted to the problems solving of adaptation of human and technical and technological systems to severe environmental conditions. Development of such subject occurs within separate sciences, proceeding from the logic of their own development,

but along with this the sciences can include in themselves the new directions when the North (including the Arctic) is specially considered as the special object of a material and inner world. At this point, the «natural» comes deeply into the «social», and, therefore, problems of reliability and stability viable to project on natural and economic systems. Their reproduction becomes a general problem of a science and regional policy; they are coordinated with tactical and strategic tasks described in this article.

In science and regional policy ought to be applying the normative approach widely, when threshold values of environmental conditions of economic activity are defined. Systematizing such «normative thresholds» is necessary both for definition of a vector of northern (Arctic) scientific and technical, social and economic policy, and for regulation of production and technological parameters of work of the concrete enterprises.

References

1. Dmitrieva T.E., Kibalchich O.A., Lazhencev V.N. (Ed.) (1991). *Geoekspertologicheskii podkhod k analizu «severnnykh» normativov* [Approach of the analysis of «northern» standards based on geology and expertology]. *Extremalnyye rayony. Voprosy khozyaystvennogo osvoeniya i strukturnykh sdvigo* [Extreme areas. Questions of economic development and structural changes]. Syktyvkar: Komi nauchnyy tsentr UrO RAN [Komi Scientific Center of the Ural Branch of the Russian Academy of Sciences]. 71-83.
2. Dmitrieva T.E., (2011). *Postindustrialnaya transformatsiya v prostranstvennom razvitii severnogo regiona. Metodologiya issledovaniya* [Postindustrial transformation in spatial development of the northern region. Research methodology]. *Prostranstvennaya ekonomika. Metodologiya i metody issledovaniya: materialy vserossiyskoy nauchno-prakticheskoy konferentsii, 14 oktyabrya 2011 goda* [Spatial economy. Methodology and research methods: matters of the All-Russian research and practice conference, 2011, Oct 13-14]. St. Petersburg: IPRE RAN [Institute for Regional Studies of the Russian Academy of Sciences]. 61-66.
3. *Doklad Komissii po otsenke ekonomicheskikh rezultatov i sotsialnogo progressa* [Report of the Commission on an assessment of economic results and social progress] (2010). *Voprosy statistiki* [Questions of statistc]. 11. 12-21.
4. Dregalo A.A., Ulyanovskiy V.I. (2011). *Territorialnaya eksplikatsiya Severa kak konglomerata lokalnyh sred* [Territorial explication of the North as a conglomerate of local environments]. *Arktika i Sever* [Arctic and North]. 2. Available at: http://narfu.ru/aan/article_index_years.php?SECTION_ID=848 (accessed on 26.08.2012).

5. *Klyuev N. N.* Territorialnaya spravedlivost. Kriterii, principy obespecheniya, opyt otsenki [Territorial fairness. Aspects, providing principles, assessment experience]. *Geografiya i prirodnyye resursy* [Geography and natural resources]. 1. 5-10.
6. *Kosmachev K. P.* (1990). *Geograficheskaya ekspertiza. Metodologicheskie aspekty* [Geographical examination. Methodological aspects]. Novosibirsk, Nauka, 128.
7. *Lazhentsev V. N.* (2010). *Vzaimosvyaz teorii i praktiki. Primer metodologii ekonomiko-geograficheskogo issledovaniya* [Correlation between theory and practice. Example of methodology of economical and geographical research]. *Izvestiya Komi nauchnogo tsentra UrO RAN* [Izvestiya of Komi Scientific Center of the Ural Branch of the Russian Academy of Sciences]. 3, 99-105.
8. *Lazhentsev V. N.* (2009). *Komi nauchnyy tsentr UrO RAN. 60 let sotsialno-ekonomicheskikh i energeticheskikh issledovaniy* [Komi Scientific Center of the Ural Branch of the Russian Academy of Sciences. 60 years of socio-economic and energy researches]. *Vestnik RAN* [Bulletin of the Russian Academy of Sciences]. Vol. 79, 12, 1107-1112.
9. *Lazhentsev V. N.* (2012). Sever. Dvino-Pechorskiy region — korennaya zemlya rossiyan, istochnik resursov i znaniy [The North. Dvino-Pechersk region — the original area of Russians, a source of resources and knowledge]. *Rossiya i eyo regiony. Integratsionnyy potentsial, riski, puti perekhoda k ustoychivomu razvitiyu* [Russia and its regions. Integration potential, risks, transition ways to a sustainable development]. *Tovarishchestvo nauchnykh izdaniy KMK* [KMK Scientific Press Ltd.]. Moscow, 257-282.
10. *Lazhentsev V. N.* (2010). *Sotsialno-ekonomicheskie problemy Severa Rossii* [Socioeconomic problems of the North of Russia]. *EKO*, 12, 40-53.
11. *Lazhentsev V. N.* (1996). *Territorialnoe razvitie. Metodologiya i opyt regulirovaniya* [Spatial development. Methodology and experience in regulation]. St. Petersburg, Nauka, 109.
12. *Levitanov A. E.* *Gumanizatsiya severa kak strategiya* [North humanization as strategy]. *Aktualnyye problemy, napravleniya i mekhanizmy razvitiya proizvoditelnykh sil Severa. — 2012: materialy Tretego Vserossiyskogo nauchnogo seminar, 28-10 iyunya 2012 goda* [Topical issues, directions and mechanisms of development of productive forces of the North, 2012: matters of the Third All-Russian research workshop. 2012, Jun. 28-30]. *Syktvykar*, Part 1, 28-30.
13. *Leksin V. N.* (2012). *Rezultativnost i effektivnost deystviy regionalnoy i munitsipalnoy vlasti. Naznachenie i vozmozhnosti korrektnoy otsenki* [Efficiency and effectiveness of regional and municipal authorities. Focus and possibilities of correct assessment.] *Region. Ekonomika i sotsiologiya* [Region. Economy and sociology]. 1(73), 3-39.
14. *Loginov V. G.* (2007). *Sotsialno-ekonomicheskaya otsenka razvitiya prirodno-resursnykh regionov Severa* [Socioeconomic evaluation of development of natural and resource regions of the North]. *Yekaterinburg: IE Uro RAN* [Institute of Economics, the Ural Branch of the Russian Academy of Sciences]. 311.
15. *Maksimov A. A.* (2003). *Realizatsiya interesov severnykh narodov v usloviyah promyshlennogo razvitiya* [Realization of interests of the northern people in the conditions of industrial development]. *Ekonomika Severo-Zapada. Problemy i perspektivy razvitiya* [Northwestern economy. Problems and development prospects]. 2, 76-83.
16. *Mendeli L. E., Lazhentsev V. N.* (Ed.) (2006). *Nauchnyy potentsial regionov Severa* [Scientific potential of regions of the North]. *Sever. Nauka i perspektivy innovatsionnogo razvitiya* [Science and prospects of innovative development]. *Nauchnyy sovet RAN po voprosam regionalnogo razvitiya, Komi nauchnyy tsentr UrO RAN* [Scientific Council for Regional Development, Komi Scientific Center of the Ural Branch of the Russian Academy of Sciences]. *Syktvykar*, 28-42.
17. *Pilyasov A. N.* (Ed.) (1998). *Ot paternalizma k partnerstvu. Stroitelstvo novykh otnosheniy narodov Severa i gosudarstva* [From a paternalism to partnership. Organization of the new relations between the people of the North and state]. *Magadan: SCVINI DVO RAN* [North-East Interdisciplinary Science Research Institute FEB RAS]. 198.
18. *Pilyasov A. N.* (2010). *Arkticheskoye Sredizemnomore. Predposylki formirovaniya novogo makroregiona* [Arctic Mediterranean. Preconditions of formation of a new macroregion]. *ECO*, 12, 54-75.
19. *Pilyasov A. N.* (2009). *I posledniye stanut pervymi. Severnaya periferiya na puti k ekonomicheskomu znaniyu* [And the last become the first. The northern province on a way to economic knowledge]. Moscow: Knizhnyy Dom "Librokom" [Book House Librokom]. 544.
20. *Portfel arkticheskikh proektov Arkhangelskoy oblasti* [Portfolio of the Arctic projects of the Arkhangelsk region], (2012). *Arktika i Sever* [Arctic and North]. 6. Available at: http://narfu.ru/aan/article_index_years.php?SECTION_ID=848 (accessed on 26.08.2012).
21. *Lusin G. P.* (Academic adviser), (1993). *Rayonirovaniye Severa Rossii* [Geographical demarcation of the North of Russia]. *Apatity: Kolskiy NTs UrO RAN* [Kolsky Scientific Center of the Ural Branch of the Russian Academy of Sciences].
22. *Regiony Rossii. Socialno-ekonomicheskiye pokazateli 2010: sbornik statey* [Regions of Russia. Socio-economic indicators of 2010: collection of scientific articles], (2010). *Federalnaya sluzhba gosudarstvennoy statistiki* [Federal state statistics service]. Moscow.
23. *Kryukov V. A., Sevastyanov A. E., Silkin V. Yu., Tokarev A. N., Shmat V. V.* (2011). *Upravleniye protsessom formirovaniya tsnnosti potoka uglevodorodov. Na primere perspektiv ispolzovaniya gazovykh resursov Vostochnoy Sibiri* [Process management of formation of worth of a stream of hydrocarbons. On an example, of prospects of use of gas resources of Eastern Siberia]. *Novosibirsk: IEOPP SO RAN* [Institute of Economics and Industrial Engineering of the Siberian Branch of the Russian Academy of Sciences]. 360.
24. *Ustoychivost geosistem* [Stability of geosystem] (1983). Moscow, Nauka. 89.
25. *Khikl U.* (2004) *Problemy obshchestvennoy sobstvennosti. Model Alyaski — vozmozhnosti dlya Rossii: perevod s angliyskogo* [Problems of public property. Model of Alaska — opportunities for Russia: translated from the English]. Moscow: Izdatelskiy dom "Progress" [Publishing house Progress]. 360.

Information about the author

Lazhentsev Vitaliy Nikolaevich (Syktyvkar, the Komi Republic) — Doctor of Geography, corresponding member of the Russian Academy of Sciences, adviser of the Russian Academy of Sciences, main research scientist of the Institute for socio-economic and energy problems of the North Komi, Scientific center of the Ural Branch of the Russian Academy of Sciences (167982 the Komi Republic, Syktyvkar, GSP-2, Kommunisticheskaya st. 26; lazhentsev@iespn.komisc.ru).