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The new theory of the Arctic and Northern development: multi-scale interdisciplinary synthesis*

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Abstract. After the bright achievements of the Soviet development school in the past 30 years, there was a long pause. Meanwhile, the need for a broad scientific generalization of practical efforts to deploy large and small economic projects in the Arctic and the North is enormous. The authors set the task of developing a new complex theory of the North and the Arctic development, which would be a synthesis of the best achievements of the Soviet school, foreign frontier studies and the modern regional science studies of the innovative development. In the authors' view, its key feature is the emphasis on local development and the endogenous factors of the development, which had no attention before. Constructive synthesis of external and internal factors of colonization should be formed "from below", from the territory itself, not from the federal center. Four new research priorities in the new study of the North and the Arctic development are identified and described in detail with a focus on: the analysis of local institutional capital; conflicts and contradictions of the natural resource development; the evolution of the settlement system; and the interaction of large and small forms of development of the territory. The new ideology of studying the Northern and Arctic development is supposed to be tested during the field and expeditionary study in the North and the Arctic regions.

Keywords: *the North and the Arctic development, resource management, glocality, large and small forms of development, a multi-scale process.*

Introduction

After the bright achievements of the Soviet development school in the past 30 years, there was a long pause. A new theory of development, adequate to the current realities of globalization, post-industrial transformation, knowledge economy, multi-agent participation in this process and the variety of ownership forms, has not yet been proposed. In fact, modern development of the Arctic and North of Russia remains without a proper theoretical and methodological apparatus. Research in this area is limited to particular topics (e.g., resource availability, indigenous people, outflow of youth, etc.), and the problem is not only in absence or weakness of generalizing works, but also in the fundamental impossibility of using foreign theories for the Arctic and northern conditions because of the other development factors, social effects of economic processes, as well as the private, fractional, non-conceptual nature of most research done in the North and the Arctic Canada, the United States and Northern Europe.

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For the first time, the task is to form such a holistic theory for the North and the Arctic basing on the fundamental zonal regularities. On the one hand, none of the foreign countries is able to do this simply because of the smaller size of the territory of the Arctic and the North and, consequently, the objectively smaller scale of development and the lesser need for its conceptualization: why should they to reinvent a revolutionary new bicycle, if it is possible to manage a more comfortable simple extrapolation of the mainstream concepts prevailing in the temperate zone to the North and the Arctic?

On the other hand, modern methodology, theories and tools of foreign regional science (a complex of sciences aimed at studying regional development, incl. economic, geographical, sociological and other approaches and methods) are formed on the basis of densely populated territories with a dense network of urban settlements (mainly in Western Europe and North America). These methodology does not consider the real development the extreme arctic and northern zones.

It turns out that Russia is simply doomed to creativity in this area by the size of its northern and arctic areas and the scale of the related problems of development and nature management.

The relevance of the research

Over the past 25 years, a world-class social science has undergone a methodological revolution. The focus of researchers has radically shifted. Earlier attention was focused on the external factors of systems (in the economy this was manifested in the concept of exogenous economic growth, in sociology — in attention to the external environment, in demography — in the concepts of transitions that involve unified stages of development for all communities, etc.). In 1980s-90s, researchers turned to the study of internal factors of systems. In the economy, this was indicated as a transition to the endogenous theory of economic growth, in sociology — to the study of micro-level processes, in demography — to the birth of institutional demography and a departure from the theory of a single stage demographic transition.

There was an idea of the heterogeneity of internal factors of social systems, which, in previous approaches, were supposed to be homogeneous. This methodological revolution has captured a wide range of social disciplines and the concepts and theories they develop. It radically transformed the methodology and methods, strategy and tactics of research. In economics, sociology, anthropology, history, practically simultaneously a breakthrough occurred, as they say, “inside the black box” of regional development.

It is paradoxical, however, that the theory of economic development of the North and the Arctic has not undergone this transformation, and it retains by default the old postulates that processes are viewed from the standpoint of exclusively external influences: investments from the federal budget or investments of transnational companies, aimed at building large infrastructure facilities (megaprojects) and creating poles of growth.

This approach represents the economic development as determined from above; its initiators and drivers are the forces external to the territory (federal level), and the development itself is seen as territorially homogeneous, indifferent to the specific place of its deployment. The conceptual apparatus for studying the development for objective reasons remained the same and almost had no changes since 1980s. This clearly confirms our analysis of one and a half thousand works registered in the RINC system of the past 25 years, containing the key words “development of the North and the Arctic”: in the vast majority of the territorial specifics of development have not been considered; they are considered only as a reservoir of resources or local features and the territory has not been considered.

True, the concept of a frontier continues to be developed abroad. Macro- and micro-levels are traditionally studied through this approach. However, due to the marginal position of the new development territories in foreign countries (Alaska in the USA, Arctic territories for Canada, Greenland in Denmark, Lapland in Scandinavia, etc.), the frontier theory is still not a complete system.

Thus, in Russia, a powerful but Soviet theory that has “decayed” but is still in use, and abroad — a more modern theory, but a more private and narrower one.

Meanwhile, in other sciences, a methodological revolution took place, which requires a fundamental revision of the studying object of the development theory. In social sciences, the concept of territory becomes an important actor of social, economic, and, first of all, innovative processes. Local specificity and local processes lie in the basis of the concepts of regional and local innovation systems, innovation environment, cluster development, and modern innovative development.

The world picture, based on our empirical observations, suggests that an inadequate approach to local specifics is unacceptable. At the moment, it seems impossible to ignore the local context of social and economic development, incl. the development of resources in the North and the Arctic. The super task is to modernize the theory of development by incorporating modern approaches in it, consisting the systemic unity of global and local processes (the “glocal” principle). Only in this theory, in our opinion, is be able to reach positions adequate to the contemporary level of development of the world social science.

It is important that this methodological breakthrough cannot be accomplished in foreign sciences and be perceived as “foreign best practices” by us. The theory of economic development is traditionally the Russian sphere of research, attention to which is due to the unprecedented scale of the development of Siberia, the North and the Arctic, their immense importance in the development of Russia. Simply because of objective reasons, neither the Scandinavian North and the Arctic, nor Greenland, the Canadian Arctic, or Alaska, can have a large-scale theory of development.

The applied relevance of the development of such a new theory is determined by the multifaceted problems and contradictions that accompany the modern development of resources and

areas of the North and the Arctic: the need to harmonize the interests of indigenous small-numbered peoples of the North and resource companies, the development of “rejuvenation” mechanisms for old industrial and monoprofile territories of the North and the Arctic, the new large projects on the shelf and land with a lack of experience and competencies, etc.

Three sources or parts of the new development theory

A new theory of development for the North and the Arctic, requires integration of the three main blocks of scientific research. The first block is the Soviet school of religious studies. The second is the science of the last two decades, carried out within the framework of the foreign frontier school and a number of other study areas related to the resource use. The third block combines areas of foreign and Russian regional science. Most of them were developed without any attention to the specifics of the Arctic territories, but still they can be a source of valuable methodological and methodological provisions suitable for the analysis of the Northern and Arctic territories and their development. All three blocs have been developing almost independently, and the task is to integrate them. Let us consider each block separately.

The first block. In Soviet times, the major areas in social and economic research of the development of the North were: industrial and transport development [1, Slavin S.V.]; settlement of deserted territories [2, Pokshishevsky V.V.]; assessment of natural resources and their territorial combinations [3, Mints A.A., pp. 16-39]; economic complexes in Siberia [4, Bandman M.K., pp. 8-114]; complex development of the North [5, Vityazeva V.A., pp. 107-110]. Subsequently, all of them were further developed and became the basis of a holistic theory of economic development of the Northern territories of the USSR, finally shaped in the 1970s.

Joint efforts of specialists led to a single theory of economic development of the North: its conceptual apparatus and the idea of economic spatial systems as an object of development were introduced to the scientific community. Dramatically expanded methodological possibilities of scientific analysis made the development an economic and geographical process, resulted in new spatial structures and aimed at the reconstruction of the social and economic space [6, Kosmachev K.P., p. 8]. A very constructive concept was developed by P.K. Kosmachev. He understood the development as “deep” and “wide” and worked out its variations in space and in time [6, Kosmachev K.P., pp. 9, 66].

By the end of the 1980s, the apparatus of the theory had been shaped by the efforts of Soviet development schools. It consists of several large parts: types of development, stages (or phases), degrees and cycles of development, routes and bases — elements of the territorial structure of development. The idea of cycles of development has many interpretations: cycles as types of development [7, Zaitsev I. F.]; historical and geographical cycles [8, Dergachev V.A., pp. 82-86], resource cycles [9, Mosunov V.P., Nikulnikov S.Yu., Sysoev A.A.; 10, Komar I.V.], and others. Knowledge of territorial and economic structures, providing high efficiency of the development process, has become an important area of research of the Irkutsk school [11, Kosmachev K.P. et

al., pp. 84-92]. The key idea there was the concept of a supporting frame — an interconnected organically integral system of linear communications (routes of development) and node or point objects (bases of development).

A new stage in the development theory of the Northern territories was opened by radical economic reform in Russia — the change from planning and command to the market economy paradigm of the development of the North. New themes came to dominate the social and economic studies of the North: structural policies [12], the ratio of the market and the public mechanisms in the development of Northern territories [13, Luzin G.P., Pavlov K.P.], local markets [14, Pilyasov A.N.], privatization, the social consequences of economic reforms [15, Navasartov S.M., pp. 48-52], etc.

In the 1990s and 2000s, Russian scientists carried out a purposeful adaptation of foreign experience in the Northern economy to the new realities of the Russian North [16-19, Pilyasov A.N.]. In fact, they created a base for the integration of Russian (Soviet) and foreign Northern studies. Here, it is necessary to note three monographs (“Northern economy and radical reform (American experience and Russian realities)”; “Russian North and federalism: in search of new models” and “From paternalism to partnership (construction of new relations of the peoples of the North and the state)”). These books accumulated experience of the resource and economic development of Alaska and partly North of Canada and applied it to the Russian Northern territories. Among the specific features of the Russian North, the authors mentioned: a much longer age of economic development than it was in the other countries; more powerful industry, the specifics of the transformation of the administrative — command economic model and its effects on the development of the North. All these issues explained the huge variety of versions of the Northern economy in the Russian North.

It is in these works of the second half of the 1990s, for the first time, we saw the idea of the special phenomenon of the Northern economy and its complete concept. In the Northern economy, institutions are closely linked to natural resources and their life cycle. Relatively young resource provinces required one institutions, older ones — the others and the oldest provinces — the third [20, Kryukov V.A.]. Nevertheless, there are some general laws of resource management institutions. equal for all the regions of the world.

The generalization of more than one thousand Russian research works on the development for the past 15-20 years (the e-library data base; keywords: “economic development”, “development of the North and the Arctic”) testifies to significant progress compared to the Soviet time. The search for the key words “development of territories and resources of the Arctic and the North”, “development of the Arctic and the North” gave more than a thousand names of published sources. Then, we carried out several rounds of “cleaning”:

- all the literature on the history of development, settlement, development of the Arctic and North territories was excluded: for the purposes of our study, a time period of the last two decades is necessary; we needed source on new exploration of the resources and spaces of the Arctic and the North of Russia. The historical, centuries-old aspects of

the development of the Arctic and North of Russia are beyond the scope of this research project. This reduced the search result for several hundred sources at once;

- All repeated sources were also excluded. It turned out to be several dozen;
- Then the first two hundred sources were examined in order to outline the main rubrics where the new development was stratified. So, there were about 20 themes related to development. Subsequently, all the other hundreds of sources were classified (sorted) by these themes. Simultaneously, the sources with no spatial aspect, or got into our original database accidentally, or did not allow us to clearly define the research topic by name, were excluded. So, minus a few hundred;
- The further selection required the introduction of a few additional headings. It turned out to be 26. As a result, we had almost fifty sources on the new Arctic development, which gave us an account of specific directions of the research within this topic over the past two decades (table 1).

Table 1

*The thematic structure of the published research on the development of the North and the Arctic
(October 1, 2017 e-library - www.elibrary.ru)*

Direction	Number of articles, sources
1. Oil and gas development of the shelf ¹ as a major economic problem in the Arctic	58
2. Rescue and safety	45
3. Innovative forms of modern development of the North and the Arctic	43
4-5. Infrastructure issues of development of the North and the Arctic	39
4-5. International cooperation and the role of globalization	39
6. Wide complex view - methodology of development	34
7. Development of mineral resources, fuel and energy resources of the North and the Arctic	30
8. Institutional factors of development	29
9. Territorial structures of development	21
10-11. Labor resource factors in the development of the Arctic	15
10-11. Project approach to development	15
12. Foreign experience of development	14
13-14. Environmental factors in the development of the Arctic	11
13-14. Indigenous aspects and issues of development (traditional knowledge)	11
15. Sanctions and development	10
16. Climate change and natural and climatic factors of development	9
17-18. Development Management	8
17-18. Levels and regional versions of the Arctic development	8
19-21. The Northern Sea Route	7
19-21. Recreational development of the North and the Arctic	7
19-21. Engineering, technological and social factors of development	7
22-23. The development of coastal areas and zones of the Arctic	6
22-23. Food security of the development areas of the North and the Arctic	6
24. Large business in development	5
25. Financial and tax factors of development	3
26. Development of marine biological resources of the Arctic and marine biotechnologies	2

So, we will briefly list the main research directions related to the theme:

¹ Bold prints highlight the subjects that were lacking 30 years ago in Soviet development studies.

1. The greatest innovation is the global international context of the development of resources and areas of the North and the Arctic by numerous factors: the possibility of new projects is determined by the global conjuncture of prices for the Arctic resources; Chinese investors have a significant share in the Arctic resource and infrastructure projects; best practices and technologies of other polar countries are being used by Russia in new megaprojects. It is a “plus” trend. On the other hand, sanctions and restrictions in the transfer of advanced technologies and investments inhibit geological exploration and the commissioning of new deposits that have already been discovered on the shelf of the Russian Arctic seas. This is the case when the global conjuncture and globalization works “for a minus” in the development of resources and areas of the Arctic and North of Russia.

2. Another innovation is associated with the rescue and security — the most diverse issue, and not only military one, as it was in the Soviet era — environmental security, food, energy, etc. The development of the Arctic and the North was first understood as a high-risk probabilistic process, and this understanding was facilitated by the arrival of business — large corporate structures (In the USSR, it was simply not acceptable to speak about non-military risks).

3. Absolutely new topic was the development of the shelf and the whole range of investment, environmental, geopolitical and other problems associated with it. Without a doubt, present days are the forefront of research related to the development of the Arctic resources.

4. Of course, in a completely new way, the topic of mastering innovations began to be accentuated. And, during the Soviet times, it was repeatedly stated that the Arctic and the North would certainly require technological and engineering innovations. But, as a rule, it was said so at the lessons of the foreign North development. Now it has become an imperative for the development of the natural resources of the Arctic and the North of Russia. This topic is adjoined by the problems of the Arctic universities and local science, which consolidate qualified labor in the interests of the Arctic innovations.

5. The climate change issue is largely influenced by our foreign colleagues and the reality of the Russian Arctic and the North, where economy, technical base and “social and cultural life” are undergoing disruptive transformations under the influence of climatic instability (frequent accidents on gas- and oil pipelines, cracks in buildings in the Arctic cities due to the defrost of permafrost, etc.). These issues entered the developmental subject matter seriously and, apparently, for a long time.

6. The institutional factors of the development of the North and the Arctic have become a completely new topic. They are understood in many ways: as coordination of interests of all involved parties, incl. the large megaprojects; as the role of incentives and barriers for the economic development, created by the federal, regional and local regulatory framework; and as the role of local authorities reflected in a stimulus-brake of development, etc.

7. A special place in studying the development of the Arctic began is occupied by the coastal areas because of the high natural and social instability that they have. That is, in the Arctic,

a narrow edge of coastal municipal formations is separated out. They are proposed a special palette of methods and approaches for studying the development: e.g., the ideology of maritime planning and eco-system management. Similarly, the themes of the Arctic “islands”, lacking a year-round connection with the “mainland” is discussed, and the theme of the Arctic “continent”, whose territories are located within the network of permanent terrestrial road communications.

Very few works, where the authors link global, national, regional and local interests and levels of development and apply them to the Arctic and the North (as in was in the Soviet era, researchers prefer to focus at one aspect or level of their study object), are published .

Despite a great number of works on the North and the Arctic issues, it is necessary to state the loss of the integrity of the vision of the development issue, usual for Soviet science.

The second block. Perhaps, the school of the frontier is the most wide-ranging, comprehensive direction of the study of new development in foreign countries. The school of the frontier dates back more than 100 years and has evolved greatly during this time [21-22, Billington R.A.] [23, Turner F.J., pp. 199-227]. So, e.g., the outstanding Japanese economist M. Fujita described the modern frontier in South-East Asia, based on the primary involvement in the economy of the vast labor resources of the rural population in this region [24, Fujita M., Mori T., pp. 39-62]. The frontier turning point here is that the countries-consumers of the mass demanded good transform in the countries-producers. So, the social relations change drastically. A big breakthrough was made in the past 20 years. Modern conceptualization of the frontier in the northern regions is developed in works of the Alaskan economist Lee Huskey. His main research themes (based on publications for the past three decades):

- Modeling of interbranch relations and attention to structural shifts in the economy during resource development like A. Hirschman's ideas about the mutual influence of some economic activities on the others [25-26, Huskey L.]. The author developed the “Anchorage and six districts” model, which together form the state of Alaska (the idea is that the economy of Anchorage, due to the lack of engineering, is much more connected with the surrounding areas of Alaska than with the national level), and the model of the city's northern outpost service bases for the rest of the state (models of inter-district flows of goods, services and labor). In relation to this, the role of the Anchorage in ensuring the resource development of the entire state was analyzed.
- Frontier Arctic economy and its specific laws [27-29, Huskey L.]. In this group of studies, an analysis of the substitution of imports for the frontier was made. It is as a result of structural shifts under the influence of the “growing up” of the economy of the frontier region. An important conclusion is that first the growth of economy leads to faster growth of service due to the effect of import substitution, but then the service sector shrinks because of contraction of resource production. The next is the resource sector, which provides a certain economic stability. Lee Huskey returns to the famous “Jack London’s hypothesis” on how (after the fall of the “gold rush”) the territories that managed to build the services sector “at the boom stage” remain stable. This group of publications is of great importance in terms of planning the life cycle of resource territories. In fact, it is shown that a long-term strategy for the economic development of the frontier is the strengthening of local connections between activities.

- Development of the remoteness concept [30-31, Huskey L.]. The main idea is the diversity of the remoteness' manifestation: geographical, economic and institutional. The coexistence of geographical, cultural and institutional remoteness does not allow the use of standard methods of promoting economic growth. Therefore, traditional approaches to attracting capital or training may not work in remote areas.
- The three-sector economy of transfers, support and market resources [32, Huskey L., p. 435]. The idea of a mixed three-sector rural economy of Alaska (transfer, traditional and market sectors) is proposed. The smaller the village, the more convergence and hybridization between sectors. The larger the village, the more isolated are these sectors from each other.

The publications by Lee Huskey and his co-authors can be considered the core of the frontier theme. In addition, a number of narrower, more specialized areas of the Arctic research are being developed abroad, incl. new topics that did not sound a decade ago, and topics that, in recent years, have received a new sound:

- City in the North: cities as a new wealth of the northern and arctic territories are associated with the innovative development, post-industrial transformation, creation of the infrastructure for the knowledge economy (universities, business incubators, venture funds, etc.).
- Climate change in the Arctic from very different perspectives: both in terms of gender (different adaptation strategies for climate change chosen by women and men in the Arctic communities), ethnicity (how the ethnic composition of the villages affects the adaptation potential), new opportunities for Arctic shipping, mining industries in the Arctic and North-West, and the positive impact of climate change on Arctic agricultural production.
- Research on the mining industry in the North and in the Arctic is systematized within the framework of a large international project, the Arctic Front. Unlike the past wave of mining activity 30-50 years ago, the new wave of industrialization of the North is mainly supported by global companies – multinational resource corporations [33, Nilsen Trond et al.]. Globalization is also manifested in the growth of the share of international shift workers among workers employed in the Arctic megaprojects [34, Heleniak T.]. Compared to the 30-year-ago research on mining industry of the North, the new studies significantly accentuate the social and environmental issues (a man in the mining industry of the Arctic).
- Northern AIC – food security – health. The development of the local agricultural sector is seen in a much broader context than before – education, local employment, economic independence, etc. [35, Avard Ellen]
- New countries-actors inside and outside the Arctic: Greenland – China – Asia. New dynamic actors in the Arctic, whose efforts, first of all, quickly change characteristics of the Arctic. Works on Greenland as the most polarized country have changed radically; on the other hand, we see works on China and Asian countries, unexpectedly interested in the Arctic.
- Knowledge economy in the North and in the Arctic. Here we are talking about developing knowledge infrastructure in the Arctic, strengthening existing and creating new research centers and universities to ensure the sustainability of the social and economic development of the Arctic [36, Dorais-Dranaeva], creating local competencies, knowledge of indigenous peoples in the local development [37-38].
- Development of resources of the northern and the Arctic territories in the context of the “governing the commons” and co-management. We are talking about developments in

the study of the resources and public property of the North and the search for forms of conflict-free management somewhere between the adaptation management and co-management [39-40].

The third block — this is the recent work on territorial and spatial development of the densely populated territories in the leading Western countries. Many of them are based on the concept of the new economic geography by the Nobel Prize winner P. Krugman. Also, among the most important areas are the concept of the regional innovation system by F. Cook, the cluster theory, the principles of the new economic policy, and the basic methodological provisions of the institutional economy and geography. The main theoretical provisions are the following:

- Innovations are the ground for the intensification of social and economic development of cities and areas, accelerated by the constant innovative search by the local community (government, business, non-profit organizations, civil society structures, etc.);
- the key actors (driving forces) of social and economic development are endogenous and internal factors. The reliance on endogenous drivers of social and economic development makes it possible to neutralize the negative influence of external factors and rationally use exogenous development opportunities;
- innovative search is carried out in the local innovation system, which includes large, small and medium businesses, institutes for generation and adaptation of new knowledge, educational institutions, administration of a municipal formation or region, and public organizations. The success of the innovation depends on the ability to harmonize the interests of all stakeholders and the nature and forms of communication between them;
- the most important factors of the innovation are soft and institutional: the quality of human capital, the density and quality of the institutional environment, the quality of the innovation infrastructure (organizations active in R&D, transfer and adaptation of new knowledge), absorbing capacity of the local innovation system and local community in terms of assimilating innovations, features of the social capital (incl. the innovative, creative potential of the local diaspora in the other cities and countries around the world), the role of the creative class in the local community, local behavioral and cultural attitudes, and others. An important role in the deployment of the local innovation is given to entrepreneurship.

The most important barriers for the innovations and, correspondingly, the intensification of local social and economic development, are functional, political and cognitive development blocking, typical for old industrial cities and regions. Functional interlocks arise because of the system of contracts of major urban enterprises that has been inertially preserved for decades. Political blockages arise due to the close interaction of the city authorities with the largest players of the local economy (structure-forming enterprises). Cognitive blockages arise because of the ideological obscurity of persons involved in decision-making on the development.

The main provisions of the local science for the past two decades related to the third block of sources are discussed in our earlier works [41-43].

The novelty of a new complex development study

The main scientific idea of this research is to present the development of the Arctic and North and their resources as a multi-level process that depends on internal and external (global)

factors. The key role is played by the local communities and households, that create other levels of development.

Home researchers of the Soviet era had “built” the development mastering it “from above”, from the national level of megaprojects, and plunged them into the territory of dislocation, sometimes like “cathedrals in the desert”: with a very weak connection to the social expectations and needs of local communities. The novelty of our approach is in turning the pyramid of development and begin to build it “from below”: from the local level or the local community, and then to integrate it with the federal infrastructure and projects, rising to the level of regional and zonal development of the North and the Arctic. Thus, from the “atoms” of local development, the regional and zonal are collected. The “great” development of megaprojects and federal route-corridors of development can be successful only if relied on “small”, developed “from below” by the efforts of local communities and entrepreneurs. It turns out that in this development, we see endogenous and exogenous components. Endogenous ones are connected with the possibility of looking at all the phenomena of development and economy on a single methodological platform created for the development from the bottom. Exogenous components are associated with large, federal megaprojects and infrastructural objects “from above”, included in a single multilevel picture of development.

On the other hand, our foreign colleagues work a lot on the local level, e.g., analyzing the life-supporting nature use (the so-called subsistence) of indigenous people in Alaska [44-45] within the framework of managing resources in public property (E. Ostrom, F. Berkes [46-48], etc.). However, they never linked these studies to the complex phenomenon of economic development, especially at different levels: local, regional, and national.

Meanwhile, efforts to integrate the particular phenomena of the social and economic development of the North and the Arctic (the land claims of indigenous peoples, the resource economy, the traditional lifestyle — reindeer herding and fisheries, etc.) into a single picture of the new development of resources and areas in the North and the Arctic are extremely important and relevant. Once it has been already possible to do: in 1960-1980s, but in another economic model (the Soviet planned economy) and in another (industrial) economic era.

Let us try to outline the conceptual synthesis’ contours for creating a new complex theory of development adequate to the modern time, and new research priorities arising in this connection.

Glocality means the balancing of the so-called “top” approach and the “bottom-up” approach in the most important issues of development: the ratio of “imported” and “produced” (e.g., when new megaprojects are being developed) — external market prices on exported goods and home market prices for consumable goods; institutions (co-existence of federal and local norms and rules and scope of authority/authority on critical issues of resource development); knowledge (combinatorics of external expert and local knowledge); and critical elements of local life-support (energy and food).

These specific relationships of global, external and local, local determine the rhythm of the development, the very possibility of its further expansion or, conversely, its contraction. It is important to note that this relationship in the field of knowledge has a fundamentally different character compare to all the other cases, because it is not a question of replacing the global with local knowledge, or vice versa, but the issue of integrating global and formalized knowledge of experts with the local knowledge (incl. indigenous one) about nature, climate and resources.

Let's call the described glocality — linking the levels of development — vertical systemic or polycentric. E.g., it means that we keep in mind a single picture of “great”, corporate and export-oriented nature-use and “small” nature use of individuals and community hunters, fishermen, etc. And this is a single development of local spaces and resources, within which intensive communications are being established for transport and land plots in the time of their use.

Glocality/vertical systematic is very important for improving the effectiveness of the development of northern resources and areas. In addition to it, the horizontal systemic nature also has great importance: the coordination of the interests of local actors of the development at the local level.

A natural question arises: why does the local level become so important? What has happened in recent decades? The fact is that modern development systems are incomparably more difficult than the previous ones. Tangible economic effects, incl. the effect of increasing returns on the “smoothness” of communication between the main actors of the development (previously, in the industrial economy — the effect of economies of scale), from new knowledge or innovations are possible only at the local level and only then — at the regional and national levels. It is much more difficult to obtain a linkage that is fruitful for economic effects due to the exceptional complexity of systems of a higher hierarchy level and the impossibility of regular productive personal communication, as well as exchanges of implicit knowledge between the main actors of development.

But in fact, exactly the same happens in biological systems. The most important is the level of the local population, which allows “free crossing”: a higher level is “attached” to local. So, it turns out their combination.

The elevation of the local level and the local systemic nature as the main factor that ensures economic effects means a stronger, unprecedented socialization of the development than it was in the past. The fact is that communication and interaction of the main actors could be established only in the absence of conflicts, with high negotiability and trust. If these elements are not found, a deduction is obtained instead of the economic development effect.

So, the local system's importance in obtaining economic effects in modern conditions of innovative development grows many times and assumes conflict-free. Conflicts of the development actors destroy synergy and positive externalities (knowledge flows, learning from each other, perception of best practices, etc.), and therefore destructive.

The quantitative dynamics of the development results is important (this has been studied before), but also the importance of the institutional and organizational dynamics is high. It works through the emergence, development and dying of key organizational forms/structures of development: both economic (large and small, different forms of ownership) and structuring the development space (evolution of the ATD) and landscape dynamics (incl. the one caused by climate change, etc.).

After these general considerations, the question inevitably arises: how should the methodology be developed? Where are the main focus points?

The first research priority is the analysis of local institutional capital. So, several areas are distinguished:

- serious analysis of archival sources and personal interviews about the institutions existed in the past, preserved in the memory of generations and are remembered with great warmth (e.g., fairs between the nomadic and sedentary population of Chukotka). At the same time, institutions are understood not just as the spiritual envelope of something, but also as a social and technical unity of norms, structures, rules and a material, physical sub-stratum densely adjoining them: e.g., temporary roads created and used by indigenous peoples, and now abandoned (but they have the opportunity to be restored);
- analysis of the currently existing, sometimes informal norms and rules of local nature management (customary law), the prevailing representations/blockages/taboo/beliefs (e.g., about sacred sites), prices that directly affect both large and local small resource projects;
- analysis of the adequacy of federal and regional norms and rules to specific local conditions in the field of "large" and "small" nature use. For example, to what extent does the current legislation on the timing of hunting for catching game, fur-bearing animals, salmon trout and others correspond to population and seasonal rhythms and cycles, as well as to the needs of local hunters and fishermen? The fact is that the Russian northern realities abound in cases when even from the regional level, for example, the Chukotka Autonomous Okrug, the details and peculiarities of the local sea-mammal hunting of the Eskimos and the Chukchi are not grasped;
- detailed study (incl. assessment of the scale) of the illegal, shadow actions and processes, incl. poaching; illegal nature use, description of existing marriage practices and conditions under which they can be legalized;
- issues of institutional dynamics — maneuver ownership in local assets and critical elements of the development infrastructure. E.g., an assessment of a formally or informally existing institution of community ownership for natural resources and land and its evolution; examples of how to accelerate the development by transferring key assets from one property to another (e.g., departmental roads to regional ownership);
- what "surprises" of the past have radically changed the path of development of an area and when was it just because of purely material factors (e.g., a new deposit), and when was it caused by social and technical factors (e.g., the invention of a new technology or institute, accidental achievement, etc.)?

The second research priority is attention to conflicts and contradictions in the process of development, in local "large" and "small" nature management, and what conflict resolution mechanisms had been used in the past and are currently being used. In full accordance with the forgotten canons of dialectical materialism, we propose a special emphasis on the development,

inherited and/or arisen in the present and potentially possible future conflicts over the resources and spaces that already existed in the past. This is detailed in several areas:

- evaluation of partner and collaborative mechanisms and structures (formal and informal) of conflicts in the field of local nature management in the past, in the Soviet era (between regions, teams of reindeer herders, state farms, etc.) and to what extent they could be of use today;
- the same problem/limitation of development (if it existed), which was reproduced on the territory in all the latest “waves of development”, resulting from the characteristics of landscapes, ethnic groups, general local widely understood genetics;
- what are the formal mechanisms for resolving conflicts in local nature use: e.g., in fishing, between fisheries and subsoil users, what is their inefficiency and what could be offered in return?
- detailed examples, when informal rules and regulations could be reached in disputed issues of local resource development and nature management. This was even more successful than the law and formal norms. What was the main secret of the success of such local contracts? What conclusions could be drawn for future?
- contemporary conflicts of actors, users of natural resources, contradictions of their interests: e.g., in combining commercial and amateur, life-supporting nature management in the municipal district;
- different “bottlenecks” in the local space or “constraints” in time, which require very fast decisions on the development or the window of opportunity could be quickly closed.

The third research priority is the evolution of the settlement system, which is associated with the development and the changing federal regulations for it. The theme is extremely important. It reveals the specifics of the spatial structure of the development of a territory. It involves answers for the following questions:

- what were the main “alterations” or transformations of the local settlement system in the past century (e.g., by stages)? To what extent did they, on the one hand, reflect the current models of the development, the impact of technology, depletion of natural resources, demographic, and other factors; on the other hand, themselves influenced the “large” and “small” nature management?
- how can we characterize the main local features of the resource resettlement system that has developed in this model and, more broadly, the entire local system of resettlement? Was the previous administrative-territorial division (ATD) tested for strength? what does not pass, and where the main conflicts/contradictions are outlined?
- how would it be advisable to rebuild the local space through the reconstruction of the ADT, so that it would be a catalyst, rather than a brake on the resource development? E.g., the liquidation of some stationary settlements and their transformation into temporary settlements; the formation of new storage terminals (factor stations), etc.
- where are the main boundaries/barriers in the local development space and in what way do they manifest themselves, hamper the dynamic of the resource development? What could be done to eliminate them?
- emphasis on local existing and long-standing “anomalies” of spatial organization and development (attention to paradoxes and anomalies is important for all research azimuths).

The fourth research priority is the peculiarity of the interaction between “large” and “small” forms of development in a particular area. This implies, among other things, clarification of the following issues:

- what are the structures of development that had a spiritual and value meaning for local development in the past, have in the present, and where could they be expected to appear in the future?
- are there positive externalities/flows of knowledge between large and small forms of development, large (megaprojects) and small nature use?
- is there a division of labor in the sphere of development of local innovations between large and small development structures?

Summing up: the glocality of new development means a clear understanding of the different patterns that operate at the global and local levels of the development of the North, the potential (limits) of the scalability of patterns from one level to another. Local systemic means the way communication between the main actors of the development takes place and it is of great importance for the efficiency of the developments.

New conditions have much stronger effect on megaprojects than before, in the industrial age. Uncertainties and constant changes in the factors of development mean the absolute inevitability of the initial pilot experiment. It is the innovative search for the best technological, organizational and engineering solutions is continued by replication and scaling of the approved practices and experience on new polygons. That is why special territories — experimental polygons, sites for development experiments, incl. the development of special project legislation and financing of a specific large megaproject — are extremely important as never before.

Conclusion

The call for a new Russian development theory for resources and areas of the North and the Arctic has repeatedly emerged in recent decades. However, there have always been objective circumstances that have postponed this for the future. In the 1990s, the temptation to succumb to foreign ready-made solutions, Western concepts and theories, instead of building own ones was so high. On the other hand, the transition to the market in the North and the Arctic was too fast and hasty to be immediately ready for the development of the theory.

In the 2000s, it seemed that such a coherent theory was not necessary since there had been a series of megaprojects. One could confine oneself to the project approach to the development of the North and the Arctic. So, do we need an ideological system conceptualization of the phenomenon that we observe in our North and in the Arctic?

But now, 30 years after continuous reform of the Russian economy, the need for a holistic view of the new development and its laws, drivers, levels and institutions is obvious. We invite our colleagues to jointly participate in this intellectual project in the interests of the development of the Russian North and the Arctic.

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