V. A. Kryukov, A. E. Sevastyanova, A. N. Tokarev, V. V. Shmat
Institute of Economics and Industrial Engineering SB RAS (Novosibirsk, Russian Federation, e-mail: anatoli-3@ngs.ru)

A MODERN APPROACH TO THE ELABORATION AND SELECTION OF STRATEGIC ALTERNATIVES FOR RESOURCE REGIONS

For many countries and regions (both in Russia and abroad), natural resources are the crucial factor for socio-economic development. The role and significance of natural resources in the economy of different areas substantially depend on the institutional environment. Today, we have a qualitative complication of conditions for mineral resources exploitation and the development of new, unconventional types of resources. The changing characteristics of natural objects, as well as the increasing uncertainty in the resource sector, actualize the search for alternatives to the development of resource regions and the elaboration of appropriate strategies. As regards resource regions under the new conditions, it is necessary to emphasize the extended specific understanding of inclusion and its aspects. The latter implies opportunities for regional authorities to actively participate in the management of the mineral resources sector, as well as to involve a wide range of communities, from organizations representing the interests of indigenous peoples to the communities of practice: industry associations, environmental (ecological) organizations, representatives of the innovation institutions. Modern approaches to elaborating strategies of resource regions development (primarily based on the development of the mineral industry) should rely upon the principles of sustainability, inclusion, and the need for innovation. The convergence of these characteristics results in a new socio-economic concept. It can be defined as harmonious development, critical for the Russian regions. The proposed approach can be used to elaborate strategic alternatives for the development of resource regions.

Keywords: resource region, regional economy, socio-economic development, natural resources, mineral resources sector, institutional environment, resource conditions, sustainable development, inclusion, innovation, harmonious development

Problems of developing resource regions in the framework of contemporary economic science

For many regions, natural resources are a crucial factor in their socio-economic development. The scope, quality, and availability of natural resources make up the foundation that draws a distinction between these regions and defines the development areas. Not incidentally, Russia's economic history since the end of the XV century until now has been a "history of a country reclaiming (colonizing) territories to continue exploiting new natural resources" [1, p. 631].

Regions where a sector making use of natural resources dominates the economic structure (including the mineral resources sector, MRS) can be defined as resource regions. At the moment, economic development problems in regions of this type are studied at the intersection of several disciplines of economics, namely regional economics, resource economics, and institutional economics, which has rapidly advanced over the past 10–15 years.

An analysis of the economic development problems first in the USSR and then Russia (especially when the scholars were actively searching for ways to transfer the economy to the new principles of coordination between economic agents) has revealed the need to engage in research in the field of regional economy and not only study the issues of regions' functioning and development but also many other factors and cases previously considered to be part of "pure economic policies." In a broad sense, the subject area of regional economics covers the following areas: functioning and development of regions; interregional cooperation and differentiation; regional features related to the operations of enterprises, companies, and business networks; the development of the national economy with a breakdown by region; and development management at all levels, including regional socio-economic policy [2].

One of the main tasks of the resource economy is to study the role of natural resources in the economy at large in order to manage these resources in a way that will ensure their best transgenerational use (in the interest of the current and future generations). In the present context, when considering the transgenerational effects, the focus shifts from the depletion of non-renewable mineral resources (i.e. oil, gas, and solid minerals) to analyzing the problems of environmental sustainability and normal ("healthy") standard of living.

When researchers consider the problems of resource economics, among the reasons for departing from the dominating Hotelling's rule, they highlight not so much a discovered solution to the issue of

mineral resources endowment but the awareness of how relative the severity of the problem of mineral resources exhaustion is. This is due to the fact that basic kinds of mineral resources and means of their production are changing incidentally. Such a change emerges not only as productive forces keep developing but also because of more adequate situations and more flexible institutional framework to manage mineral resource potential of territories (from industrial control procedures to arrangements of interaction between economic agents).

These general considerations are related to focusing on the deeper and more fundamental economic issues, especially on the role and relationship between natural (or geographic) and institutional factors in economic growth. Different approaches, varying by how and in what ratio these groups of factors participate in the implementation of economic policy, are analyzed, for instance, in [3], where the institutional economic regionalism is defined as a subdirection of institutional economics that explores the problems of regional and local development by means of a categorical apparatus and methods of institutional analysis.

A surge of interest and the topicality of these fundamental issues at the turn of the 2000s arose with the publication of several studies [4–7]. We should note that it occurred after an equally strong surge of interest to the role of natural resources in economic development, which continues unabated till date [8].

Within the context of our study, the main conclusion drawn from the research above is that the role and significance of natural resources in the economy of various countries and regions are largely dependent on the manner in which a corresponding institutional environment (where the resource conditions are an essential component) has been formed. The question of whether it is resources or institutions that are most important is largely methodological in its nature. At the same time, it is rather difficult to separate the role of one factor from another when analyzing the real problems of the regional economy. Modern economics (including regional) shows great pragmatism when accounting for a wide range of factors, conditions, and phenomena.

A striking example will be the regional economic policy in contemporary China. An experimental approach to reform made our Chinese counterparts recognize the need for the so-called duplicate investment. Such an investment is contrary to the canons of neoclassicism and gravitation to establishing a single equilibrium point; however, R. Coase and N. Wang wrote the following: "Repetitive and duplicative investment is inevitable, and indeed, an essential part of the process. This has resulted in an erosion of economies of scale to capital due to its under-utilization, but has greatly accelerated and diffused industrialization… The loss in what Alfred Marshall called 'internal economies' is more than compensated for by what he called 'external economies.' This is the key to understanding the extraordinary speed of market transformation in China during the 1990s and beyond [9, p. 264]."

As a result, global science has set up the following views on the role of natural resources in the economic development of countries and regions.[1]

1. Natural resources, renewable and non-renewable, along with the associated ecosystems, are part of the well-being of countries, territories, and peoples living there.

2. Natural resources are a true form of capital which provides the grounds for all the other forms. The development and use of natural resources ensure financial income and thereby contributes to the welfare of citizens.

3. The most important requirement for the control systems of the production and use of natural resources is their orientation towards achieving sustainable social, ecological, and economic development.

4. The role of governments and civil society institutions in each country and within a separate resource territory is to create a policy aimed at preconditioning long-term sustainable development and not only to generate short-term income and benefits.

Conditions for the sustainable development of resource regions

The research literature abounds with studies on social, ecological, and environmental sustainability, as well as on various aspects and components of the issue (see, e.g. [10]). Among the works that gained

[1] The Economic Significance of Natural Resources: Key Points for Reformers in Eastern Europe, Caucasus and Central Asia. (2011). Paris: OECD, 47. Retrieved from: http://www.oecd.org/env/outreach/2011_AB_Economic% 20significance%20of%20NR%20in%20 EECCA_RUS.pdf (date of access 1.09.2016).

the widest recognition, we should mention research by Edward Barbier (see [11, 12]). In particular, according to him, "the very minimum criterion for attaining sustainable development in an economy dependent on exploiting natural resources is that this exploitation satisfies weak sustainability conditions. That is, the development path must ensure that, first, natural resources must be managed efficiently so that any rents earned are maximized, and second, the rents resulting from the depletion of natural capital must be invested into other productive assets in the economy" [12; p. 344].

Earlier (see, e.g. [11–13]) approaches to structuring this policy in the field of natural resource management, as well as studying the underlying resource conditions, were developed without regard for two important factors:

a) the need for a temporally varying ratio between the general and specific (reflecting the characteristics of a resource region) components involved in the creation and implementation of natural resource management policies;

b) features associated with the creation, accumulation, and application of knowledge, skills, and experience in the development and use of the territory's resource potential (especially with new types of resources and new deposits — less traditional and more knowledge-intensive).

For instance, the economic dynamics in resource regions was largely determined by changes in the economic performance for the extraction of homogeneous traditional natural resources. This approach was based on mutual substitution options in several areas, including the following: "extraction (resource depletion) — conservation of financial assets," "extraction — processing," and "extraction — development of tertiary sector and education" (Fig. 1).

The conditions mentioned above necessary for sustainability do not exhaust the wide range of alternatives for the economic development of resource regions. Not least important is the transition from supplying raw materials to supplying processed goods, which is the top priority for economic policy in resource-rich countries. That being said, in view of successfully fulfilling the above conditions to advance new types of economic operations, it is indispensable to meet a great lot of auxiliary conditions.

Firstly, the development of manufacturing requires time and investment. The requirements for the processing industry to evolve are as follows: skilled workers; forward investment in education, science, and technology; financial resources availability for every agent, including SMEs; infrastructure and conditions for the development of new industrial activities.

Secondly, the progress of manufacturing does not exclude any development possibilities for traditional operations related to natural resources, such as mineral exploration and mining. However, it is necessary to consider other important features of this process, namely:

— temporally changing composition and characteristics of reclaimed objects, i.e. natural resources (both non-renewable and renewable);

— ever-growing negative trends associated with an increase in costs and decrease in the economic attractiveness of the objects involved in exploitation;

— improving knowledge capacity of development processes and the use of natural resource deposits scheduled for commissioning;

— increasing specificity and, in a certain sense, locality of properties pertaining to new objects (which are increasingly becoming dispersed and less homogeneous).

One should take into account the mentioned dynamic features appurtenant to the functioning of the economy, social sphere, and ecosystem of resource regions not only when shaping alternatives for their development but also when selecting, analyzing, and carrying out political actions and measures in natural resources management.

Inclusion factor function in the development of resource regions

Some recent studies on the sustainability of the economy, community, and environment in resource regions put forward a need for defining a certain inclusion level as an essential condition for taking up such development paths. Many works understand inclusive development as "equality," meaning equal opportunities for public involvement in the processes of economic development and their access to benefits. That is, the inclusive nature of socio-economic development implies a commitment to the

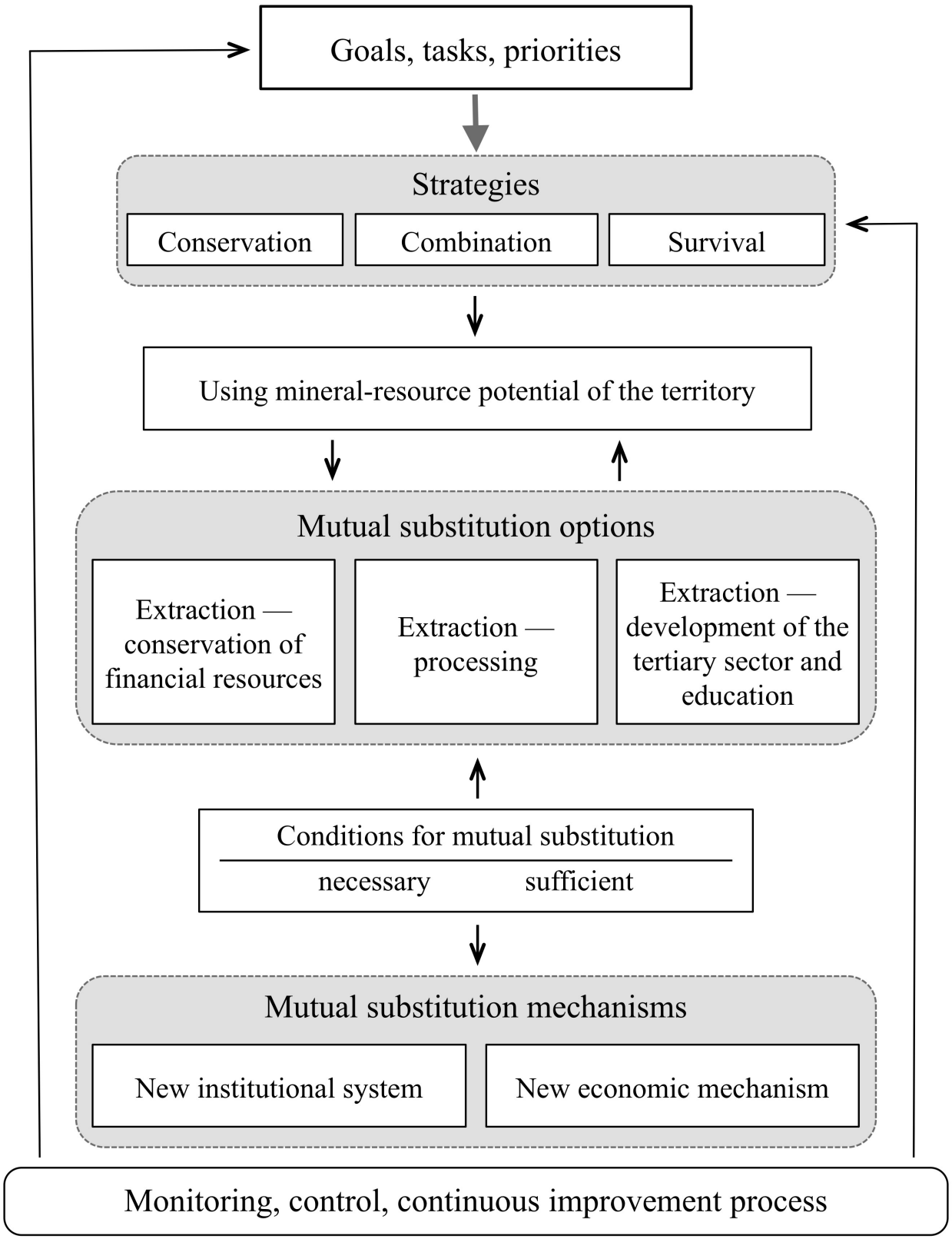

Fig. 1. *Conditions and guidelines for setting resource regions on a path of sustainable development*

principles of justice and equal opportunity; it suggests that all social groups should be engaged in the processes of economic development[2] [14, 15].

When it comes to resource regions, the qualitative complication of extraction conditions and a transition to the exploitation and production of new resource types (e.g. the Bazhenov Formation in Tyumen Oblast, petroleum bitumen in Tatarstan) lay an emphasis on the extended (specific)

[2] OECD Framework for Inclusive Growth. (2014). Paris: OECD, 60.

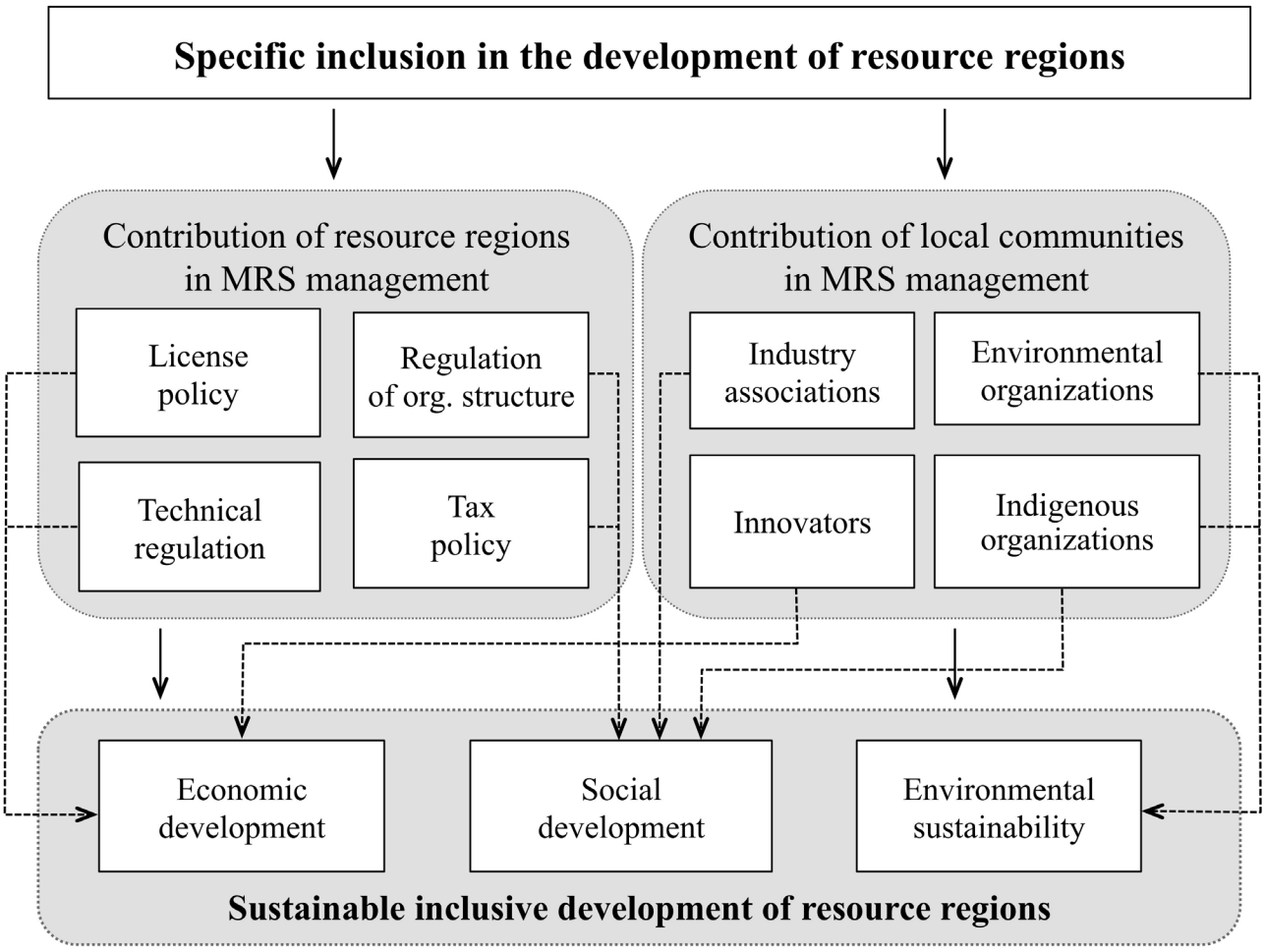

Fig. 2. *Specific (extended) inclusion and sustainable development*

understanding of inclusion and its aspects. In this context, by specific inclusion is meant opportunities for active and valuable contribution of regional authorities in the management and regulation of the MRS, as well as involvement in its development and in the discussion of strategic decisions rendered by local communities: environmental organizations, organizations representing the interests of indigenous peoples, local industry associations, representatives of the innovation institutions, and other local communities (Fig. 2).

Thus, in Canada, indigenous peoples living in the territories with traditional community-based nature resource management are actively involved in MRS development, directly receive a portion of rental income, and participate in environmental monitoring.

In the 1990s, Russia found a new, sufficiently functional and efficient approach to accounting inclusion requirements in the creation and implementation of natural resource management policy, namely the division of powers and jurisdictions between the Federation and its constituent units. It was the "two-key rule" at work: regional authorities played a pivotal role in making decisions that concerned with natural resource use and the management of resource potential on their territories.

However, since 2004 this principle has become obsolete after regional leaders actively lobbied their interests to the detriment of major mineral and energy companies. The legislation was amended; the effect was to deprive regional authorities of the right to manage natural resources in their territory. These amendments further acquired legal force: first in 2004 as a framework law, and then in 2008 modifications were made in the basic Russian Law on Subsurface Resources. According to the amendments, the disposal of the subsoil is regulated by a commission, formed at the federal level. The commission includes representatives from the federal agency for management of the subsurface fund and regional administrations. As a result, all power in the management of mineral and energy potential within Russia's immense territory is currently consolidated at the federal level.

The 2000s saw a departure from the principles of inclusion (concerning regions' participations in natural resource management), influenced by the following circumstances:

— traditional high-performance facilities dominant in the mineral resources sector;

— favorable dynamics of prices for most natural resources (primarily in foreign markets);

— lack of solutions — both from theoretical and practical perspectives — to the problems associated with the establishment and functioning of procedures for natural resource co-management (inclusion).

The processes of decision-formulation and decision-making based on inclusion principles not only ensure better compliance with the law in the execution of natural resource management policies but also consider a broad range of issues related to local knowledge and interests of various population groups. In addition, the knowledge and socio-economic conditions for exploitation and use of natural resources are constantly changing. Consequently, natural resources development policy will be a long-term success only if it can reflect the changes and adapt to them. Inflexible policies in the field of natural resource management mean missed opportunities for economic, social, and environmental sustainability.

Alternatives to the socio-economic development of resource regions

The changing characteristics of natural objects, as well as the increasing uncertainty in the global resource sector, actualize the search for reasonable alternatives to the development of resource regions and the elaboration of appropriate strategies. This could include the following alternatives (which should be taken rather conventionally):

1) inertial alternative, meaning to preserve the existing resource regime while expanding the provided privileges and preferences. Historically, this strategy results in an inevitable damping of business activity with resource regions falling into economic depression;

2) combination alternative, which continues the existing approach to natural resource management but with some elements of the "new institutional reality," especially for new types of resources (e.g. oil facilities in the so-called Bazhenov and Abalak formations). It should stabilize the extraction of mineral resources for an appreciable length of time. To some extent, the practices in the Republic of Tatarstan can serve here as an example;

3) enhanced alternative, which differs from the combination one not only by additional procedures and approaches aimed at extending the degree of regions' participation in the exploitation of deposits (both unconventional and previously brought into production) but also by engaging more local suppliers of industrial goods and services in production. As a result, resource regions are gradually forming a diversified economy, and its development is converging towards a steady-state path;

4) radical alternative ("harmonious development model"), focused on innovative development (based on the specifics of the mineral resource base in a given resource region) and procedures for the co-management of natural objects (deposits both actively mined and subject to future development). Such co-management should distribute not only powers but also jurisdictions between levels of government. Moreover, it must define the procedures for rental income distribution.

In today's Russia, the harmonious development model is hindered by many limits and obstructions, primarily of institutional nature. For example, restrictions on the radical alternative emerge from the lack of resource management specialists "in the provinces" (starting from municipalities to federal subjects) and under-developed civic institutions. If these difficulties are possible to overcome, the path of sustainable development becomes clear. We can put forward the example of Texas "shale revolution" phenomenon at the turn of the 2010s.

Our calculations (with the original forecasting and analytical tools) show that the economy of Tomsk Oblast can achieve sustainability in the medium-term (10-year forecast horizon) if following conditions defined by the "combination alternative" or in the long term (10–20-year forecast horizon) if following conditions stated by the "enhanced alternative."

At the heart of all alternatives are three components: natural, physical, and human capital. It is crucial that a resource region cannot take up the "consistently" sustainable development path beyond and without procedures for the effective management of natural capital.

Currently, Russian authorities attempt to find a way out of this situation by stipulating specific conditions for economic activity within localized areas (for example, dubbed as "territories of priority development"). This approach is far from universal (and hence irrelevant to creating foundations for the sustainable development of resource regions); therefore, it may only be useful in cases where there are explicit opportunities to carry out projects ensuring quick economic return. The real economic

development of resource regions is characterized by a strong dependence on institutions, conditions of resource development, and the state of infrastructure.

Harmonious development model for resource regions

One of the main prerequisites for resource regions to take up the path of sustainable inclusive development is to provide the state system controlling and regulating the development and use of Russia's mineral resource potential with the needed flexibility that would make allowance for contemporary realities. In this regard, matters of principle should include relocating decision-making centers closer to places of real economic activity. In particular, it means that regional agencies responsible for subsoil use, including areas rich in natural resources (both federal subjects and municipalities), will take a bigger part in such processes [16].

Some of the most important features of environmental management in the present context include the growing role of knowledge, transitioning from linear interactions between participants in the exploration and development of mineral resources to networks, the synchronization of previously disparate stages in time and within the framework of several integrated technologies. The answer to the emerging challenges involves an increase in the flexibility of the entire system of learning, exploitation, and use of resource potential of the country at large and its individual regions (based on the specific nature of their resource potentials).

In general, against the backdrop of a qualitative complication of extraction conditions and a transition to the exploitation and production of new resource types, an approach to new strategies (alternatives) for the development of resource regions should rest upon the principles of sustainability, inclusion, and the need for innovation. Such an approach could be conditionally named a "harmonious development model" for resource regions (Fig. 3).

An idea of harmony in socio-economic development, implying a connection (within a single institutional framework) between various components, is not entirely new. It draws the attention

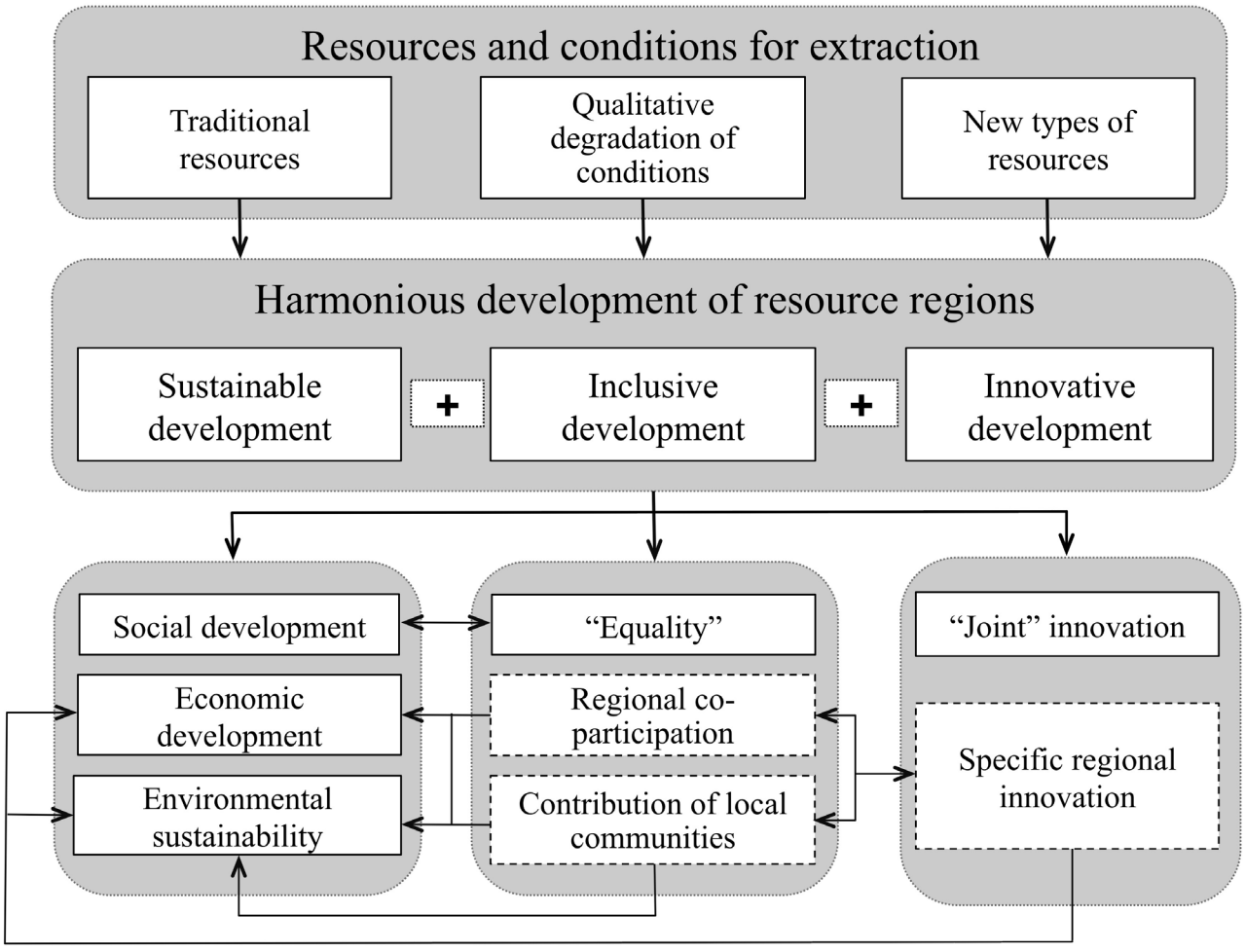

Fig. 3. *Harmonious development model for resource regions*

Translation

of researchers at home and abroad, becomes a focal point for solving practical issues in the socio-economic development of countries, regions, and cities. Some authors rightly believe that in today's Russia "the problem of the harmonious development of economic systems must step out of the shadows and become the dominant development path for not only the economy but also the country and society as a whole" [17].

China sets an interesting example not only because of its politically declared movement towards the "harmonious world" based on traditional values [18] but also regarding the new practical objectives of socio-economic development relying upon measurable criteria, namely the "harmonious development index" calculated for more than 70 administrative divisions (regions and cities)[3]. However, the leading role in solving the problems of harmonious development, which combines many growth factors, belongs to innovation.[4]

A similar conceptual position on the socio-economic development would be relevant and useful for Russia. It is necessary to strive for a harmonious convergence of development factors such as sustainability, inclusion, and innovation. At the same time, innovative development shows an increasingly stronger preference towards specific regional innovation, which should be designed and introduced (among others) by local innovation communities, academic organizations, and the tertiary sector. In the oil industry, for one, it is not enough to simply advance drilling technologies, well workover techniques, and recovery methods. It requires radically new, truly innovative approaches to integrating new specific types of resources in the economy effectively.

The key blocks of the harmonious development model (sustainability, inclusion, innovation) should be tightly intertwined. For example, the co-participation of environmental organizations and representatives of indigenous peoples in MRS management ("inclusion" block) promotes the integration of environmental factors ("sustainable development" block). Active contributions of regional authorities in MRS management and regulation ("inclusion" block) can be aimed at solving social problems (e.g., by creating incentives to continue production at the depleted subsurface areas, incentives to engage new deposits in the national economy).

In turn, the development of new technologies based on specific innovation ("innovative development" block) requires an active contribution from regional authorities (e.g. by creating incentives and corresponding infrastructure) and local communities of practice (e.g. associations of innovators, oilfield service companies). Innovative solutions encourage the participants to be effectively involved in the exploitation and production of new resources, as well as to consider for environmental constraints and factors (economic and environmental components of the "sustainable development" block, respectively).

The complex nature of the interaction between the key blocks of the "harmonious development model" (sustainability, inclusion, innovation) determines the requirements for forecasting and analytical tools to evaluate trends in resource regions development. The most important condition is an open model architecture. More specifically, we have used both standard models (based on production functions and statistical relationships that connect the performance indicators of the natural resources sector to the pace of conventional resources development and related resource base preparation [19]) and model designs following cognitive approach [20].

By combining econometric models (which reflect various hypotheses of the so-called learning effect, as the impact of resource conditions on the exploitation of different types of natural resources) with models of real options and cognitive models, we can better take into account uncertainty and project risks. It is particularly critical in determining the development prospects for unconventional deposits, such as the Bazhenov Formation in Western Siberia.

The need for a harmonious development model for Russian resource regions is proven by the state of the hydrocarbon resource base, and this is not the only example. At the beginning of 2014, recoverable oil reserves of industrial categories associated with unconventional resources (from the Bazhenov and Khadum formations, Domanik deposits) amounted to 297 million tons, or 1.7 % of the

[3] Outcome of the First National Index Evaluating both Scientific and Harmonious Development in the Cities // Release of Index of the Harmonious Development in Cities of China. Shanghai: East China University Of Science And Technology. Retrieved from: http://www.ecust.edu.cn/s/2/t/31/14/b3/info5299.htm (date of access 21.09.2016).

[4] Harmonious Development Through Innovation 2008. CCICED Annual Policy Report. (2009). Peking: China Council for International Cooperation on Environment and Development, 317. Retrieved from: http://www.cciced.net/encciced/policyresearch/policyreoport/201206/P020120612557372274146.pdf (date of access 15.09.2016).

total reserves of these categories in Russia (360.9 million tons, or 2.3 % of Russia's total reserves of these categories). However, some expert estimates suggest that these deposits may contain from 10 to 30 billion tons of oil, which in turn can ensure the annual production at about 50 million tons.

Overall, according to the estimates by the Ministry of Energy, 2/3 of Russia's proven oil reserves fall into the "difficult to extract" category; whereas before, the proportion of such oil was 45 %[5]. The potential of unconventional deposits of liquid hydrocarbons in Western Siberia is justified with fluctuations of indicators measuring the light oil resource base of the Bazhenov Formation: from 600 million tons to 174 billion tons. The median in this range exceeds the total original oil-in-place for light crude oil in all known Russian oil and gas provinces combined[6].

The development of an economic basis for many resource regions (included in the mineral resources sector) is complicated by the need not just to produce raw materials but demonstrate positive performance. We should consider not only direct but also indirect effects emerging in the interbranch relation chains, as their value increases over time. Our analysis shows that many Russia's resource regions have every opportunity to use a scientific resource multiplier, which will synergize the interaction between human, physical, and natural capital.

Some resource regions (Tomsk Oblast, the Republic of Tatarstan, Khanty-Mansi Autonomous Okrug) employ testing grounds as a tool to launch the scientific resource multiplier when developing unconventional natural objects and fields characterized by a high depletion of initial recoverable reserves. Such grounds are targeted at the developing new exploitation technologies that would take into account any specific features of the mineral resource base in a given region.

A testing ground is not only a place to practice technology and acquire new skills and abilities but also to establish new rules and procedures for cooperation between participants in the exploitation of new complex natural objects. The issue is complicated because the institutions must draft all the required permits (corresponding to the current rules and regulations, while also amending and refining them) and attract anchor investors in the industry who could defray the start-up expenses to prepare the fields to be used as research testing sites. The institutional model of testing grounds creation implies that the projects should involve the state (represented by the federal and regional authorities) and a wide range of partners: oil and gas companies, scientific and educational organizations, and oilfield service enterprises[7]. This approach creates a new innovative institutional framework for the development of new types of resources.

Conclusion

In today's economy, of growing significance is an innovation of various kinds: not only in technology but also in management and organization. The successful innovative development of resource regions depends on how the institutional environment is formed, which is to ensure effective interaction between process participants. At the same time, the innovative systems in virtually all Russian resource regions currently experience the lack of effective interaction practices both inside and between the innovation and resource sectors. There is a strong need for the effective coordination (primarily by regional administrations as the main promoters of inclusion) of intensive interaction between all components of regional innovation systems that would ensure a continuous exchange of knowledge and experience.

One way to resolve the conflict between Russia's enormous mineral resource potential and the growing complexity and heterogeneity of its composition seems to adopt the model of harmonious socio-economic development for resource regions, which implies an ever-increasing role of specific innovation, sustainability (usually from the environmental and economic perspectives), and a growing inclusive component. This strategy means the consolidation of power for regional authorities along with professional associations and communities in resource regions.

---

[5] Tayny i bogatstva nedr In Russian. [Subsoil mysteries and riches]. (2014). Neftegazovaya vertikal [Oil and Gas Vertical], 23–24, 32–50.

[6] Bazhenovskaya svita. V poiskakh bolshoy slantsevoy nefti na Verkhnem Salyme. In Russian [The Bazhenov Formation: In Search of Big Shale Oil in Upper Salym]. Retrieved from: http://unconventionaloilrussia.com/ru/novosti/bazhenovskaya-svita-v-poiskah-bolshoj-slancevoj-nefti-na-verhnem-salyme (date of access 14.09.2016).

[7] Mungalov D. Neftyanyye poligony kak panatseya dlya startapa. In Russian [Oil sites as a start-up panacea]. Retrieved from: http://sk.ru/news/b/articles/archive/2015/12/02/neftyanye-poligony-kak-panaceya-dlya-startapa.aspx (date of access 23.08.2016).

Acknowledgments

The article has been supported by the Russian Science Foundation (Project № 14–18–02345).

References

1. Solovyev, S. M. (1988). *Istoriya Rossii s drevneyshikh vremen. In Russian [History of Russia from ancient times].* Works in 18 volumes. Book 2. Volumes 3–4. Moscow: Mysl Publ., 768.

2. Granberg, A. G. (2000). *Osnovy regionalnoy ekonomiki. In Russian [Basics of the regional economy].* Moscow: SU-HSE Publ., 495.

3. Litvintseva, G. P. (2015). Institutsionalnaya regionalistika s "ekonomicheskim litsom". In Russian [Institutional regionalistics with "the economic face"]. *Vestnik Moskovskogo universiteta [Bulletin of Moscow University], 6,* 101–119.

4. Fujita, M. & Krugman, P. (2004). The New Economic Geography. *Papers in Regional Science, 83,* 139–164. DOI: 10.1007/s10110–003–0180–0.

5. Rodrik, D., Subramanian, A. & Trebbi, F. (2002). *Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development.* NBER. Working Paper No. 9305, 44. Retrieved from: http://www.nber.org/papers/w9305 (date of access: 1.09.2016).

6. Sachs, J. D. (2002). *Institutions Don't Rule: Direct Effects of Geography on Per Capita Income.* NBER Working Paper No. 9490, 12. Retrieved from: http://www.nber.org/papers/w9490 (date of access: 1.09.2016).

7. Sachs, J. D. (2003). Institutions Matter, but not for Everything: The Role of Geography and Resource Endowments in Development Shouldn't be Underestimated. *Finance and Development, 40(2),* 38–41.

8. Sachs, J. D. & Warner, A. M. (1995). *Natural Resources Abundance and Economic Growth.* NBER Working Paper No. 5598, 54. Retrieved from: http://www.nber.org/papers/w5398 (date of access: 1.09.2016).

9. Coase, R. & Wann, N. (2016). *Kak Kitay stal kapitalisticheskim. Per. s angl. In Russian [How China Became Capitalist. Trans. from English].* Moscow: Novoye izdatelstvo Publ., 386.

10. Bolshakov, B. Ye. & Ryabkova, S. A. (2009). *Vozniknoveniye i osnovnyye problemy vkhozhdeniya ponyatiya "ustoychivoye razvitiye" v mirovuyu politiku i nauku. In Russian [Rise and main problems entering the concept of "sustainable development" in world politics and science].* Ustoychivoye razitiye: nauka i praktika. Mezhdunarodnyy elektronnyy zhurnal [Int. e-magazine. Sustainable development: Science and practice], 1(2), 210. Retrieved from: http://www.yrazvitie.ru/?p=391 (date of access: 1.09.2016).

11. Barbier, E. B. (2003). The Role of Natural Resources in Economic Development. *Australian Economic Papers,* 253—272. DOI: 10.1111/1467–8454.00198.

12. Barbier, E. B. (2005). *Natural Resources and Economic Development.* Cambridge University Press, 410.

13. Vatn, A. (2005). *Institutions and Environment.* Cheltenham, UK: Edward Elgar, 482.

14. *ADB's Support for Inclusive Growth.* (2014). Manila, Philippines: Asian Development Bank, 93.

15. Exploring and Strengthening the Intersections between Social Protection, Employment and Inclusive Growth. *Issues Paper for G20 DWG on Growth with Resilience.* Brasilia DF, Brazil: International Policy Centre for Inclusive Growth, 47.

16. Kryukov, V. A., Sevastyanova, A. Ye., Tokarev, A. N. & Shmat, V. V. (2015). Vozmozhnosti povysheniya sotsialno-ekonomicheskoy otdachi neftyanogo kompleksa Zapadnoy Sibiri. In Russian [Possibilities of increasing the socio-economic impact of the oil complex of Western Siberia]. *Mineralno-syryevoy sektor Aziatskoy Rossii: kak obespechit sotsialno-ekonomicheskuyu otdachu [Mineral-raw material sector of the Asian Russia: how to provide social and economic benefits].* Novosibirsk: IEIE SB RAS Publ., 1, 13–88.

17. Muratov, A. S. *Problemy garmonichnogo razvitiya ekonomicheskikh system. In Russian [Problems of the harmonious development of economic systems].* Mezhdunarodnyy ekonomicheskiy forum [International Economic Forum]. Retrieved from: http://be5.biz/ekonomika1/r2012/2577.htm (date of access: 1.09.2016).

18. Bodrova, O. I. (2013). Opyt Kitaya v postroyenii kultury "garmonichnogo mira". In Russian [The Experience of China in creation of culture of the "Harmonious World"]. *Vestnik VSGUTU [ESSUTM Bulletin], 3,* 139–144.

19. Maslova, N. R., Sevastyanova, A. Ye. & Shmat, V. V. (2009). *Informatsionno-analiticheskiye metody v sisteme elektronnogo pravitelstva Yugry. Opyt situatsionnogo analiza i prognozirovaniya dolgosrochnogo sotsialno-ekonomicheskogo razvitiya regiona. In Russian [Information-analytical methods in e-government system of Ugra. Experience of situational analysis and long-term forecasting of socio-economic development of the region].* Khanty-Mansiysk: Poligrafist, 65.

20. Belan, A. K. & Shmat, V. V. (2015). Analiz vliyaniya resursnykh i neresursnykh faktorov na rost ekonomiki Tomskoy oblasti s primeneniyem kognitivnogo podkhoda. In Russian [Analysis of resource and non-resource factors' influence on economic growth of Tomsk region using cognitive approach]. *Vestnik Novosibirskogo gosudarstvennogo universiteta [Bulletin of Novosibirsk State University], 15(1),* 78–93.

Authors

Valeriy Anatolyevich Kryukov — Doctor of Economics, Professor, Corresponding Member of RAS, Deputy Director, Center of Resource Economics, Institute of Economics and Industrial Engineering of the Siberian Branch of RAS (17, Akademika Lavrentyeva Ave., Novosibirsk, 630090, Russian Federation; e-mail: valkryukov@mail.ru).

Anastasiya Yegorovna Sevastyanova — PhD in Economics, Leading Research Associate, Institute of Economics and Industrial Engineering of the Siberian Branch of RAS (17, Akademika Lavrentyeva Ave., Novosibirsk, 630090, Russian Federation; e-mail: aseva07@mail.ru).

Anatoliy NikolayevichTokarev — Doctor of Economics, Leading Research Associate, Institute of Economics and Industrial Engineering of the Siberian Branch of RAS (17, Akademika Lavrentyeva Ave., Novosibirsk, 630090, Russian Federation; e-mail: anatoli-3@ngs.ru).

Vladimir Vitalyevich Shmat — PhD in Economics, Leading Research Associate, Institute of Economics and Industrial Engineering of the Siberian Branch of RAS (17, Akademika Lavrentyeva Ave., Novosibirsk, 630090, Russian Federation; e-mail: petroleum-zugzwang@yandex.ru).