Assessing Sustainable Development Potential of Rural Territories

Оценка Потенциала Устойчивого Развития Сельских Регионов

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Abstract

The paper presents an analysis of the resource potential of sustainable rural development in two regions of the Russian Federation, namely, the Altay territory (which is an agricultural region) and the Kemerovo region (an industrial region with an auxiliary role of agriculture). Agriculture is predominantly developing in agricultural areas represented by a comprehensive complex of resources. The lack of systemic approach in agricultural development has led to the irrational distribution of productive forces, inferior development of social and household infrastructure, and other imbalances having adverse effects on agricultural economic performance and living conditions in rural areas. To address this problem, the authors have developed an original method of resource potential analysis for rural areas, including a combination of economic, social, and infrastructure indicators.

Key Words: Resource potential, rural area, sustainable rural development.

Аннотация

В статье представлено исследование по оценке ресурсного потенциала устойчивого развития сельских территорий в двух регионах Российской Федерации: Алтайском крае (сельскохозяйственный регион) и Кемеровской области (промышленный регион с вспомогательной функцией сельского хозяйства). Сельское хозяйство развивается преимущественно на сельских территориях, которые представляют собой сложный комплекс ресурсов. Отсутствие системности в развитии сельских территорий в немалой степени привело к нерациональному размещению производительных сил, неразвитости социально-бытовой инфраструктуры и другим диспропорциям, что отрицательно сказалось на эффективности сельской экономики и условиях проживания в сельской местности. Для решения данной проблемы была разработана авторская методика оценки ресурсного потенциала сельских территорий, которая представляет собой совокупность экономических, социальных, инфраструктурных показателей.

Ключевые слова: сельская территория, устойчивое развитие сельских территорий, ресурсный потенциал.

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Introduction

Rural areas make a crucial socioeconomic subsystem of society. They have their specific profile, objectives, goals, principles, and development criteria. They are all diverse in terms of location and by natural, economic, demographic, and infrastructure resource availability for pursuing agriculture and certain production specialisations.

Sustainable rural development is a global challenge. The subject relevance lies in the fact that economically stable and socially advanced rural areas make the stronghold of national stability, independence, and food security, which means that the vector of their development makes a priority of national policies. The issues of sustainable development, rational natural management, and common prosperity have repeatedly become the topic of UN Conferences on Environment and Development (UNCED) (Agenda 21 Convention, n/d.). The sustainable development problem was first brought forward at a UN meeting by the Brundtland Commission (the World Commission on Environment and Development) in 1987 (Report of the World Commission, 1987). The Rio de Janeiro conference in 1992 (The Rio Declaration, 1992) addressed the problems of rational natural management. In 2012, the decision was made to establish the Working Group, which proposed the guidelines on determining the 17 Sustainable Development Goals (SDG) in 2015 and documented them in the paper entitled Transforming Our World: The 2030 Agenda for Sustainable Development. Russia has been actively engaged in the SDG agenda since 2015. Russia has cooperated with international organisations in the UN system and contributed to projects concerned with food security, infrastructure modernization, and solving economic problems in the developing world.

To foster social and economic potential and steady improvement of living standards and quality of life for rural populations, the Strategy of sustainable development of rural areas of the Russian Federation for the period until 2030 was adopted (Strategy of sustainable development, 2015). The Strategy builds on the main directions of the earlier Concept of Sustainable Development of Rural Areas of the Russian Federation until 2030 approved by the Resolution of the Government of the Russian Federation of November 30, 2010 No. 2136-p.

The progress of the Concept is measured by the achieved levels of sustainable development of rural areas. These levels depend on the following groups of factors: infrastructure, economic, and social factors. Economic factors include a wide range of indicators, however, there is no single theoretical and methodological mechanism for analysing the influence of non-economic factors on rural development.

The purpose of this study is to develop the methodology of assessment of rural regional potential based on the influence of economic, social, and infrastructure factors to ensure sustainable development of such regions and promote national interests in general.

The scientific novelty of this research consists in expanding scholarly knowledge on the assessment of rural potential along the way of implementation of sustainable development goals.

Background Review

Rural development is now an uneven process. Despite the dynamic growth of the agro-industrial complex, rural living standards and quality of life have significantly lagged behind as compared to the urban standards, with narrowing accessibility of social services and deepening information and innovation gap, leading to increased migration outflows from rural areas and lost development rates of rural areas. The expansion of urban agglomerations as a result of migration from rural areas leads to declines in rural producer numbers, lower used land rates, and, consequently, reliance on imports for food supplies (Ivanova, 2014).

We believe solving these problems should involve the formulation of forward-looking rural development policy. Resource potential is shaped by both economic and non-economic indicators (Sagatgareev, 2018). Thus, there may be two directions of research, i.e., sustainable development with a clear environmental focus and rural development in terms of social aspects and complex development patterns of rural areas. The former is primarily a focus of environmental researchers analysing resource potential as the foundation for the preservation of the biosphere (Trotskovskii, 2013).

Researchers of the second direction approach rural areas as a socioeconomic subsystem and identify several factors of sustainability in development processes. I. N. Merenkova (Merenkova, 2011) classifies the factors of sustainable rural development by territorial aspects (external and internal), by development spheres (economic, social, institutional, and environmental), and by the degree of influence on the territory (direct and indirect). A somewhat different classification

approach is proposed in the papers by Iu. A. Lemetti. External factors are discussed in the macro environment and classified as cyclical developmental, geopolitical and geoeconomic, natural and climate, and historical and cultural factors. Internal factors (microenvironment), according to her classification, include a prolonged systemic rural development crisis, rural sociodemographic crisis, as well as technological degrading of agriculture and inert management practices (Lemetti, 2011). A less cited factor in the economy is the geographic factor. Some researchers credit it as the most influential and significant factor in the development of the agro-industrial complex (Kovalenko et al., 2014), (Kundius, 2012).

There is yet no consistent view of the essence of sustainable rural development. The existing approaches to the category do not fully absorb the requirements of interpretations among international institutions.

There are yet no identified criteria and indicators associated with sustainable development goals to measure the level and intensity of change in sustainability. No methodology has yet been charted to account for all complex influences on rural development. The existing methods in sustainability assessment of rural development operate at the macro or, at best, meso levels and do not apply to rural localities, which offers no visibility in terms of the available socioeconomic potential required to sustain the adaptation of rural areas to change in line with the principles and propositions of the sustainable development paradigm (Merzlov, 2012).

Results

The paper proposes an original method to assess resource potential, namely, a two-stage index method based on calculated indicators (Kolesnikova, Stefanenko, 2016).

The first stage refers to the municipal layer, i.e., resource potential is analysed for all municipal districts with further comparisons between them by the methods of ranking and typisation.

The second stage involves describing rural resources in the top municipalities (as measured

by their social, economic, and infrastructure potential) to uncover the territorial structure of resource potential.

The methodology is tested in two trans-border regions, the Kemerovo region and the Altay territory.

The Kemerovo region, as an advanced industrial region, is one of the highly urbanised federal subjects of the Russian Federation. It counts 17 cities of regional subordination, three towns of district subordination, 13 urban districts, and 47 urban settlements. The region has two major urban agglomerations, the Kemerovo and Novokuznetsk agglomerations.

Despite the typical urbanisation trends of the last century in Russia, developed rural areas still play a critical role in the regional economy. The Kemerovo region counts 18 municipal districts including 154 rural areas and 978 rural localities.
The total supply of agricultural lands in economic use is 2 million and 399 thousand ha, which corresponds to 27% of the total land area in the region. Agriculture plays an auxiliary role in the regional economy as an agricultural material supplier for food production in the urban economy.

The Altay territory is a high-potential region with an advanced and diverse non-resource-based economy. The share of the rural population is rather high in the region, accounting for more than 45%, which is almost twice the national average. Rural populations decline, followed by a further decline of agricultural operations. This situation means worsening prospects for rural citizens as declining rural populations by 6.23% over the analysed period are accompanied by lower availability of social infrastructure. The growth rates of per capita income show little change, as does the minimum subsistence level.

The share of agriculture in the gross regional product is more than 16% compared to the national figure of 4%. Accounting for only 4% of the territory and 12% of the population of Siberia (with half based in rural areas), the territory produces a fifth of agricultural products of the Siberian Federal District. There are 60 municipal districts in the Altay territory. According to the classification of the Interfax-ERA environmental and ranking agency, the Altay region is an agricultural region. Meanwhile, the territory is 84% reliant on the federal budget policy of rural area support, with only 16% obtained from the territorial budget. However, the level of state support of rural areas in the region is still much lower than the total agricultural output, suggesting there are non-economic influences involved, such as lower living standards, rural settlement degrading, and high rural unemployment.

The selected basic indicators of socioeconomic development of municipal districts are further used to calculate the indicators of economic, social, and infrastructure potential (Table 1).

Table 1. Basic indicators of rural resource potential

Potential	Basic indicators	Calculated indicators
Economic potential	working-age population (of the municipal district) fixed capital investment (excluding budget funds) per capita, rubles	per capita investment
	revenues from local production revenues of manufacturing	relative share of manufacturing
	agricultural land area total area of the municipal district	relative share of agricultural lands in the total area of the municipal district
Social potential	children aged 0-15 total area of the municipal districts	relative share of children in the municipal districts (0-15 yo)
	working-age population (aged 16-59) total area of the municipal districts	relative share of working-age population in the municipal district
Infrastructure	single-line mileage of street water piping system total area of the municipal districts	relative share by water piping availability
	local public road mileage operated by the municipal district, total share of local hard-top roads	hard-top road availability, km per square area

The ranking is further charted for municipal districts by the availability of resources following a comparative analysis of municipal districts by indicators.

The calculated indicators and the corresponding district ranking are laid out in Tables 2-4.

Table 2: Ranking of municipal districts by the indicators of social potential

Rank	Municipal district	Relative share of children in the municipal districts (0-15 yo)	Rank	Municipal district	Relative share of working-age population in the municipal district
Kemerovo region					
1	Tashtagolsky	5.33	1	Tashtagolsky	11.62
2	Promyshlennovsky	2.26	2	Kemerovsky	6.67
3	Kemerovsky	2.19	3	Promyshlennovsky	5.95
4	Leninsk-Kuznetsky	2.14	4	Prokopyevsky	5.44
5	Belovsky	2.03	5	Leninsk-Kuznetsky	5.38
Altay territory					
1	Pavlovsky	15.98	1	Pavlovsky	2.83
2	Talmensky	9.99	2	Shipunovsky	2.20
3	Biysky	7.44	3	Talmensky	1.84
4	Pervomaysky	6.81	4	Pervomaysky	1.18
5	Kamensky	3.69	5	Kamensky	0.33

Table 3. Ranking of municipal districts by the indicators of economic potential

Rank	Municipal district	Per capita investment	Rank	Municipal district	Relative share of manufacturing revenues in total revenues of municipal districts	Rank	Municipal district	Relative share of agricultural lands in the total area of the municipal district
Kemerovo region								
1	Prokopyevsky	27.65	1	Yaysky	0.98	1	Leninsk-Kuznetsky	0.50
2	Yaysky	22.73	2	Tyazhinsky	0.93	2	Promyshlennovsky	0.45
3	Belovsky	13.41	3	Topkinsky	0.87	3	Topkinsky	0.28
4	Novokuznetsky	10.62	4	Mariinsky	0.67	4	Yurginsky	0.22
5	Leninsk-Kuznetsky	9.76	5	Guryevsky	0.46	5	Guryevsky	0.18
Altay territory								
1	Zmeinogorsky	5.87	1	Volchikhinsky	0.36	1	Rodinsky	0.91
2	Pavlovsky	4.33	2	Blagoveshchensky	0.30	2	Rubtsovsky	0.89
3	Tabunsky	3.48	3	Altaysky	0.29	3	Pavlovsky	0.87
4	Zonalny	1.47	4	Pospelikhinsky	0.29	4	Talmensky	0.80
5	Blagoveshchensky	1.43	5	Pavlovsky	0.28	5	Klyuchevsky	0.69

Table 4. Ranking of municipal districts by the indicators of infrastructure potential

Rank	Municipal district	Relative share of hard-top roads in the total mileage	Rank	Municipal district	Relative share of water piping in the total area
Kemerovo region					
1	Tisulsky	1.000	1	Tashtagolsky	0.026
2	Prokopyevsky	0.997	2	Promyshlennovsky	0.006
3	Novokuznetsky	0.954	3	Leninsk-Kuznetsky	0.005
4	Chebulinsky	0.945	4	Prokopyevsky	0.004
5	Leninsk-Kuznetsky	0.935	5	Mariinsky	0.003
Altay territory					
1	Biysky	0.85	1	Pervomaysky	0.004
2	Kosikhinsky	0.80	2	Zarinsky	0.003
3	Pavlovsky	0.74	3	Biysky	0.003
4	Pervomaysky	0.56	4	Pavlovsky	0.002
5	Kamensky	0.55	5	Kamensky	0.002

The rankings helped to identify leading districts by economic, social, and infrastructure potential. E.g., the leaders by social potential are the Tashtagolsky district of the Kemerovo region and the Pavlovsky district of the Altay territory. The highest economic potential is identified in the following municipal districts: the Prokopyevsky district of the Kemerovo region and the Zmeinogorsky district of the Altay territory by per capita investment; the Yaysky district of the Kemerovo region and the Volchikhinsky district of the Altay territory by the relative share of manufacturing revenues; the Promyshlennovsky district of the Kemerovo region and the Rodinsky district of the Altay territory by the relative share of agricultural lands.

The leaders by infrastructure potential are as follows: the Tashtagolsky district of the Kemerovo region and the Pervomaysky district of the Altay territory by water piping availability; the Tisulsky district of the Kemerovo region and the Biysky district of the Altay territory by the relative share of hard-top roads.

The findings in the analysis of the above indicators are as follows:

- social potential by two indicators simultaneously is registered in the Tashtagolsky, Promyshlennovsky, and Kemerovsky districts of the Kemerovo region and the Pavlovsky, Talmensky, and Pervomaysky districts of the Altay territory;
- no district of the Kemerovo region registers economic potential by three indicators simultaneously, however, two simultaneous indicators are scored for the Yaysky, Guryevsky, and Topkinsky districts; only the Pavlovsky district in the Altay territory scores by all three indicators of economic potential;
- infrastructure potential by two indicators simultaneously is registered in the Prokopyevsky and Leninsk-Kuznetsky districts of the Kemerovo region, as well as the Pavlovsky, Pervomaysky, and Biysky districts of the Altay territory;

The analysis of economic, social, and infrastructure potential in combination suggests that all these types of potential are registered in two municipal districts of the Kemerovo region (Topkinsky and Promyshlennovsky) and three municipal districts of the Altay territory (Pavlovsky, Pervomaysky, and Biysky).

Conclusion

We analysed the resource potential of rural areas. The findings helped to identify districts with the potential for rural agglomeration development, suggesting further directions of research as follows:

- formulation of an analytical system of criteria and indicators of sustainable rural development based on the public non-financial information;
- refining the methodology of assessment of non-economic influences of sustainable rural development.

This would eventually help in creating a single policy of sustainable rural development and rural agglomeration growth, involving the creation of a new territorial management system and ensuring cross-municipality cooperation between primarily rural and specific urban localities, independent municipalities via contract relations.

References

Agenda 21 Convention, Conventions and Treaties. https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf

Ivanova, N.V. (2014). Aglomeratsii i klastery kak setevye struktury ustoichivogo rosta [Agglomerations and clusters as network structures of sustainable growth], Ekonomika i upravlenie [Economics and Management], 5, 111 – 115.

Kolesnikova, E. G., Stefanenko, E. A. (2016). Narodnokhozyaistvennye funktsii selskikh territorii i usloviya ikh vypolneniya [Economic functions of rural areas and their conditions], Molodezh i nauka: realnost i budushchee [Youth and science: reality and the future]: Collection of papers of the 8th International conference for students, graduates and young researchers, Kemerovo State University, 237-241.

Kovalenko, E.G., Polushkina, T.M., Yakimova, O.Iu., Avtaykina, E.V., Zaytseva, O.O., Sedova, K.S. (2014). Modernizatsiya mekhanizma ustoichivogo razvitiya selskikh territorii [Modernisation of the mechanism of sustainable rural development]: monograph, RAE (Publishing House of the Academy of Natural Sciences), Moscow, 147.

Kundius, V.A. (2012). Klasternyi podkhod v upravlenii prodovolstvennym obespecheniem i razmeshcheniem selskokhozyaistvennogo proizvodstva v regionakh [Cluster approach in managing food supply and agricultural production allocation], APK: regiony Rossii

[Agro-industrial complex: Russian regions], 1, 16-18.

Lemetti, Iu.A. (2011). Strategiya ustoichivogo razvitiya selskogo khozyaistva regiona: teoriya i praktika [Sustainable regional agricultural development strategy: theory and practice], Publishing house of the Tver State Agricultural Academy, Tver, 166.

Merenkova, I.N. (2011). Formirovanie sistemy otsenki ustoichivogo razvitiya selskikh territorii [Developing an assessment system of sustainable rural development], in: Ekonomika i upravlenie: problemy, tendentsii, perspektivy [Economics and management: problems, trends, and outlook]: collection of papers of the international research and practical conference of 3 March 2011, Publishing house IP Pershina R.V., Tambov, 186-191.

Merzlov, A.V. (2012). Regionalnyi opyt razrabotki programm ustoichivogo razvitiya selskikh territorii [Regional practice of programmes of sustainable rural development], FGBNU "Rosinformagrotekh", Moscow, 112.

Report of the World Commission on Environment and Development: Our Common Future, 1987, Translated from English, edited and afterword by Evteev S.A. and Perelet R.A., Progress, Moscow, 21.

Sagatgareev, R.M., 2018, Kharakteristika strukturnykh elementov v teorii sotsialno-ekonomicheskogo razvitiya selskikh territorii [Characteristics of structural elements in the theory of socioeconomic rural development], in: Sagatgareev R.M., Formirovanie i razvitie social'no-ekonomicheskih sistem sel'skih territorij [Formation and development of socio-economic systems of rural areas]. https://bstudy.net/627360/ekonomika/harakteristika_strukturnyh_elementov_teorii_sotsialno_ekonomicheskogo_razvitiya_selskih_territoriy#541

Strategy of sustainable development of rural areas of the Russian Federation for the period till 2030: Resolution of the Government of the RF of 02.02.2015 N 151-p (as amended on 13.01.2017). http://government.ru/docs/16757/

The Rio Declaration on Environment and Development. (June 3-14, 1992). http://www.un.org/ru/documents/decl_conv/declarations/riodecl.shtml

Trotskovskii A.Ia. (2013). Ustoichivoe razvitie selskikh territorii Altaiskogo kraya: sotsialno-ekonomicheskie i prostranstvennye aspekty [Sustainable rural development in the Altay territory: socioeconomic and spatial aspects]: collective monograph, Publishing house of the Altay University, Barnaul, 330.