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Federal Budgetary Institution of Science Institute of Socio-Economic Development of Territories of Russian Academy of Science (ISEDT RAS), which existed as Vologda Scientific Coordinating Center of Central Economic and Mathematical Institute of RAS until March 2009, is situated on the territory of the Vologda Oblast. V.A. Ilyin, Doctor of Economics, Professor, Honored Scientist of Russia, is the permanent director of the Institute. A lot of great scientists have played an important role in the formation and the development of ISEDT RAS as a scientific institution such as: academicians D.S. Lvov, V.L. Makarov, V.I. Mayevsky, A.D. Nekipelov, Y.S. Osipov. Everything that has been done before and is being done nowadays by the personnel of the Institute, it would be impossible without the constant support of the Vologda Oblast's Government and city leaders.

The formation of the scientific personnel with an active life position, a great demand for Institute's investigation, academic community's support of the new journal published by ISEDT RAS, which combined efforts of the economic institutes of RAS in the Northwestern Federal District, and furthermore development of international ties have become the main outcomes of the last years.

MAIN RESEARCH DIRECTIONS

Due to the Resolution № 96 by the Presidium of Russian Academy of Sciences dated from March, 31 2009 ISEDT RAS carries out investigations in the following fields:

- problems of economic growth, scientific basis of regional policy, sustainable development of territories and municipalities, and transformations of socio-economic space;
- regional integration into global economic and political processes, problems of economic security and competitiveness of territorial socio-economic systems;
- territorial characteristics of living standards and lifestyle, behavioral strategies and world view of different groups of the Russian society;
- development of regional socio-economic systems, implementation of new forms and methods concerning territorial organization of society and economy, development of territories' recreational area;
- socio-economic problems regarding scientific and innovative transformation activities of territories;
- elaboration of society's informatization problems, development of intellectual technologies in information territorial systems, science and education.

INTERNATIONAL TIES AND PROJECTS

In order to integrate scientific activities of the Institute's scholars into global research area, every year international scientific conferences take place, which result in cooperation agreements.

Every year ISEDT RAS signs cooperation agreements with different scientific establishments:

2007 – Cooperation agreement is signed with Institute of Sociology, of the National Academy of Sciences of Belarus , Center for Sociological and Marketing Investigations at the "International Institute of Humanities and Economics" (Belarus, 2008).

2008 – Protocol of intentions is signed with Alexander's Institute at the Helsinki University (Finland, 2008).

2009 – Cooperation agreement is signed with Center for System Analysis of Strategic Investigations of NAS (Belarus, 2009).

2010 – Cooperation agreement is signed with Institute of Economics of the National Academy of Sciences of Belarus (Minsk, 2010).

2011 – Cooperation agreements are signed with National Institute of Oriental Languages and Civilizations (Paris, 2011), Institute of Business Economy at Eszterhazy Karoly College (Hungary, 2011), Republican research and production unitary enterprise "Energy Institute of NAS" (Belarus, 2011). Protocol of intentions are signed with Jiangxi Academy of Social Sciences (China, 2011), Research and Development Center for Evaluation and Socio-Economic Development and the Science Foundation of Abruzzo region (Italy, 2011).

2012 – Cooperation agreement is signed with Center for social research at the Dortmund Technical University (Germany, 2012).

2013 – Cooperation agreement is signed with Jiangxi Academy of Social Sciences (China, 2013).

July 2013 – The application for research performance by international consortium involving ISEDT RAS within the 7th Framework Programme of European Community.

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Shabunova A.A., Rossoshanskii A.I., Belekhova G.V. Problems of Russia's Modernization. Human Well-Being: Trends and Prospects.

Ilyin V.A. Topical Issues of Regional Development in Modern Russia.

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FROM THE CHIEF EDITOR

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Economic Policy Pursued by the Government Is Still Inconsistent with the Interests of the Majority of Russia's Population

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In July 2014, a report by S.Yu. Glazyev "How Not to Lose in the War" was published, which deals with the state of affairs in the Russian economy and the conflict with Ukraine. The author focuses attention on the underlying reasons for the military action in Ukraine and points to the fact that the essence of the issue lies in a conflict field which has already been existing for many centuries. This is the field of "aggression of the West against Russia"[1], and in order to win the war, Russia must implement strategic and tactical measures such as advanced development and modernization of its domestic economy. Their implementation requires "strict coordination of action and solidarity of the main social groups of Russian citizens. This implies cardinal reduction in social inequality that generates antagonistic and alienated attitude of the citizens toward the government policy"[2]. It should also be noted that S.Yu. Glazyev in his report proposes a set of specific measures that could contribute to the efficient resolution of contradictions existing in Russia.

A year has passed... It has become apparent that the West failed in its plans to destroy the fundamental basis of Russian statehood by one sudden attack. The "Blitzkrieg", designed to be completed in six months, has gradually developed into a lingering, years-long siege, as experts predict, the siege that uses economic sanctions and various restrictions against Russian citizens.

[1] Glazyev S.Yu. Kak ne proigrat' v voine [How Not to Lose in the War]. *Ofitsial'nyi sait S.Yu. Glaz'eva* [S.Yu. Glazyev's Official Website]. Available at: http://www.glazev.ru/sodr_ssn/368/

[2] Ibidem.

In his article "Outrageous Inequality. Governmental Policy Is Contrary to the Interests of the People" published in July 2015, S.Yu. Glazyev develops his thoughts on the current challenges that Russia faces; he highlights the fact that outrageous inequality still remains a major problem. As in 2014, this paper provides a concrete set of actions that will help in a relatively short time to bring Russia's macroeconomic policy "in line with the common understanding of the principles of social justice and truth, and to make it serve the interests of development of the production sector"[3].

Academician Glazyev once again emphasizes the following: despite the fact that the confrontation between Russia and the United States has entered a new stage of its development, the war continues.

"One does not have to be a prophet to guess the main areas of Western aggression against Russia. The blows will be struck first of all at the pillars of state power. Bureaucracy will be accused of corruption and discredited in the eyes of the population. Big business will be set against the government in fear of economic and personal sanctions. Law enforcement agencies will break out of governmental control for the fear of liability for illegal acts of violence. All this is already happening before our eyes... In order to stand up in this hybrid warfare waged against Russia, the President needs to rely primarily on the people. First and foremost, on the working population" [4].

The vast majority of the population supports the President (the level of approval of his performance, according to VTsIOM, Levada-Center, is over 85%). At the same time, according to the author of the article, *"the macroeconomic policy pursued in the interests of international speculators is* ***incompatible with vital interests of the manufacturing sector and the population"****...* The desire of financial authorities to serve the interests of financial speculators and offshore oligarchy constantly intensifies contradictions between the ruling elite and the people, making these contradictions antagonistic. This undermines public confidence in state institutions, weakening their two pillars – the bureaucracy and law enforcement agencies" [5].

Besides, some analysts were surprised by a subjective positive assessment made by Chairman of the Government Dmitry Medvedev who announced that over the past three years the Government has faced "very good changes, the changes for the better"[6]. After all, there is plenty of objective evidence pointing to the fact that Russia's economy is in its third year of recession, and the Medvedev Government cannot achieve any positive developments. The following facts prove it:

✓ "Russia ranks first in the world among major countries by inequality of wealth distribution. The ratio of the average income of the richest 10% to that of the poorest 10% (R/P 10% ratio) is 3 to 7 times in the countries with a social-democratic tradition (Nordic countries, Germany). In Russia in 1991, the ratio was 4.5 times, in 2014 – 16 times according to official statistics and from 25 to 40 times according to expert estimates

[3] Glazyev S.Yu. Zapredel'noe neravenstvo. Politika gosudarstva protivorechit interesam naseleniya [Outrageous Inequality. Governmental Policy Is Contrary to the Interests of the People]. *Zavtra* [Tomorrow], 2015, no. 29 (1130), July 23. Available at: http://zavtra.ru/content/view/zapredelnoe-neravenstvo/

[4] Ibidem.

[5] Ibidem.

[6] Interview with Dmitry Medvedev to the channel "Rossiya", May 23, 2015. *News on the Official Website of the RF Government*. Available at: http://government.ru/news/18220/

(including hidden income). The critical threshold R/P 10% ratio is considered to be 10 to 1. The number of the Russians whose incomes were below the subsistence level in the first quarter of 2015 reached 23 million and, judging by the forecast of inflation and incomes, it could rise by a third. ...If this trend continues until the end of the year, it will cause a tangible reduction in the level and quality of life for the majority of people. The Russian society will return to a level of poverty it had 10 years ago" [7].

✓ "Science, education, information technology, biotechnology and health care are the main engines, the main drivers of economic recovery. In Russia the share of knowledge economy in the creation of gross domestic product is 15%, in Europe – 35, in the U.S. – more than 40% because in Western countries it was growing twice as fast as gross domestic product. And in Russia these very expenses are cut more, and they grow slower than GDP. Our current inflation is 16.4, the annual inflation will be 12. Last year it was 7.8. And it is clear that the Central Bank cannot keep inflation down; the Central Bank controls less than half the factors that affect it"[8].

✓ "...It can be asserted that in 2014 we experienced only a partial impact of anti-Russian sanctions; 2015 will become the year of the sanctions. Many indicators deteriorated in 2014: investment, record-breaking devaluation of the ruble; inflation has been accelerating since 2012. Socio-economic situation in general has worsened. In contrast to the crisis *(2008 – V.I.)*, it is not a short-term but a long-term process, so is impossible to forecast the onset of recovery"[9].

✓ "The shocks of 2014 exacerbated the problems that had accumulated over a quarter of a century: deterioration of individual industries, reduction of export and import by dozens of percent in early 2015; nationwide losses in the real sector and banks. The following dynamics is expected: stabilization at a lower level, as after a stroke, new jumps of the ruble, the space of uncertainty and risks; weak responses to challenges (crisis management plan), while negative external factors are acting with the same force. The result is an economy which is sliding downhill"[10].

Negative trends in the Russian economy are proved by objective statistical data: for the first half of 2015 alone in comparison to January – June 2014 GDP declined by 3.4%, industrial production index – by 2.7%, investment in fixed capital – by 5.4%, real disposable money incomes of the population – by 3.1%; consumer price index rose by 8.5%[11].

[7] Glazyev S.Yu. Zapredel'noe neravenstvo. Politika gosudarstva protivorechit interesam naseleniya [Outrageous Inequality. Governmental Policy Is Contrary to the Interests of the People]. *Zavtra* [Tomorrow], 2015, no. 29 (1130), July 23. Available at: http://zavtra.ru/content/view/zapredelnoe-neravenstvo/

[8] Aganbegyan A.G. The Crisis in Russia Began Long Before the Accession of the Crimea and the Imposition of Sanctions: Materials of A. G. Aganbegyan's Speech at Zaslavskaya Second Symposium (Kaliningrad, May 2015). *Internet-Portal Freekaliningrad.ru*. Available at: http://freekaliningrad.ru/academicianaganbegyanthecrisisinrussiabeganlongbeforetheannexationofcrimeaandtheimpos_photo/

[9] Aganbegyan A.G. Socio-Economic Development of Russia: Results and Prospects, Sanctions (Proceedings of the Public Seminar). *News on the Official Website of the Russian Presidential Academy of National Economy and Public Administration (RANEPA)*. Available at: http://www.emba.ranepa.ru/novosti/seminarabelagezevichaaganbegyanaabelaganbegyannaibolshiyuscherbotsanktsiyzhdetrossiuv2015g

[10] Mirkin Ya.M. Vnezapnyi povorot [Sudden Turn]. *Zhurnal novoi ekonomicheskoi assotsiatsii* [The Journal of the New Economic Association], 2015, no. 2 (26), p. 197.

[11] On the Current Situation in the Economy of the Russian Federation at the End of the First Half of 2015. P. 5. (July 28, 2015). *Official Website of the Ministry of Economic Development of the Russian Federation*. Available at: http://economy.gov.ru/minec/activity/sections/macro/monitoring/20150728

Despite this, the Medvedev Government and the financial block continue to give sufficiently favorable forecasts concerning the development of economic situation in Russia: under the baseline scenario "at a low consumer demand it is expected that inflation in 2016 will slow by almost half – to 6.5–7.5 percent. By 2018, inflation will fall to 5% in the conditions of the ruble strengthening. The decline in inflation and the resumption of economic growth will ensure the growth of people's real income by 1.1% in 2016 and by 2.6–2.8% in 2017–2018. In 2015, on the background of a significant decline in investments and the reduction of household expenses, GDP in real terms is decreasing by 2.8%. Thus, at the end of this year, the Government expects that economic growth will be resumed and it will reach 2.3% in 2016 and 2.3–2.4% in 2017–2018"[12].

However, these figures do not inspire optimism. In reality, government ministers easily give positive values of forecast indicators and just as easily change them, because no one is personally responsible for the forecasts that have failed, even if they deviate manifold from their original values. In recent years this practice has become regular. For example, in May 2012 a GDP growth of 4.7% was forecast, and real money incomes of population were expected to rise by 5.2%. In April 2013, these indicators were reduced to 4.1 and 4.6%, respectively (1.1-fold). In September 2014, they were reduced to 1.2 and 0.4% (i.e. 4- and 13-fold, respectively). And in February 2015, given the current situation, a 3% decline in GDP, and a 6.3% decline in real incomes were forecast *(tab. 1)*.

Official statistics, the opinions of expert community representatives, and the very fact of the regular adjustment of indicators set out by the Government lead to the conclusion formulated by experts: "Our officials do not know the basic technique of effecting institutional reforms"[13]. "The landmarks of our authorities and financial investments are essentially wrong"[14].

Why in this case is the level of approval of the activity of the President, who is, in general, responsible for the composition and performance of the Cabinet of Ministers, so high in the Russian society? According to recent data, the leading sociological centers that conduct their research at the federal (VTsIOM, Levada-Center) and regional (ISEDT RAS) levels register significant support for the activities of the President: on average, 88% nationwide and 72% in the Vologda Oblast *(fig. 1)*.

From our point of view there may be several explanations to this fact.

First, the assessment of the President's performance is still strongly influenced by the consequences of the "Crimean spring". "The attitude toward the reunification of the Crimea with Russia is most closely linked to

[12] Scenario Conditions, the Main Parameters of the Forecast of Socio-Economic Development of the Russian Federation and the Threshold Levels of the Prices (Tariffs) for Services of Infrastructure Companies for 2016 and for the Planning Period of 2017 and 2018. *Official Website of the Ministry of Economic Development of the Russian Federation*. Available at: http://economy.gov.ru/minec/activity/sections/macro/monitoring/20150728

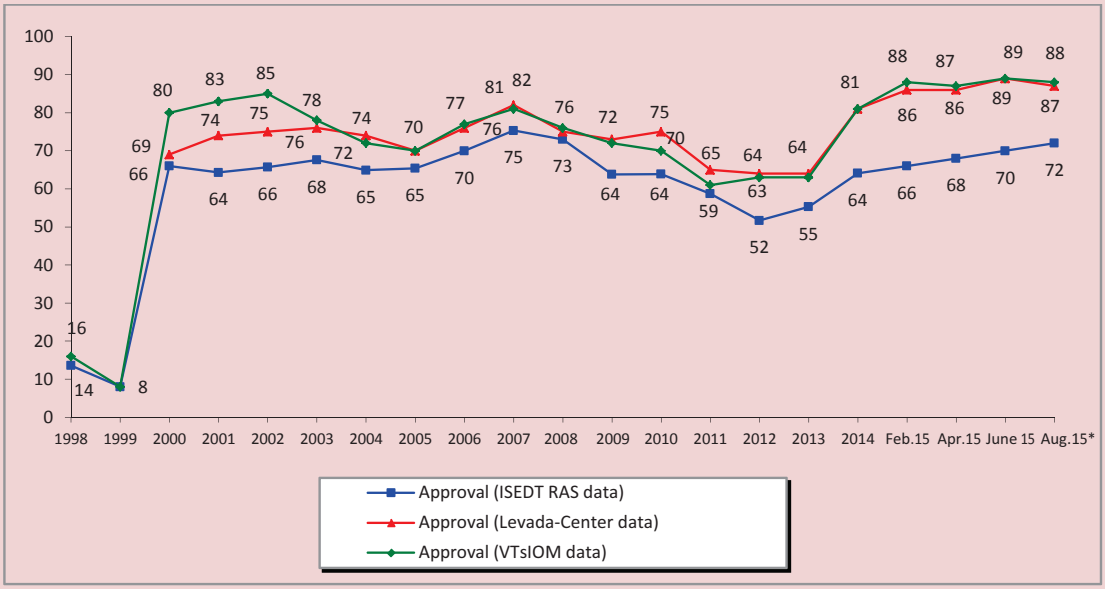
[13] Polterovich V.M. Reformatoram nauki nedostaet kvalifikatsii [Reformers of Science Lack the Necessary Qualifications to Cope With the Task]. *Poisk* [Search], 2015, no. 23 (1357), June 5; Novosti Tsentral'nogo ekonomiko-matematicheskogo Instituta RAN [News of the Central Economic-Mathematical Institute of the Russian Academy of Sciences]. Available at: http://www.cemi.rssi.ru/news/science/Polterovich%20Poisk.pdf

[14] Malinetskii G.G. The Map of Breakup. *Official Website of the Izborsk Club*. Available at: http://www.dynacon.ru/content/articles/3777/

Table 1. Forecast of the main macroeconomic indicators in 2015
(as a percentage of the previous year in comparable prices)

Indicators	Date of presentation of the forecast					
	May 11, 2012	September 12, 2012	April 12, 2013	October 23, 2013	September 26, 2014	February 16, 2015
GDP	104.7	104.5	104.1	103.1	101.2	97.0
Industrial production index	104.2	103.7	103.4	102.3	101.6	98.4
Consumer prices index	104.5	104.5	104.5	104.5	105.5	112.2
Investments in fixed capital	107.8	107.9	107.2	105.6	102.0	86.3
Retail trade turnover	105.7	105.8	105.0	104.4	100.6	91.8
Real wages	106.0	105.9	106.0	103.8	100.5	90.4
Real money income of population	105.2	105.3	104.6	103.0	100.4	93.7

Figure 1. Level of approval of the RF President's performance as a percentage of the number of respondents)



* the data by VTsIOM and Levada-Center are given for July 2015.

Sources: VTsIOM, Levada-Center, ISEDT RAS.

the President's approval rating"[15]. The level of the Russians' confidence in V. Putin that reaches 70–90% is due to "the propaganda, the accession of the Crimea to Russia and the information warfare with the West"[16].

Second, the high level of confidence in the head of state is largely a result of people's mistrust of other governmental and social institutions. The high rating of the President

[15] *Rossiiskaya povsednevnost' v usloviyakh krizisa: kak zhivem i chto chuvstvuem? Informatsionnoanaliticheskoe rezyume IS RAN po itogam vtorogo etapa obshchenatsional'nogo issledovaniya: obnarodovano 20.05.2015* [Russia's Everyday Life under the Crisis: How We Live and How We Feel. IS RAS Informational-Analytic Summary Following Up the Results of the Second Phase of a National Survey: Made Public on May 20, 2015]. IS RAN. Moscow, 2015. P. 13.

[16] Gorbachev A., Garmonenko D. Prezident i ego reiting [President and His Rating]. *Nezavisimaya gazeta* [Independent Newspaper], 2015, July 10. Available at: http://www.ng.ru/politics/20150710/1_president.html

can be explained as follows: "When people don't trust anyone, they would, probably, delegate powers to the level of gods. The head of state is the last single level for delegation, and it is where all the desirable and unclaimed trust has concentrated. This is a fictitious production of trust, an illusion. And the real production of trust occurs in conditions of actual human interaction"[17].

Today the Russian society is divided into two approximately equal parts – optimists and pessimists. It does not know where it should go, whom it should believe[18]. And in this situation a natural "answer" to the question "who should I follow?", is found with the incumbent Head of State, under which the country managed to overcome the effects of the economic crisis of 1998, the global financial crisis of 2008 and the real threat of being drawn into a "big" war in 2014.

Third, the viewpoint of the country's leadership is actively transmitted by the media on all federal, regional and local TV channels. As for experts' opinion, if it is ever voiced on federal TV channels, then it can be heard in programs such as "Politics" "An Evening with Vladimir Soloviev", "Structure of the Moment", and other programs that have the status of a talk show, and are broadcast on weekdays after 23.00.

"The attention of the authorities is focused on propaganda"[19]. "At present there emerge new methods of social control, for instance, information management when people's behavior is programmed through the information that is either presented to them or hidden from them..."[20] And this is not an "exclusively Russian" technology but a global trend rooted in the development of geopolitical events and information warfare between Russia and the USA that started in 2014. "Currently the information warfare plays a much greater role than military force"[21].

As for the viewpoint of academic community representatives, we think that a comprehensive review of the situation is given in the journal "Expert" upon the analysis of srategic documents such as the "Innovation strategy", "On the fundamentals of the policy in the fields of science and technology", state program "Development of science and technology": "Our people will just become stupid, if the trends of degradation in science and education are not overcome"[22].

[17] Auzan A.A. Social Contract and Civil Society: Transcript of A.A. Auzan's Public Lecture, December 23, 2005. *Information-Analytical Portal "Polit.ru"*. Available at: http://polit.ru/article/2005/01/11/auzan/

[18] "As for people's expectations about Russia's future, they can be characterized as reservedly anxious: nearly half of the respondents agree that the country will experience difficult times, a quarter of the Russians believe that the country will be developing successfully, and a similar proportion does not expect any fundamental changes in the country's development. Moreover, this anxiety is characteristic of the Russians in relation to the situation not only in Russia but also in the world. The social context of transformations that are going on in the country is reflected in a contradictory social and psychological condition of the population. Slightly more than half of our citizens are positive about their psychological and emotional state, and almost half of the Russians by the end of 2014 had a negative social and psychological well-being (a quarter of them felt anxiety, one person in five experienced apathy, irritability, more seldom – anger)". Source: *Rossiiskoe obshchestvo v kontekste novykh realii (tezisy o glavnom): informatsionnoanaliticheskoe rezyume po itogam obshchenatsional'nogo issledovaniya* [Russian Society in the Context of New Realities (Theses on the Most Important Issues): Informational and Analytical Summary of the Findings of a National Survey]. IS RAS. Moscow, 2015. P. 3.

[19] Gorbachev A. Rossiyane otdelyayut Putina ot chinovnikov [Russians Separate Putin from Other Officials]. *Nezavisimaya gazeta* [Independent Newspaper], 2015, no. 136, July 7. Available at: http://www.ng.ru/politics/2015-0707/1_putin.html

[20] Malinetskii G.G. Mezhdistsiplinarnye idei v sotsiologii i vyzovy budushchego [Interdisciplinary Ideas in Sociology and the Challenges of the Future]. *Sotsis* [Sociological Studies], 2015, no. 4 (372), p. 153.

[21] Starikov N.V. A Lecture at the National Youth Forum "Territory of Meanings" on the Klyazma River, July 26, 2015. *N. Starikov's Official Blog*. Available at : http://nstarikov.ru/blog/53726

[22] Fadeev V.A. Etot vypusk "Eksperta" – neobychnyi, on – yubileinyi [This Issue of "Expert" is Unusual – It Is Anniversary]. *Ekspert* [Expert], 2015, no. 30–34 (953). Available at: http://expert.ru/expert/2015/30/ekspert/

Thus, the high assessment of the work of the head of state reflects the real situation from one angle. From another angle it is "a rating of hopes"[23]. The approval of the President's activity is due to multiple reasons, but none of them affects economic sphere and the standard of living – the very challenges that the Russian society and the state are currently facing.

On the contrary, research carried out at ISEDT RAS[24] shows that the share of negative assessments in the people's estimates of economic situation in the country and its regions, in their judgments about the dynamics of their own financial situation, and in their expectations of changes in the coming year is significantly higher than the proportion of positive characteristics.

The proportion of positive and negative assessments of their economic situation by the Russians in the country as a whole and in the Vologda Oblast was 1 to 7 (7 and 48% nationwide, 6 and 43% in Oblast), change their own financial position – 1 to 5 (8 and 43%). People's forecasts concerning the prospects of development of economic situation in the coming year are not optimistic either: the proportion of positive and negative forecasts about the economic situation in the country and in the Vologda Oblast amounted to 1 to 3 (12 and 34% nationwide, 11 and 33% in the Oblast), as for the prospects of personal financial situation, the proportion was 1 to 8 (5 and 38%; *tab. 2)*.

Figures 2–7 show the dynamics of assessments of economic situation in Russia and in the Vologda Oblast by the Oblast residents, and also their financial situation and forecasts of their development for the period from 2012 (the beginning of Vladimir Putin's third presidency) to August 2015.

Therefore, according to experts, the current President's rating does not reflect the effectiveness of performance of political system, economy and the Government in general. The President acts as the guarantor of safety[25]. However, it is possible that "negative effects of this sky-high rating are not far off"[26].

As Sergei Gubanov notes, "it is not obligatory that the head of state should understand all and everything. But he must assemble such a government that would understand all the intricacies of finances and the functioning of modern economy. And the state of affairs in this respect is extremely bad... Oligarchic-comprador system dominates"[27].

The quality of public administration in recent years is characterized by dozens of negative facts related to corruption. In 2013 they included a series of investigations into the

[23] Andreeva Yu. Nadezhda na "reiting nadezhd" [Hope for the "Rating of Hopes"]. *Zavtra* [Tomorrow], 2015, no. 31 (1132.) Official Website of the Newspaper "Zavtra". Available at: http://zavtra.ru/content/view/vtsiom/

[24] ISEDT RAS carries out the public opinion monitoring since 1996 once every two months. The volume of a sample population is 1500 people aged from 18 and older in the cities of Vologda and Cherepovets, and in Babayevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Kirillovsky, Nikolsky, Tarnogsky and Sheksninsky districts. The representativeness of the sample is ensured by the observance of the proportions between the urban and rural population, the proportions between the inhabitants of settlements of various types (rural communities, small and medium-sized cities), age and sex structure of the oblast's adult population. The method of the survey is a questionnaire poll by place of residence of respondents. Sampling error does not exceed 3%.

[25] Andreeva Yu. Nadezhda na "reiting nadezhd" (Mnenie gendirektora Instituta prioritetnykh regional'nykh proektov N. Mironova) [Hope for the "Rating of Hopes" (An Opinion of Nikolai Mironov, Director General of the Institute of Priority Regional Projects)]. *Zavtra* [Tomorrow], 2015, no. 31 (1132.) Available at: http://zavtra.ru/content/view/vtsiom/

[26] Gorbachev A., Garmonenko D. Prezident i ego reiting [President and His Rating]. *Nezavisimaya gazeta* [Independent Newspaper], 2015, July 10. Available at: http://www.ng.ru/politics/20150710/1_president.html

[27] Gubanov S. S. The Comprador Regime is Hanging on a Thread of History: an Interview with Sergei Gubanov to the Newspaper "Business Online", February 24, 2015. *Official Website of the Newspaper "Business Online"*. Available at: http://www.businessgazeta.ru/article/126419/

Table 2. Ratio of positive to negative assessments of the current dynamics and prospects of economic situation in the country, in the Vologda Oblast, and assessments of people's own financial position (August 2015, as a percentage of the number of respondents)

Category	Proportion of positive forecast (assessments)	Proportion of negative forecast (assessments)	Proportion of neutral forecast (assessments)	Ratio of the share of positive to negative assessments (fold)
Assessment of economic situation in Russia	6.5	34.3	48.0	7
Assessment of development of economic situation in Russia in the next 12 months	12.0	36.6	34.2	3
Assessment of economic situation in the Vologda Oblast	6.3	40.3	42.5	7
Assessment of development of economic situation in the Vologda Oblast in the next 12 months	10.7	38.0	33.3	3
The change in financial situation compared to that in the previous year	8.1	35.8	43.2	5
Assessment of the prospects of financial situation for the next year	4.8	25.2	37.5	8

activities of RUSNANO and SKOLKOVO, where the Accounts Chamber inspections revealed billion-ruble embezzlements and financial abuse.

Anatoly Chubais' sidekicks: billionaire Andrei Rappoport (President of the SKOLKOVO School of Management), former RUSNANO Deputy CEO Andrey Malyshev, RUSNANO Director for Innovative Development Yury Udaltsov, former Financial Director of RAO "UES of Russia" Dmitry Zhurba and RUSNANO Member of the Board Yakov Urinson[28]. The first head of RUSNANO Leonid Melamed, having served in office for a year, secured a "golden parachute" by receiving after his dismissal a 228-million order from his former employees[29].

Modern Russian economy is being also undermined by the activities of the authorities that do not promote effective cooperation between large private capital and regional budgets; this can be proved on the example of steel mills[30].

In 2013–2014, Cherepovets Steel Mill and Magnitogorsk Iron and Steel Works did not pay profit tax to the budget. The tax payments of Novolipetsk Steel to the Lipetsk Oblast budget in 2014 amounted to 12% of the level of 2008, while the mill's sales revenue increased by 30% *(tab. 3)*.

Sustainable and large-scale decline in the share of profit tax in the revenue from sales indicates that the amount of taxes localized at the still mills to be transferred to the regions' budgets has been continuously reducing.

The system of public administration lacks the tools for coordinated use of key resources of the territories. Regional authorities that do not possess legislative levers to regulate the activities of big business gradually lose the strategic plans of economic development and

[28] According to the newspaper "Zavtra", "such an escape is equivalent to confession and self-exposure – so openly did these gentlemen, like rats, run away from the ship that gave a strong lurch. It is because they all have long been closely tied to Mr. Chubais not only in RUSNANO, but also in his other projects, and they can tell a lot about the specifics of his, so to say, business" (source: Maksimov A. Sezon krysinykh begov [Season of Rat Race]. *Zavtra* [Tomorrow], 2015, no. 30 (1131). Official Website of the Newspaper "Zavtra". Available at: http://zavtra.ru/content/view/sezonkryisinyihbegov/).

[29] Saraev V., Vandysheva O., Skorobogatyi P. V tiskakh venchura i nanoindustrii [In the Grip of Venture and Nanotechnology]. *Ekspert* [Expert], 2015, no. 29 (952), July 13. Available at: http://expert.ru/expert/2015/29/vtiskah-venchurainanoindustrii/

[30] Povarova A.I. Passivnoe povedenie pravitel'stva. Byudzhetnye problemy regionov narastayut [Passive Behavior of the Government. Budget Problems are Aggravating in the Regions]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2015, no. 3, pp. 3955.

Assessments by the Vologda Oblast residents of the economic situation in Russia and in the Vologda Oblast, their own financial situation and forecasts of their development for the next 12 months

Figure 2. Assessment of economic situation in Russia (as a percentage of the number of respondents)

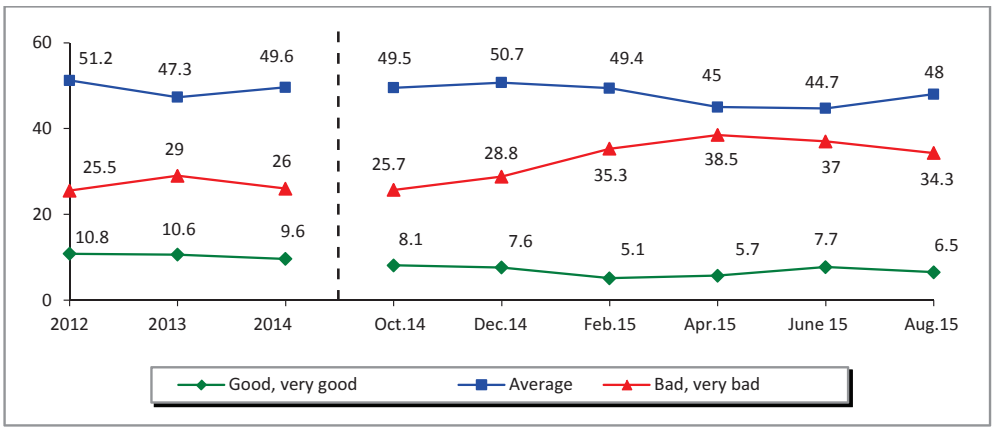


Figure 3. Assessment of economic situation in the Vologda Oblast (as a percentage of the number of respondents)

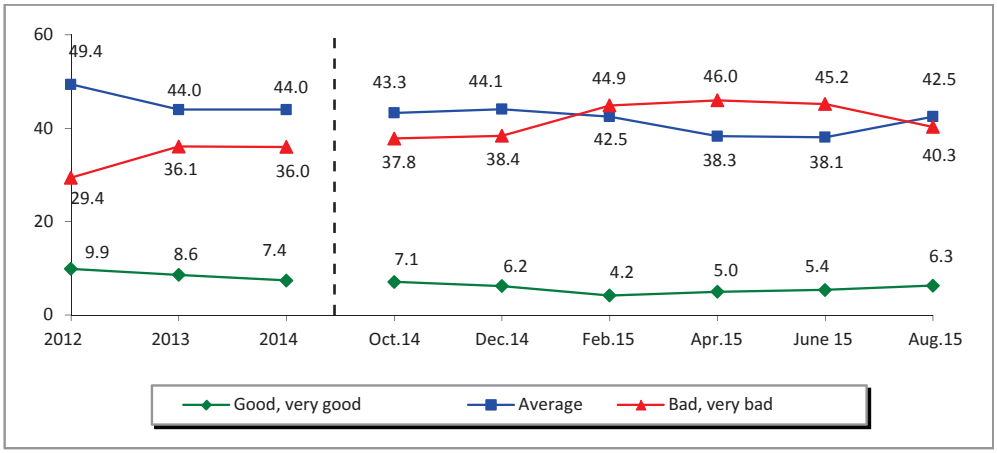


Figure 4. How would you assess your financial situation: is it better or worse than it was a year ago? (as a percentage of the number of respondents)

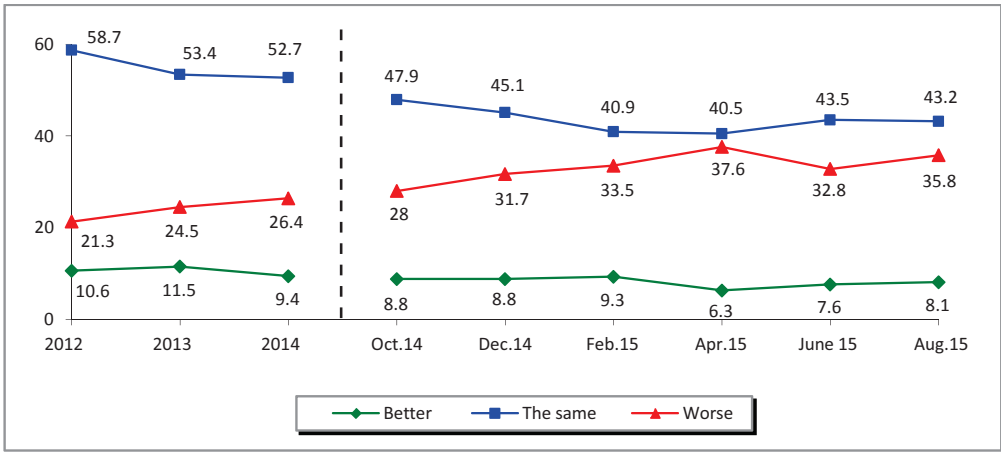


Figure 5. Assessment of development of economic situation in Russia in the next 12 months (as a percentage of the number of respondents)

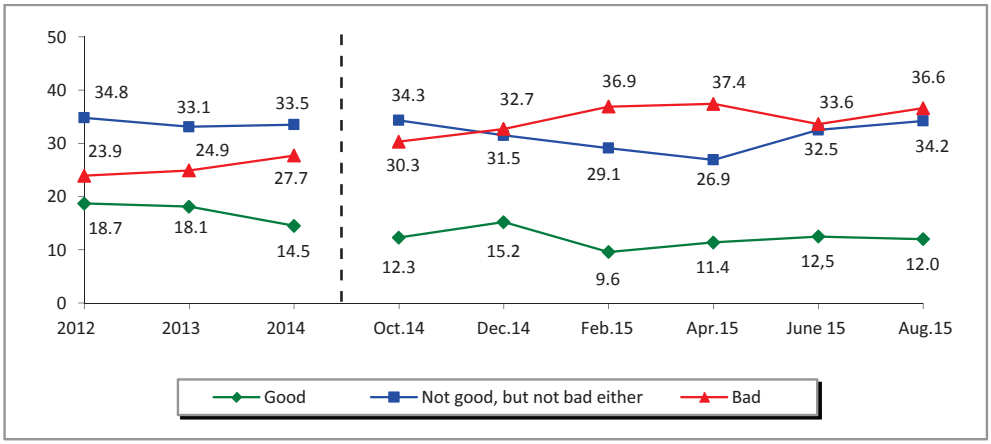


Figure 6. Assessment of development of economic situation in the Vologda Oblast in the next 12 months (as a percentage of the number of respondents)

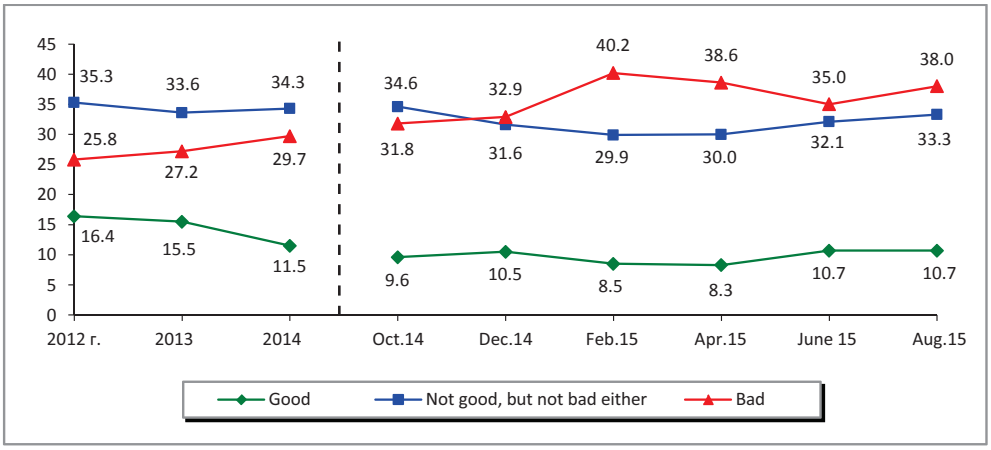


Figure 7. In your opinion, will your financial situation be better or worse or about the same as now in a year? (as a percentage of the number of respondents)

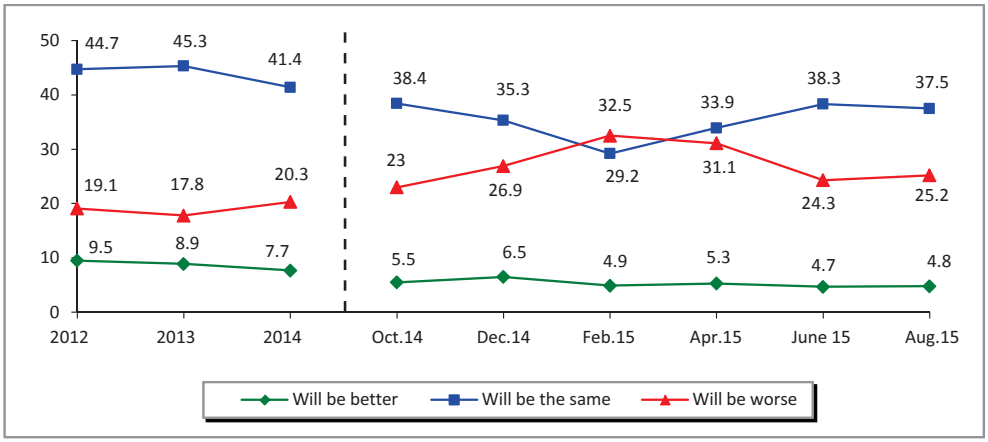


Table 3. Payments of profit tax to the budget by steel mills in 2008–2014

Indicators	2008	2009	2010	2011	2012	2013	2014	2014 to 2008, %
Cherepovets Steel Mill								
Revenue, billion rubles	243.6	143.6	209.8	254.3	223.6	212.9	233.6	95.9
Profit tax, million rubles*	13961.1	3851.2	4352.9	3082.7	2280.2	0.5	0.96	0.007
- in the regional budget	10191.6	3466.1	3917.6	2774.4	2052.2	0.46	0.8	0.008
to the revenue, %	5.7	2.7	2.1	1.2	1.0	0.0002	0.0004	-5.7 p.p.
Magnitogorsk Iron and Steel Works								
Revenue, billion rubles	226.0	137.3	201.8	247.3	243.1	225.5	266.5	117.9
Profit tax, million rubles*	10511.8	507.6	1488.0	1595.0	1958.0	0	143.0	1.4
- in the regional budget	7673.6	456.8	1339.2	1435.5	1762.2	0	128.7	0.002
to the revenue, %	4.7	0.4	0.7	0.6	0.7	0	0.05	-4.7 p.p.
Novolipetsk Steel								
Revenue, billion rubles	202.1	128.6	179.9	221.2	240.1	225.5	262.7	130.0
Profit tax, million rubles*	15754.6	1284.5	5062.9	6152.8	2729.9	0	1554.4	9.9
- in the regional budget	11500.9	1156.1	4556.6	5537.5	2456.9	0	1399.0	12.2
to the revenue, %	7.8	1.0	2.8	2.8	1.1	0	0.6	-7.2 p.p.

* Since the exact data about the effected payments is not available, the table shows the current profit tax calculated in the profit and loss statements.
Sources: financial statements of metallurgical corporations; author's calculations.

deal primarily with social problems within the framework of budget funds allocation[31].

Passivity of the Russian Federation Government with regard to changes in the approaches to regulating the profits of big business does not allow the regions engaged in export of raw materials and products of primary technological processing to benefit from the effects of the ruble devaluation in order to increase tax payments to the budget. The absence of radical changes in the administration of the profit of large taxpayers creates a paradoxical situation when despite high profits of the enterprises an inefficient fiscal policy leads to artificial subsidization of the regions in which these enterprises operate.

The comparative analysis of the main theses of the conclusions of the Russian Federation Accounts Chamber with regard to the draft laws of the federal budget for 2015–2017 and for 2014–2016[32] has shown that the Government ignores systematic observations made by the auditors of the RF Accounts Chamber[33].

Thus, we see the inaction of the Medvedev Government with regard to the key issues, the resolution of which could promote effective economic development and reduce socio-economic differentiation in the society. "The oligarchic-comprador state exacerbates the dramatic systemic crisis by leading it to the internal political crisis"[34].

[31] Ibidem.

[32] Conclusions of the Accounts Chamber of the Russian Federation on the Draft Federal Laws: "On the Federal Budget for 2012 and the Planned Period of 2013 and 2014"; "On the Federal Budget for 2013 and the Planned Period of 2014 and 2015"; "On the Federal Budget for 2014 and the Planned Period of 2015 and 2016".

[33] Povarova A.I. Schetnaya palata RF: proekt byudzheta na 2015–2017 gg. ne pozvolit reshit' strategicheskie gosudarstvennye zadachi [The Accounts Chamber of the Russian Federation: Draft Budget Plan for 2015 – 2017 will not Solve Strategic State Objectives]. *Problemy razvitiya territorii* [Problems of Territory's Development], 2015, no. 2, p. 39.

[34] Gubanov S.S. The Comprador Regime is Hanging on a Thread of History: an Interview with Sergei Gubanov to the Newspaper "Business Online", February 24, 2015. *Official Website of the Newspaper "Business Online"*. Available at: http://www.businessgazeta.ru/article/126419/

"The concentration of money in the hands of state institutions leads to the strengthening of bureaucracy, transition of business circles to a dependent inferior position, thus reducing the development potential"[35].

Meanwhile, the state's role in socio-economic management of territory's development is very important. "Most experts, the Russian ones as well, now realize: the claim that private property is always better than state-owned, is incorrect. Now few people think that the role of the government in the economy is still that of a "night watchman", that there is no need to plan, and that the market will manage everything on its own"[36]. "The philosophy of economic policy is often based on exaggerated idea of the omnipotence of private business and mechanisms of self-regulation. However, it is not difficult to understand that a way out of stagnation can be found only if there is a strong and consistent participation of the government in the economy"[37]. "We need a plan of development of the country's productive forces, a plan that will be implemented by the Russian private capital. However, this plan can be created by the state only; no private or public initiative can substitute it"[38]. "We criticize the planned economy, but the U.S., for example, plans the development of the country very well. They already understand what the U.S. economy will be by 2050. European countries also understand it. And we are ill with "fear of the future phobia": we are afraid of our own future".[39]

The analysis of expert opinions, views of the authorities, statistical data and results of public opinion polls provide clear answers to the questions: "Why did the recession of Russia's economy start long before the Ukrainian conflict?", "Why are the Government's statements that the Western sanctions are to be blamed for this are perceived with skepticism?", "Why will the current economic crisis not be handled within the next few months, but linger until the authorities realize what has to be done?", "Why does the trust in the President remains high despite the negative perception of economic situation in the country?"

Loyal attitude to the authorities today in many respects rests on the feeling of hopelessness – no one wants to go back to the 1990s, and therefore the faith in the leader under which the country stood up against difficulties is preserved; the faith is supported by the hope that it will be possible to find an effective way of economic development. However, its prospects still have a high degree of uncertainty. There still remains the outrageous socio-economic differentiation that is always accompanied by an unsatisfied need for social justice and by social tensions. Apparently, 2015–2016 will be a difficult period for the President and Russian citizens. It is therefore very important that the decisions taken by the head of state were timely and understandable for the Russians.

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[35] Fadeev V.A. Etot vypusk "Eksperta" – neobychnyi, on – yubileinyi [This Issue of "Expert" is Unusual – It Is Anniversary]. *Ekspert* [Expert], 2015, no. 30–34 (953). Available at: http://expert.ru/expert/2015/30/ekspert/

[36] Polterovich V.M. Why do Economic Reforms in Russia Fail? Proceedings of the Meetings of the Discussion Club "Components of Economic Policy" under the Association of Independent Centers of Economic Analysis, May 15, 2014. *Official Website of the Economic Faculty of Lomonosov Moscow State University.* Available at: http://www.econ.msu.ru/ext/lib/News/x36/x08/13832/file/Disput_Club_20140515_(reform).pdf

[37] Grinberg R.S. Our Economic Crisis is Entirely Man-Made: Materials of an Interview with R.S. Greenberg, June 30, 2015. *Official Website of the Portal "Russkii Dozor"*. Available at: http://rusdozor.ru/2015/06/30/ruslangrinbergnashekonomicheskijkrizispolnostyurukotvornyj/

[38] Fadeev V.A. Etot vypusk "Eksperta" – neobychnyi, on – yubileinyi [This Issue of "Expert" is Unusual – It Is Anniversary]. *Ekspert* [Expert], 2015, no. 30–34 (953). Available at: http://expert.ru/expert/2015/30/ekspert/

Public opinion monitoring of the state of the Russian society

As in the previous issues, we publish the results of the public opinion monitoring of the state of the Russian society conducted by ISEDT RAS in the Vologda Oblast[1].

The following tables show the dynamics of a number of parameters indicating the social feeling and socio-political sentiment of the Vologda Oblast population in June – August 2015, and also on average for the last six surveys (October 2014 – August 2015). These data are compared with the data for 2013–2014, and also for 2007 (the last year of Vladimir Putin's second presidential term, when the assessment of the President's activity was the highest, and for 2011 (the last year of Dmitry Medvedev's presidency).

Estimation of performance of the authorities

In June – August 2015, there was a continuing upward trend in the support of the RF President's performance: the approval level increased from 70 to 72%. The share of negative assessments increased from 16 to 18%,however, it remains much lower than in 2011–2013 (25–29%).

On average for the last six polls, the level of approval of federal authorities by the Vologda Oblast residents remains higher than in 2013 and 2014.

For reference: according to VTsIOM, in June – August the level of approval of the RF President's performance decreased from 88% to 86% (the proportion of negative assessments increased from 7 to 9%).

According to Levada-Center, in June – July 2015, approval of the President of the Russian Federation decreased from 89 to 87%, the proportion of negative characteristics increased from 10 to 12%).

[1] The polls are held six times a year in Vologda, Cherepovets, and in eight districts of the oblast (Babayevsky District, Velikoustyugsky District, Vozhegodsky District, Gryazovetsky District, Kirillovsky District, Nikolsky District, Tarnogsky District and Sheksninsky District). The method of the survey is a questionnaire poll by place of residence of respondents. The volume of a sample population is 1500 people aged from 18 and older.

The sample is purposeful and quoted. The representativeness of the sample is ensured by the observance of the proportions between the urban and rural population, the proportions between the inhabitants of settlements of various types (rural communities, small and medium-sized cities), age and sex structure of the oblast's adult population. Sampling error does not exceed 3%.

More details on the results of ISEDT RAS polls are available at http://www.vscc.ac.ru/

How do you assess the current performance of..? (as a percentage of the number of respondents)

Answer option	2007	2011	2013	2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Aug. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…			
												2014	2013	2011	2007
RF President															
I approve	75.3	58.7	55.3	64.1	66.8	66.0	66.3	67.5	69.5	72.0	68.0	+4	+13	+9	-7
I do not approve	11.5	25.6	29.4	22.3	18.5	19.7	20.5	16.2	16.1	17.8	18.1	-4	-11	-7	+7
Chairman of the RF Government*															
I approve	-*	59.3	48.9	54.2	56.2	56.3	56.1	56.5	59.1	60.7	57.5	+3	+9	-2	-
I do not approve	-	24.7	32.8	27.6	23.9	24.7	24.7	20.5	19.5	22.5	22.6	-5	-10	-2	-
Governor															
I approve	55.8	45.7	44.4	40.1	39.7	39.3	38.3	37.1	40.5	41.5	39.4	-1	-5	-6	-16
I do not approve	22.2	30.5	33.2	38.9	39.6	37.0	37.4	37.5	35.4	35.4	37.1	-2	+4	+7	+15

*Included into the survey since 2008.

The assessment of success of the President's actions in addressing the key problems of the country in the last two months did not change significantly:

– the share of the Oblast residents who think that the President successfully copes with the task of strengthening Russia's international standing remains at the level of 50–52% (the share of negative assessments is 30–32%);

– the share of those who positively assess the activity of the head of state in the field of restoring order in the country is 50–52%, and the proportion of negative judgements remains stable (37–38%);

– 40–43% of the Oblast residents believe that the President is successful in protecting democracy and strengthening citizens' freedoms (the opposite view is expressed by 38–42%);

34–36% of the population think that the President successfully copes with the task of economic recovery and growth of welfare of citizens (the proportion of negative judgments is greater and it remains at the level of 50–52%).

In general, the assessments given by the Oblast residents concerning the performance of the President on all the key issues remains more positive than in 2011–2014.

In your opinion, how successful is the RF President in coping with challenging issues?* (as a percentage of the number of respondents)

Answer option	2007	2011	2013	2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Aug. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…			
												2014	2013	2011	2007
Strengthening Russia's international standing															
Successful	58.4	46.2	45.7	50.4	52.3	50.8	50.4	52.7	51.1	52.2	51.6	+1	+6	+5	-7
Unsuccessful	24.9	33.7	36.2	32.4	31.0	30.3	29.5	28.7	32.5	32.4	30.7	-2	-5	-3	+6
*Index of success***	*133.5*	*112.5*	*109.5*	*118.0*	*121.3*	*120.5*	*120.9*	*124.0*	*118.6*	*119.8*	120.9	*+3*	*+11*	*+8*	*-13*
Imposing order in the country															
Successful	53.2	36.6	39.4	48.0	49.4	52.1	50.3	50.1	49.9	51.7	50.6	+3	+11	+14	-3
Unsuccessful	34.0	50.0	47.5	39.1	37.8	35.1	37.3	37.5	38.0	37.9	37.3	-2	-10	-13	+3
Index of success	*119.2*	*86.6*	*91.9*	*108.9*	*111.6*	*117.0*	*113.0*	*112.6*	*111.9*	*113.8*	113.3	*+4*	*+21*	*+27*	*-6*
Protecting democracy and strengthening the citizens' freedoms															
Successful	44.4	32.4	31.8	37.5	38.2	40.7	39.5	39.2	42.2	42.6	40.4	+3	+9	+8	-4
Unsuccessful	37.0	48.3	51.0	45.4	44.3	41.9	40.9	39.9	38.3	41.7	41.2	-4	-10	-7	+4
Index of success	*107.4*	*84.1*	*80.8*	*92.1*	*93.9*	*98.8*	*98.6*	*99.3*	*103.9*	*100.9*	99.2	*+7*	*+18*	*+15*	*-8*
Economic recovery and increase in the citizens' welfare															
Successful	47.2	30.7	31.3	34.8	33.9	37.6	34.4	34.7	36.2	36.6	35.6	+1	+4	+5	-12
Unsuccessful	39.1	56.1	56.8	53.4	54.4	50.8	51.5	49.9	49.9	52.6	51.5	-2	-5	-5	+12
Index of success	*108.1*	*74.6*	*74.5*	*81.4*	*79.5*	*86.8*	*82.9*	*84.8*	*86.3*	*84.0*	84.1	*+3*	*+10*	*+9*	*-24*

* Ranked according to the average value of the index of success for the last 6 surveys.
** The indices are calculated as follows: the share of negative answers is subtracted from the share of positive answers, then 100 is added to the obtained value, so as not to have negative values. Thus, completely negative answers would give the total index of 0, and completely positive answers would give the total index of 200; the balance between the former and the latter expresses the value of the index 100, which is, essentially, a neutral mark.

The structure of the Russians' preferences concerning political parties in June – August 2015 did not see any significant changes: the "United Russia" is supported by 39%, KPRF – by 7%, LDPR – by 6%, the "Just Russia" – by 4%.

It should be noted that on average over the last 6 polls, compared to 2014, the proportion of the Oblast residents who believe that the "United Russia" expresses their interests, increased by 5 percentage points (from 33 to 38%).

Which party expresses your interests? (as a percentage of the number of respondents)

Party	2007	Election to the RF State Duma 2007, fact	2011	Election to the RF State Duma 2011, fact	2013	2014	Oct. 2014	Dec. 2014	feb. 2015	Apr. 2015	June 2015	Aug. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…			
														2014	2013	2011	2007
United Russia	30.2	60.5	31.1	33.4	29.4	32.8	35.5	36.7	38.8	38.2	40.3	38.5	38.0	+5	+9	+7	+8
KPRF	7.0	9.3	10.3	16.8	11.3	9.7	9.3	8.3	7.7	7.8	6.8	7.1	7.8	-2	-3	-2	+1
LDPR	7.5	11.0	7.8	15.4	7.2	7.6	7.3	7.8	6.7	6.1	5.4	5.9	6.5	-1	-1	-1	-1
Just Russia	7.8	8.8	5.6	27.2	4.6	3.5	3.9	3.2	4.1	3.7	3.3	3.5	3.6	0	-1	-2	-4
Other	1.8	–	1.9	–	0.6	0.3	0.7	0.1	0.3	0.1	0.2	0.1	0.3	0	0	-2	-2
No party	17.8	–	29.4	–	34.9	34.4	32.6	32.7	30.3	31.5	32.5	33.8	32.2	-2	-3	+3	+14
It is difficult to answer	21.2	–	13.2	–	10.2	11.7	10.7	11.1	12.0	12.5	11.6	11.1	11.5	0	+1	-2	-10

Continuous positive trends can be observed in the dynamics of assessments of the social well-being of the population.

In June – August 2015, the proportion of the Vologda Oblast residents who describe their mood as "normal and fine" rose from 70% to 73%. The proportion of those, who "experience stress, anger, fear, depression", did not change in the last two months (24%), and in comparison with the beginning of the year it decreased significantly (from 31% in February to 24% in August).

The proportion of the Oblast residents who believe that "everything is not so bad; it's difficult to live, but it's possible to stand it" increased from 79 to 82% in the last two months. Meanwhile, the share of those who feels "it's impossible to bear such plight" was 13–15% in June – August, and it decreased as compared with the beginning of the year (from 17% in February to 13% in August).

There still remains a significant gap between "the poor and extremely poor and the "people with average income". According to the assessment of the Oblast residents, 51–53% include themselves in the first category, 38–40% – in the second category. However, it should be noted that this gap (11–13 p.p.) during February – August 2015 has not been increasing. Unlike the previous years' assessments, in 2007 the share of the "people with average income" was higher than the proportion of the "poor and extremely poor" (6 p.p.); in 2011 it was roughly the same (with the difference of 1 p.p.); in 2013 the share of the "poor and extremely poor" exceeded that of the "people with average income" (by 3 p.p.), and in 2014 this gap increased to 6 p.p.

The Consumer Sentiment Index, which characterizes people's forecasts concerning the prospects of economic development and their personal wealth after a significant increase in April – June (by 7 points, from 73 to 80 p.) decreased again and in August 2015 it was 78 points. It is considerably lower that in 2011–2014 (88–90 p.).

Overall assessments of social sentiment and the stock of patience in August 2015 remain higher than in 2007–2014. The situation is reverse with regard to the residents' assessments of their financial position and forecasts of economic development – they are worse than in 2007–2014.

Estimation of social condition (as a percentage of the number of respondents)

Answer option	2007	2011	2013	2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Aug. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…			
												2014	2013	2011	2007
Mood															
Usual condition, good mood	63.6	63.1	68.6	69.4	69.3	70.9	61.8	67.6	69.5	73.1	68.7	-1	0	+6	+5
I feel stress, anger, fear, depression	27.8	28.9	26.2	24.9	24.6	24.1	31.3	26.6	24.4	23.5	25.8	+1	0	-3	-2
Stock of patience															
Everything is not so bad; it's difficult to live, but it's possible to stand it	74.1	74.8	79.3	80.8	80.3	80.0	74.3	78.9	79.0	82.2	79.1	-2	0	+4	+5
It's impossible to bear such plight	13.6	15.3	14.2	12.6	12.1	13.6	17.3	14.9	14.7	13.3	14.3	+2	0	-1	+1
Social self-identification*															
The share of people who consider themselves to have average income	48.2	43.1	43.9	43.2	43.5	42.3	38.3	36.7	39.4	39.9	40.0	-3	-4	-3	-8
The share of people who consider themselves to be poor and extremely poor	42.4	44.3	46.9	49.1	49.3	51.0	53.3	51.6	48.0	50.5	50.6	+2	+4	+6	+8
Consumer Sentiment Index															
Index value, points	105.9	89.6	90.3	87.6	84.0	82.3	75.7	73.4	80.1	77.9	78.9	-9	-11	-11	-27

* Question: "Which category do you belong to, in your opinion?"

Conclusion

The results of the August 2015 survey show that after a busy period of the late 2014 – early 2015 associated with the exacerbation of financial issues (rising prices, fluctuations in the exchange rate of the ruble, pessimistic expectations of the impact of the sanctions), the dynamics of assessments of public opinion by the Vologda Oblast residents has stabilized.

In the last two months there was a growing proportion of people who positively characterize their mood and who possess a high reserve of patience. There is no significant change in people's assessment of their own revenues and in the forecasts of the development of the economic situation. From February to August 2015 the activities of the head of state find active support.

The improvement in public opinion is largely due to the information policy of the federal and regional authorities, the optimism of which is transmitted to the population through the mass media.

However, we cannot yet speak about the improvement in the dynamics of public opinion on personal welfare. The proportion of the Oblast residents who give negative assessments of their well-being remains stable and higher than in 2007–2013. The dynamics of consumer sentiment is also dominated by negative characteristics (the value of CSI is below the neutral level (100 points)).

According to experts (L. Gudkov, A. Mukhin, N. Mironov, V. Khomyakov, etc.), the approval of performance of the authorities can increase up to 90–91%, "however, this will not have a crucial importance anymore. A 2–3% growth is within the statistical error. These fluctuations indicate that the rating has stabilized at the present stage"[2].

The President acts as the person who ensures safety. Another important factor is the "intensity of action on the part of the U.S.": the greater the pressure, the higher the estimation of activities of the RF President, because different groups under external pressure "enter into a kind of armistice". In addition, when there are no alternatives, people do not believe much in the chances of opposition"[3].

In other words, the current President's approval rating does not show the effectiveness of political system, economy and the Government. It is a kind of "rating of hopes"[4]. However, according to experts, the economic situation will determine the further dynamics of approval of the President. Today the President's approval rating has virtually reached its peak. So, perhaps "its negative effects are not far off. A drop in the rating can be expected in about two years, and it will be slow and lingering"[5].

Thus, the further dynamics of public opinion will depend primarily on what will form the basis of public trust in the authorities – "political necessity" or bringing macroeconomic policy "in line with the common understanding of the principles of social justice and truth, and to make it serve the interests of development of the production sector"[6].

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[2] Gorbachev A., Garmonenko D. Prezident i ego reiting [President and His Rating]. *Nezavisimaya gazeta* [Independent Newspaper], 2015, July 10. Available at: http://www.ng.ru/politics/20150710/1_president.html

[3] Ibidem.

[4] Andreeva Yu. Nadezhda na "reiting nadezhd" (Mnenie gendirektora Instituta prioritetnykh regional'nykh proektov N. Mironova) [Hope for the "Rating of Hopes" (An Opinion of Nikolai Mironov, Director General of the Institute of Priority Regional Projects)]. *Zavtra* [Tomorrow], 2015, no. 31 (1132.) Available at: http://zavtra.ru/content/view/vtsiom/.

[5] Gorbachev A., Garmonenko D. Prezident i ego reiting [President and His Rating]. *Nezavisimaya gazeta* [Independent Newspaper], 2015, July 10. Available at: http://www.ng.ru/politics/20150710/1_president.html

[6] Glazyev S.Yu. Zapredel'noe neravenstvo. Politika gosudarstva protivorechit interesam naseleniya [Outrageous Inequality. Governmental Policy Is Contrary to the Interests of the People]. *Zavtra* [Tomorrow], 2015, no. 29 (1130), July 23. Available at: http://zavtra.ru/content/view/zapredelnoeneravenstvo/

In-depth analysis of the dynamics of assessments of success that the RF President has in dealing with Russia's main issues and the in-depth analysis of structural components of the Consumer Sentiment Index

In June – August 2015, the proportion of those who believes the President is successful in strengthening Russia's international standing has increased mainly among people aged 30–55 (from 49 to 54%), among those with incomplete secondary and secondary education (from 43 to 49%), and among the poorest 20% (from 22 to 33%).

The decline in the assessments in the last two months is observed primarily among people with higher and incomplete higher education (from 64 to 58%) and among 20% of the wealthiest Oblast residents (from 68 to 61%).

Proportion of the Vologda Oblast residents who believe that the RF President successfully copes with the issue of strengthening Russia's international standing (as a percentage of the number of respondents)

Answer option	2007	2011	2013	2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Aug. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…			
												2014	2013	2011	2007
Sex															
Men	58.9	45.4	44.6	47.9	48.3	49.2	49.2	51.6	49.9	51.4	49.9	+2	+5	+5	-9
Women	57.9	46.8	46.5	52.3	55.5	52.1	51.3	53.7	52.1	52.9	52.9	+1	+6	+6	-5
Age															
Under 30	60.3	46.1	45.3	50.7	56.7	52.7	48.7	49.8	53.6	52.8	52.4	+2	+7	+6	-8
30-55	58.7	47.0	46.4	50.3	51.2	49.9	48.5	53.9	48.6	53.5	50.9	+1	+5	+4	-8
Over 55	56.1	45.0	44.7	50.2	51.1	50.9	54.1	52.9	53.0	49.9	52.0	+2	+7	+7	-4
Education															
Incomplete secondary, secondary	52.3	40.6	42.3	42.8	44.0	42.3	46.7	43.5	42.9	48.9	44.7	+2	+2	+4	-8
Secondary vocational	57.7	46.8	44.7	50.5	51.7	51.1	47.7	55.1	47.2	51.2	50.7	0	+6	+4	-7
Incomplete higher, higher	66.6	51.2	50.1	58.9	62.6	60.4	56.6	60.6	63.5	57.6	60.2	+1	+10	+9	-6
Income groups															
20% of the poorest people	42.4	28.6	33.1	31.9	32.2	30.5	21.2	33.0	22.2	32.8	28.7	-3	-4	0	-14
60% of the people with middle-sized income	60.8	49.1	48.5	52.6	58.1	54.8	59.7	57.4	54.9	56.5	56.9	+4	+8	+8	-4
20% of the most prosperous people	71.2	57.2	54.3	65.9	65.5	66.5	63.9	63.3	68.4	60.7	64.7	-1	+10	+8	-7
Territories															
Vologda	56.1	47.0	44.0	50.0	52.8	50.9	49.6	56.0	52.6	50.4	52.1	+2	+8	+5	-4
Cherepovets	74.3	60.4	50.0	62.5	66.2	65.4	64.9	70.5	69.9	69.9	67.8	+5	+18	+7	-7
Districts	51.5	38.6	44.1	43.9	44.5	42.7	43.0	41.0	39.8	43.4	42.4	-2	-2	+4	-9
Oblast	58.4	46.2	45.6	50.4	52.3	50.8	50.4	52.7	51.1	52.2	51.6	+1	+6	+5	-7

In the past two months, the assessment of the President's success in imposing order in the country improved among people aged under 30 (from 53 to 59%), among persons with secondary and incomplete secondary education (from 41 to 49%), among the poorest 20% (from 19 to 34%) and among the residents of the Vologda Oblast districts (from 38 to 43%).

Negative changes are observed primarily among people with higher and incomplete higher education (from 60 to 57%), and among 20% of the wealthiest (from 65 to 62%).

Proportion of the Vologda Oblast residents who believe that the RF President successfully copes with the issue of imposing order in the country (as a percentage of the number of respondents)

Answer option	2007	2011	2013	2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Aug. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…			
												2014	2013	2011	2007
Sex															
Men	53.4	36.0	37.6	46.0	47.3	51.3	51.2	48.4	48.9	50.4	49.6	+12	+12	+14	-4
Women	52.9	37.8	40.8	49.6	51.1	52.8	49.5	51.4	50.7	52.7	51.4	+11	+11	+14	-2
Age															
Under 30	57.3	38.0	38.8	48.2	51.4	51.4	49.0	49.8	52.9	59.1	52.3	+4	+14	+14	-5
30-55	53.5	36.5	38.8	47.9	49.6	51.6	52.1	51.3	48.3	50.4	50.6	+3	+12	+14	-3
Over 55	48.8	37.0	40.7	48.0	47.9	53.3	48.5	48.6	50.1	48.9	49.6	+2	+9	+13	+1
Education															
Incomplete secondary, secondary	48.6	32.2	38.0	43.2	43.3	46.3	45.2	45.6	41.1	49.3	45.1	+2	+7	+13	-4
Secondary vocational	53.1	38.9	39.3	48.5	51.9	50.3	49.6	47.9	47.9	49.5	49.5	+1	+10	+11	-4
Incomplete higher, higher	58.7	39.9	40.9	52.8	53.8	60.8	56.2	57.4	60.4	56.9	57.6	+5	+17	+18	-1
Income groups															
20% of the poorest people	41.9	26.3	30.5	33.1	32.2	31.6	28.6	31.9	19.3	34.4	29.7	-3	-1	+3	-12
60% of the people with middle-sized income	55.0	39.4	41.0	50.6	54.4	56.4	57.0	54.6	55.3	54.8	55.4	+5	+14	+16	0
20% of the most prosperous people	63.3	42.1	46.6	60.2	60.7	67.6	59.5	62.6	65.1	62.2	63.0	+3	+16	+21	0
Territories															
Vologda	52.0	39.4	34.8	45.6	44.9	49.1	48.9	54.5	53.1	51.2	50.3	+5	+16	+11	-2
Cherepovets	65.1	44.2	44.4	59.9	64.1	66.2	63.3	63.0	67.2	68.4	65.4	+6	+21	+21	0
Districts	47.7	32.2	39.0	42.7	43.8	46.0	43.9	40.4	38.4	42.7	42.5	0	+4	+10	-5
Oblast	53.1	37.0	39.4	48.0	49.4	52.1	50.3	50.1	49.9	51.7	50.6	+3	+11	+14	-3

In June – August 2015, the President's performance with regard to protecting democracy and strengthening citizens' freedoms was assessed more positively by people with secondary special education (from 41 to 46%), by the poorest 20% (from 18 to 31%), and by the residents of the Vologda Oblast districts (from 35 to 38%).

A decline in the assessments is observed among people with higher and incomplete higher education (from 50 to 45%), among 20% of the wealthiest (from 58 to 48%), and among the Vologda residents (from 43 to 39%).

Proportion of the Vologda Oblast residents who believe that the RF President successfully copes with the issue of protecting democracy and strengthening the citizens' freedoms (as a percentage of the number of respondents)

Answer option	2007	2011	2013	2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Aug. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…			
												2014	2013	2011	2007
Sex															
Men	45.6	32.2	31.1	35.5	36.1	39.3	38.7	38.1	39.9	40.5	38.8	+3	+8	+7	-7
Women	43.4	33.4	32.3	39.1	39.9	41.8	40.0	40.1	44.1	44.3	41.7	+3	+9	+8	-2
Age															
Under 30	47.2	32.4	30.4	37.4	38.0	41.5	35.8	38.2	48.0	47.9	41.6	+4	+11	+9	-6
30-55	44.4	32.2	31.9	36.6	38.9	39.8	40.6	41.1	38.4	40.8	39.9	+3	+8	+8	-5
Over 55	41.8	34.2	32.6	38.9	37.3	41.3	40.1	37.3	43.8	41.9	40.3	+1	+8	+6	-2
Education															
Incomplete secondary, secondary	39.8	27.5	30.7	34.1	35.0	33.7	37.7	33.7	35.6	37.5	35.5	+1	+5	+8	-4
Secondary vocational	45.3	34.4	30.6	38.2	39.8	42.4	38.9	38.4	40.7	45.9	41.0	+3	+10	+7	-4
Incomplete higher, higher	48.8	36.6	34.0	40.7	40.4	46.8	41.6	46.2	50.3	45.3	45.1	+4	+11	+9	-4
Income groups															
20% of the poorest people	37.1	19.5	25.6	25.2	25.1	23.5	17.1	25.2	18.2	30.9	23.3	-2	-2	+4	-14
60% of the people with middle-sized income	45.4	35.4	32.2	38.5	41.9	42.7	48.1	41.5	45.1	45.2	44.1	+6	+12	+9	-1
20% of the most prosperous people	53.3	40.3	36.8	48.2	46.8	56.3	43.9	50.0	57.8	48.1	50.5	+2	+14	+10	-3
Territories															
Vologda	38.4	35.7	27.6	32.7	32.8	35.5	36.1	39.4	42.8	39.3	37.7	+5	+10	+2	-1
Cherepovets	54.9	40.4	32.4	47.9	50.0	52.3	48.5	51.4	54.1	53.7	51.7	+4	+19	+11	-3
Districts	42.0	27.7	33.6	34.5	34.7	37.1	36.4	32.3	35.2	38.3	35.7	+1	+2	+8	-6
Oblast	44.4	32.8	31.8	37.5	38.2	40.7	39.5	39.2	42.2	42.6	40.4	+3	+9	+8	-4

In June – August 2015 the positive assessment of success of the President's performance with regard to economic recovery and increasing the citizens' welfare increased mainly among the poorest 20% (from 15 to 29%), among people with secondary, incomplete secondary education (from 32 to 36%) and among people with secondary vocational education (from 34 to 38%) and among the residents of the Vologda Oblast districts (from 34 to 38%).

The decline in the assessments is observed among people with higher and incomplete higher education (from 43 to 36%), and among 20% of the wealthiest (from 49 to 38%).

Proportion of the Vologda Oblast residents who believe that the RF President successfully copes with the issue of economic recovery and increase in the citizens' welfare (as a percentage of the number of respondents)

Answer option	2007	2011	2013	2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Aug. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…			
												2014	2013	2011	2007
Sex															
Men	47.3	30.3	31.3	33.6	32.4	37.2	34.2	35.0	33.9	36.0	34.8	+1	+4	+5	-13
Women	47.2	31.1	31.3	35.8	35.1	37.9	34.5	34.4	38.1	37.1	36.2	0	+5	+5	-11
Age															
Under 30	51.6	31.0	29.9	34.8	32.1	37.4	30.0	33.7	39.2	39.9	35.4	+1	+6	+4	-16
30-55	47.9	29.6	31.6	33.4	34.4	35.4	36.1	36.1	35.3	34.9	35.4	+2	+4	+6	-13
Over 55	42.2	32.3	32.1	36.8	34.5	40.7	34.7	33.4	35.6	37.0	36.0	-1	+4	+4	-6
Education															
Incomplete secondary, secondary	43.1	27.4	30.0	32.6	32.3	33.3	32.8	34.7	31.6	36.4	33.5	+1	+4	+6	-10
Secondary vocational	47.9	31.8	31.0	36.1	36.5	37.9	36.5	32.8	33.7	37.5	35.8	0	+5	+4	-12
Incomplete higher, higher	51.5	32.9	33.1	36.0	33.3	42.2	33.7	36.7	43.4	35.6	37.5	+2	+4	+5	-14
Income groups															
20% of the poorest people	41.8	20.2	24.2	24.6	24.3	21.3	14.5	27.8	14.9	29.0	22.0	-3	-2	+2	-20
60% of the people with middle-sized income	46.6	32.3	31.8	35.7	36.8	39.5	42.9	35.6	38.9	37.4	38.5	+3	+7	+6	-8
20% of the most prosperous people	60.2	37.7	37.1	43.6	41.9	52.9	35.3	43.7	49.1	38.2	43.5	0	+6	+6	-17
Territories															
Vologda	41.1	31.2	27.3	30.5	27.3	33.2	29.8	34.4	33.3	31.1	31.5	+1	+4	0	-10
Cherepovets	58.4	36.7	32.1	40.2	38.5	40.9	36.4	38.5	42.9	39.5	39.5	-1	+7	+3	-19
Districts	44.5	27.5	33.0	34.2	35.2	38.2	35.8	32.7	34.0	38.0	35.7	+2	+3	+8	-9
Oblast	47.2	30.7	31.3	34.8	33.9	37.6	34.4	34.7	36.2	36.6	35.6	+1	+4	+5	-12

The Consumer Sentiment Index (CSI) is declining mainly because the Oblast residents make more negative assessments of their current financial situation. Since December 2014, the index of current personal financial situation has remained lower than all the other indices included in the structure of CSI. Meanwhile, in December 2014 – August 2015 it dropped from 77 to 72 points.

The second component that affects a decrease of CSI is the index of expectations for the development of economy in the coming year. In December 2014 – August 2015, it dropped from 82 to 75 points.

We should also note a marked decrease in the index of expediency of purchase of durable goods (from December 2014 to August 2015 – from 89 to 79 points), although its value remains higher than the values of the index of current personal financial situation and the index of expectations for the development of economy in the coming year.

Dynamics of partial indices used for the calculation of CSI
(answers are given in % of the number of respondents, indices are given in points)

Answer option	2007	2011	2013	2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Aug. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…			
												2014	2013	2011	2007
How would you assess your financial situation: is it better or worse than it was a year ago?															
Better	14.5	9.0	11.5	9.4	8.8	8.8	9.3	6.3	7.6	8.1	8.2	-1	-3	-1	-6
The same	60.5	53.6	53.4	52.7	47.9	45.1	40.9	40.5	43.5	43.2	43.5	-9	-10	-10	-17
Worse	13.4	27.2	24.5	26.4	28.0	31.7	33.5	37.6	32.8	35.8	33.2	+7	+9	+6	+20
It is difficult to answer	11.5	10.3	10.6	11.5	15.3	14.4	16.3	15.7	16.1	12.9	15.1	+4	+5	+5	+4
Index of current personal financial situation	***101.1***	***81.8***	***87.0***	***83.0***	***80.8***	***77.1***	***75.8***	***68.7***	***74.8***	***72.3***	***74.9***	***-8***	***-12***	***-7***	***-26***
In your opinion, will the next 12 months be a good, bad or other time for Russia's economy?															
Good	6.4	3.3	3.0	2.1	2.5	2.3	2.8	1.3	1.0	1.3	1.9	0	-1	-1	-5
Good, but not in every aspect	29.4	17.2	15.0	12.4	9.8	12.9	6.8	10.1	11.5	10.7	10.3	-2	-5	-7	-19
Not good, but not bad either	34.6	34.6	33.1	33.5	34.3	31.5	29.1	26.9	32.5	34.2	31.4	-2	-2	-3	-3
Bad, but not in every aspect	9.4	16.9	15.7	15.6	16.9	15.0	18.3	18.1	19.3	18.5	17.7	+2	+2	+1	+8
Bad	2.0	7.1	9.2	12.1	13.4	17.7	18.6	19.3	14.3	18.1	16.9	+5	+8	+10	+15
It is difficult to answer	18.2	20.8	24.0	24.4	23.1	20.6	24.4	24.3	21.5	17.1	21.8	-3	-2	+1	+4
Index of expectations for the development of economy in the coming year	***124.4***	***96.5***	***93.1***	***86.8***	***82.0***	***82.5***	***72.7***	***74.0***	***78.9***	***75.4***	***77.6***	***-9***	***-16***	***-19***	***-47***
In your opinion, will your financial situation be better or worse or about the same as now in a year?															
It will be better	15.0	10.4	8.9	7.7	5.5	6.5	4.9	5.3	4.7	4.8	5.3	-2	-4	-5	-10
It will be the same	46.4	43.0	45.3	41.4	38.4	35.3	29.2	33.9	38.3	37.5	35.4	-6	-10	-8	-11
It will be worse	11.4	19.8	17.8	20.2	23.0	26.9	32.5	31.1	24.3	25.2	27.2	+7	+9	+7	+16
It is difficult to answer	27.2	26.8	28.1	30.7	33.1	31.3	33.3	29.8	32.7	32.5	32.1	+1	+4	+5	+5
Index of expectations of changes in personal welfare	***103.6***	***90.6***	***91.1***	***87.5***	***82.5***	***79.6***	***72.4***	***74.2***	***80.4***	***79.6***	***78.1***	***-9***	***-13***	***-13***	***-26***
Speaking about the next five years, will they be a good or a bad time for the economy?															
Good	13.8	6.8	4.6	4.4	3.6	3.9	2.9	4.0	5.2	3.8	3.9	-1	-1	-3	-10
Not good, but not bad either	49.3	42.3	39.2	37.8	36.5	37.1	31.1	30.2	35.7	34.5	34.2	-4	-5	-8	-15
Bad	8.7	16.6	17.7	17.9	19.6	20.3	24.2	25.5	19.0	20.7	21.6	+4	+4	+5	+13
It is difficult to answer	28.3	34.3	38.6	40.0	40.3	38.7	41.8	40.3	40.1	41.0	40.4	0	+2	+6	+12
Index of expectations of economic development in the next five years	***105.1***	***90.2***	***86.9***	***86.5***	***84.0***	***83.6***	***78.7***	***78.5***	***86.2***	***83.1***	***82.4***	***-4***	***-5***	***-8***	***-23***
Speaking of major purchases for the home (such as furniture, fridge, consumer electronics, TV-set), do you think that now is a good or a bad time to buy most of these things?															
Good	15.7	12.3	14.1	15.6	13.3	12.4	7.1	6.5	9.1	7.7	9.4	-6	-5	-3	-6
Not good, but not bad either	44.6	43.6	43.6	41.6	40.9	45.1	44.9	37.0	42.5	45.3	42.6	+1	-1	-1	-2
It is difficult to answer	20.2	23.2	20.8	21.3	22.4	23.8	28.4	34.8	29.0	28.5	27.8	+7	+7	+5	+8
It is difficult to answer	19.5	20.9	21.6	21.5	23.4	18.7	19.6	21.7	19.5	18.5	20.2	-1	-1	-1	1
Index of expediency of purchase of durable goods	***95.5***	***89.1***	***93.3***	***94.3***	***90.9***	***88.6***	***78.7***	***71.7***	***80.1***	***79.2***	***81.5***	***-13***	***-12***	***-8***	***-14***

Conclusion according to the results of the in-depth analysis

The analysis of people's assessments of the success with which the President copes with the key problems of the country (strengthening Russia's international standing, imposing order in the country, protection of democracy, economic recovery and increase in the citizens' welfare) substantiates the hypothesis that the dynamics of public opinion is greatly influenced by the mass media. Deterioration of assessments is registered among the wealthiest inhabitants of the Oblast and people with higher education, that is, among those who, first, have a more critical approach to the information about the political and economic life presented by the mass media, and second, have greater access to alternative sources of information (e.g., Internet resources).

Improvement of assessments of the success of the President's activity is observed among people with secondary and incomplete secondary education and among the poorest 20% of the Oblast residents. These are the categories that are less inclined toward in-depth analysis of information provided by the mass media and that have fewer opportunities for comparing alternative points of view. Most likely, the majority of these people receive information from the "traditional" source, i.e. 3–4 federal TV channels.

The data obtained in the course of the in-depth analysis of the structural components of the Consumer Sentiment Index indicate that, despite stable and strong government support, people assess their financial situation as being worse and they have pessimistic expectations concerning the future of Russia's economy. Consequently, the level of approval of authorities "rests" on other pillars – propaganda, the impact of the "Crimean spring" and the absence of alternative political choice.

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SOCIO-ECONOMIC DEVELOPMENT STRATEGY

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Socio-Economic Issues of Territories in the Focus of Attention of Researchers in Vologda

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Abstract. Market transformation in Russia's economy at the end of the 20th century was accompanied by the increase in the autonomy of its territories, and the establishment of the institute of local government. As a result of the separation of powers and responsibilities the local government has become responsible for strategically important and socially significant functions of the state such as preschool, primary, basic and secondary (complete) general education, physical education, social policy, organization of provision of housing and utilities services to the population. However, local government in Russia is in the process of formation, and only few municipalities are able to perform all their functions due to limited budgetary resources. Therefore there are a lot of problems in the socio-economic development of territories that need solving and that require scientific and methodological support as well. The paper describes the main stages of formation and development of scientific objectives with regard to the issues of socio-economic development of territories at the Institute of Socio-Economic Development of Territories of RAS. The author emphasizes that the scope of the research depends to a large extent on the needs of the local government.

Key words: problems of territories, socio-economic development, scientific support, development of territories, methods and tools of management.

In December 1990 the Vologda Scientific-Coordination Center (VSCC) was established: nowadays – the Institute of Socio-Economic Development of Territories of the Russian Academy of Sciences. Its formation occurred in the period of transformation from a planning into a market economy. The specific characteristics of this stage of the country's socio-economic development were the following: transition of the greater part of state property into private in the course of privatization, an increase in the role of small business, formation of a basis for finance-credit and banking systems, institutional, political structures, etc. However, along with the positive features of that period the reform was accompanied by severe crises, including: deep disorder of the reproduction mechanisms; increased differentiation of territories; a lack of own institutional infrastructure for expanded reproduction. The mechanism of market competition involved the division of regions by their competitive advantages and disadvantages. The regions with different economic structures and mentality of the population and the authorities adapted to market differently. At the same time, the federal government declared economic independence of Russian subjects; the institute of local self-government was formed. The responsibility for socio-economic development of the territory was shifted to regional authorities.

The state socio-economic policy was based on borrowing "foreign recipes" [3], did not take into account the specifics of the country's development in the previous decades. Such policy resulted in a number of negative trends in the social sphere and economy. These problems were characteristic of the Vologda Oblast, undergoing, like other regions, very difficult times.

The negative dynamics of most socio-economic indicators was caused by the liberal model of the economic reform. Its main tool is to limit the state's role as an active subject of economic power and reduce its functions to the control over the dynamics of monetary aggregates [3]. The government claimed the necessity to refuse from the state regulation of socio-economic processes.

However, the national economy's functioning in the market conditions and its integration into the world economy required new, science-based forms and methods to manage socio-economic processes. The scientific and methodological support of these objectives underlined the activity of the Department of the Issues of Socio-Economic Development and Management in Territorial Systems – the leading research department of the Vologda Scientific-Coordination Center.

Today the elaboration of scientific and methodological foundations for the regional economy development in the conditions of dynamic external and internal environment, methods and tools to manage territorial development is a priority in the economic studies conducted by ISEDT RAS. The activity of the Department of the Issues of Socio-Economic Development and Management in Territorial Systems is aimed at the enhancement of the theoretical

and methodological foundations and methodological tools to manage a region, municipalities (cities, districts, settlements) and economic entities; the organization of regular socio-economic monitoring; the scientific substantiation of the factors and methods to manage sustainable development of territorial systems; the modernization of administration in the region at a new stage of reforming the local self-government, etc.

What are the main stages of formation and development of scientific research in the territorial development management in ISEDT RAS?

In our opinion, we can single out 3 stages.

The first stage covered the 1991–2000 period. The academic institution set the task to elaborate the guidelines and tools for adaptation of the management systems of regional and local level to the market economic conditions. In these years the research associates of the Institute studied the theory and methodology of socio-economic processes, tested methodological tools on the materials of the Vologda Oblast, formed the research base and elaborated research topics. Following the recommendations of leading Russian scientists-economists, such as *L.I. Abalkin, A.G. Granberg, A.E. Kogut, D.S. Lvov, A.I. Tatarkin, V.N. Lazhentsev,* etc.[4, 8, 9, 14], the employees of the Institute under the scientific supervision of Doctor of Economics V.A. Ilyin developed the concepts for socio-economic development of the Vologda Oblast and several districts already in the early 1990s. We should acknowledge the help of power structures of different levels. It is, primarily, specialists of the Vologda Oblast Government, the City Vologda Administration and administrations of Vologodsky, Cherepovetsky, Sokolsky and Gryazovetsky municipal districts. The recommendations, suggestions and conclusions obtained at the Institute were tested there.

There was fruitful cooperation on the search for ways to develop the city with the Vologda City Administration. To make an integrated assessment of the residents' satisfaction with living conditions and activities of local governments and elaborate recommendations on improvement of the city's socio-economic policy the Institute carried out *the monitoring of living conditions in the city of Vologda* that time.

Since 1994 this monitoring has been conducted annually. 800 residents participate in the survey. The distribution of respondents by age and gender corresponds to the general population. To consider the characteristics of living conditions on the territory of the city we conduct the survey by districts, four of which comply with the electoral districts: Eastern, Western, Central, Zarechny. Besides, the composition of the districts includes the ones most remote from the city center: Losta, Luk'yanovo, Priluki and the village of Molochnoe.

The Institute has created the unique database that makes it possible to analyze socio-economic processes and the change in the city residents' mood in different periods of economic development. In 2012 the Database state registration certificate was obtained.

During the economic research of that time the Vologda scientists proved the need to manage the socio-economic development of territories on the basis of a strategy; proposed to organize planning of socio-economic development of the city of Vologda taking into account the experience of European cities and increasing competition for investment between municipalities; elaborated guidelines on the adjustment of the current socio-economic policy; urged the conduct of the regular monitoring of socio-economic development and the creation of the incentive system for municipal employees. In the late 1990s the scientific staff of the Institute presented a long term forecast for socio-economic development of the city of Vologda. The scientists' achievements formed the basis for the adopted *Concept for Socio-Economic Development of the city of Vologda up to 2010*.

The main scientific results of that period are reflected in several publications, including the monographs: "Vologda Oblast: Movement to the Market" (V.A. Ilyin, A.A. Pashko, M.F. Sychev; edited by P.A. Usachev); "Living Conditions of the Population: Assessment and Management Issues" (V.A. Ilyin, E.M. Zhirnov, A.S. Yakunichev); "Strategy for the Municipal Formations Management" (group of authors under the supervision of V.A. Ilyin, A.S. Yakunichev).

The next stage of development of researches in the management of socio-economic processes of territories (2000–2010) coincided with the period of local self-government reformation, its transition to a two-level model, extension of the powers and the responsibilities of local governments. The economy of the regions demonstrated a steady growth until the 2008–2009 financial crisis. The Vologda scientists got involved in the process of working out the theoretical and methodological bases for the territorial development management. In these years the unique methods and tools of administration were created and tested in the Northwestern Federal district. This was facilitated not only by the accumulated experience, but also by the significant expansion and strengthening of scientific relations of ISEDT RAS with the leading economic institutes of the Russian Academy of Sciences (Institute of Problems of Regional Economy of RAS; Institute of Economics, Ural Branch of RAS; Institute of Socio-Economic and Energy Problems of the North Komi Scientific Centre, Ural Branch of RAS; Institute of Economics of Karelian Scientific Centre of RAS, Central Economics and Mathematics Institute of RAS; Institute of Economic Forecasting of RAS, etc.) and the development of friendly contacts with Russian scientists. Thus, the range of studies on the territorial development problems was expanded and the quality and the effectiveness of research projects were improved and ultimately the scientific school "Theory and methodology of management of sustainable socio-economic development of regional systems" was formed.

Due to the importance of the tasks performed by local governments, the staff

of the Institute carries out the annual monitoring of socio-economic development of municipal district and since 2006 – *the monitoring of the local government reform*. It is aimed at evaluating the results of the local government reform, identifying the problems and working out the recommendations on the increase in efficiency of regional and municipal authorities' activity. The monitoring is conducted on the basis of the questionnaire survey of heads in all Vologda Oblast municipalities (urban and rural settlements, municipal and city districts). The database provides an opportunity to identify changes in the development of this institution of power in the Russian Federation and critical problems, causes and trends in its development. In 2014 we received the Database state registration certificate.

The Vologda scientists were also focused on the issues to establish and optimize the management structure in the district and local self-governments, enhance the cooperation between authorities of different levels (region – district – settlement) according to the requirements of the law "On general principles of organization of the Russian Federation" (federal law no. 131) and improve the management of municipalities' fiscal resources and promote the development of private-municipal partnership.

In addition to the issues to improve local self-government, the Institute employees studied the problems to manage sustainable development of territories, enhance their competitiveness and establish regional production clusters.

The main scientific results of the Department staff at the time were the following:

– development of the theory and the methodology to manage sustainable socio-economic development of territories;

– scientific justification of the formation of the continuous planning system, comprising the elements of tactical (medium-term) and operational planning, capable to act as a mechanism for the strategy implementation;

– creation of the methodological tools for formation of the multilevel system of indicative planning of socio-economic development of territories and assessment of the effectiveness of socio-economic development of municipalities;

– elaboration of the methods, such as formation and implementation of the plan and the system to monitor socio-economic development of municipalities; assessment of the competitiveness and the sustainability of regional development; evaluation of the sustainability of socio-economic systems;

– substantiation of the algorithm to create industrial clusters; the scheme of local self-government organization, the models and the mechanisms to improve local governments' activity; the conceptual approaches and the main directions to facilitate the management structure of local self-governments; the forms of interaction between regional, district and settlement authorities and public-private partnership, etc.

There was very productive cooperation with the administrations of Vologodsky District and Gryazovetsky District. The

Seminar in the Administration of Gryazovetsky District

VSCC Director V.A. Ilyin and Head of the administration of Vologodsky District A.V. Gordeev (from left to right)

study results, proposals and recommendations of the research associates were tested on the materials of these municipalities and repeatedly discussed at the seminars (*photo*). Their use helped the districts form the management system addressing many socio-economic problems and hold high positions in the rating of the Vologda Oblast municipal districts.

The results of these studies are presented in the monographs, such as: "Monitoring of Municipalities Development" (*T.V. Uskova, A.N. Zuev, A.A. Smirnov*; under the scientific supervision of *V.A. Ilyin*); "Indicative Planning of Municipalities Development" (*T.V. Uskova*); "Local Government in Rural Regions: Trends, Problems, Prospects" (team of authors: *V.A. Ilyin, V. I. Chirkov, T.V. Uskova, K.A. Gulin, D.P. Zharavin, I.N. Dement'eva*); "Local Self-Government in Regional Development" (*D.E. Amelin*); "Strategic Management of Socio-Economic Development of a Municipal Formation" (*D.P. Zharavin, N.A. Pakholkov*); "Mechanism of Investment Interaction between Business Structures and Local Self-Government" (*E.O. Orlova, P.M. Sovetov*); "Economy of a Rural District: State and Prospects" (V.*A. Ilyin, A.V. Gordeev, T.V. Uskova, M.F. Sychev, K.A. Gulin*); "Management of Sustainable Development of a Region" (*T.V. Uskova*), etc. (*photo*).

The beginning of the third stage of the research in the problems to manage territorial development coincided with the 2008–2009 post-crisis period. This period was characterized by the significant slowdown in the economy, the lack of financial resources of the federal and regional budgets to meet current challenges. In these circumstances the responsibility for sustaining livelihoods, providing public services and forming local factors to strengthen regional and national economies was laid on the local authorities [5, 6, 10]. The role of local self-government in the sustainable development of territories increased considerably. The potential of territories was considered as one of the main resources of economic growth and competitiveness of the region. The regional authorities and local self-governments were focused on the development of this potential and its more efficient use. Taking into account these circumstances, the Department of the Issues of Socio-Economic Development and Management in Territorial Systems defined the task of scientific research that time.

The primary scientific objectives of the Department for 2010–2015 are to study the municipalities' capacity to ensure sustainable development of the region, identify the methods to solve social-economic problems of local territories, enhance the efficiency of state and municipal management and improve the regional socio-economic policy.

The research, carried out in these years, revealed the low performance at all levels of government, allowed us to define the main directions to raise the efficiency of territorial development management, including through bettered regional socio-economic policy [10]. The list of proposals at the municipal level includes the organization of territorial self-government (TSG), the use of the mechanism of self-taxation of citizens as a form of improving the effectiveness of their participation in local self-government, the introduction of municipal-private partnership mechanisms and the formation of the effective district-settlement interaction mechanism.

At the regional level it is advisable to focus primarily on the coordination of activities of federal, regional authorities and local self-governments and the creation of favorable conditions for socio-economic development in the municipalities to attract local private investment.

The regional policy of the federal center is directed to overcoming excessive socio-economic differentiation of territories and encouraging more balanced spatial development of the national economy through the identification of each region's advantages, the establishment and promotion of new agglomerations of dynamic economic growth. The regional policy should be focused on:

– development of agglomerations, support of competitive territories, which can contribute to more rapid growth of the country's economy;

– creation of the system to reproduce the main parameters of territories' competitive advantages;

– formation of the environment that stimulates and backs innovation and development;

– formation of internal sources of territorial development;

– development of social and engineering infrastructure of territories, ensuring equal access of the population to socially important services-DIN;

– promotion of population mobility;

– establishment of the system of government-business-population interaction to solve territorial problems [2, 13].

In this period the ISEDT RAS employees were interested in public-private (municipal-private) partnership as a tool to meet socio-economic issues of local territories. They paid much attention to the territorial economy management concept, based on the development of public-private partnership in the housing and utilities sector – a very significant and cost-intensive sphere [11].

The Vologda scientists tried to find the ways to increase the efficiency of financial, economic, recreational and tourist potential, critical for sustainable socio-economic development of territories. The ISEDT RAS scientific staff studied mechanisms of investment attraction, issues of tourist infrastructure development and labor potential in this sphere to develop tourist potential of territories and encourage its more effective use. The accumulated materials allowed us to work out the strategy and the program for the tourist cluster development in the Vologda Oblast.

The modern economical development trends in the changing market conditions revealed the challenge of finding new ways and organizational and economic tools to achieve social well-being in the society. The promotion of social responsibility of business is one of these ways. The interaction of political, social and economic actors, based on the principles of social partnership, contributes to sustainable development of territories. Within framework of the research in the problem of social responsibility of business we identified the main stages of corporate social responsibility development and scientifically justified the directions of socially responsible behavior implementation.

The Department conducted a lot of studies on behalf of the Vologda City Administration aimed at increasing the efficiency of used potential of the city. We elaborated the draft strategies for the development of industry, construction industry, consumer market and consumer services.

In addition, in this period we worked out the strategies for socio-economic development of Babaevsky District and Vologodsky District that received very high evaluation of the expert community.

The most significant scientific results of the research in the problems of socio-economic development of territories conducted by ISEDT RAS in this period were the following:

– development of theoretical and methodological foundations of regional socio-economic policy, efficiency of state and municipal management;

– creation of the author's methods to evaluate the effectiveness of management of socio-economic development of

municipalities and regional socio-economic policy towards municipalities; the level and the differentiation of socio-economic development of territories; the level of tourist infrastructure development; the state of housing and utilities services of municipalities; the social responsibility of business, etc.;

– elaboration of the methodological tools to assess the prospects for reducing differentiation of territories and forecast their consequences; the effectiveness of partnership projects at all stages of their life cycle (the attention is paid to the balance of all actors' interests);

– scientific substantiation of the methodical recommendations to adjust the regional socio-economic policy;

– formation of the neural network model of socio-economic development of territories.

The results of the studied problems of socio-economic development of territories in 2010–2015 are presented in the monographs, such as: "Management of a Modern City: Directed Modernization" (*T.V. Uskova, A.N. Nesterov*); "Development of Productive Capacities of a Rural Area" (*T.G. Smirnova, S.A. Selyakova, E.N. Kozhina*); "Socio-Economic Resource of Tourism" (*T.V. Uskova, L.V. Dubinicheva, V.S. Orlova*); "Consumer Market: State and Prospects" (team of authors under the supervision of *T.V. Uskova*); "Single-Industry Town: Development Management" (team of authors under the supervision of *T.V. Uskova*); "Socio-Economic Problems of Local Areas" (*T.V. Uskova, N.V. Voroshilov, E.A. Gutnikova, S.A. Kozhevnikov*); "Regional Competitiveness" (*A.S. Barabanov*; under the supervision of Doctor of Economics *T.V. Uskova*); "Housing and Utilities Services of a Region: State, Problems, Perspectives" (*S.A. Kozhevnikov*; under the supervision of Doctor of Economics *T.V. Uskova*), etc.

The results of the research formed a basis for the theses. The thesis for a Doctor's degree and 7 theses for a Ph.D.'s degree have been defended on this subject.

During the formation of the institute of local self-government in the Russian Federation, we witness new approaches to the management of socio-economic development of municipalities. Possessing financial and economic resources, the municipalities can define the prospects and promote the development options

that are most conducive to the solution of problems of socio-economic development of territories. These opportunities, to a certain extent, depend on the state economic policy. However, the scientific research reveals its low efficiency. The government economic policy is of liberal nature. The complex financial and economic measures implemented by the RF Government worsen the budget crisis of regions and municipalities.

This statement is confirmed by the results of the research in the performance of public administration initiated by the ISEDT RAS employees in 2009 under the supervision of Doctor of Economics *V.A. Ilyin* and presented in the publications [1, 7, 12] (*photo*).

The deepening of the research in the effectiveness of management at all levels of government is one of perspective scientific

directions in the following period. ISEDT RAS is to develop the theoretical and methodological foundations and the practical tools to assess the performance of public (municipal) administration in the RF subjects (municipalities), including in terms of subsystems of the economy. The research associates have the task to extend the range of applied methodological tools of scientific research, develop mathematical and economic-mathematical modeling methods.

References

1. Ilyin V.A., Povarova A.I. *Problemy effektivnosti gosudarstvennogo upravleniya. Byudzhetnyi krizis regionov: monografiya* [Public Administration Efficiency. Budget Crisis in the Regions: Monograph]. Vologda: ISERT RAN, 2013. 128 p.
2. Ilyin V.A., Uskova T.V. Metody preodoleniya prostranstvennoi sotsial'no-ekonomicheskoi differentsiatsii [Methods of Overcoming the Spatial Socio-Economic Differentiation]. *Federalizm* [Federalism], 2012, no. 3 (67), pp. 7-18.
3. L'vov D.S. *Ekonomika razvitiya* [Development Economics]. Moscow: Ekzamen, 2002. 512 p.
4. *Osnovy mestnoi sotsial'no-ekonomicheskoi politiki: rekomendatsii po razrabotke i prakticheskoi realizatsii* [Fundamentals of Local Socio-Economic Policy: Recommendations for Their Development and Practical Implementation]. Ed. by A.E. Kogut. Saint Petersburg: ISEP RAN, 1995. 142 p.
5. *Potentsial razvitiya munitsipal'nykh obrazovanii: soderzhanie, otsenka, upravlenie (na materialakh Respubliki Komi)* [Potential of Development of Municipalities: Content, Assessment, Management (Case Study of the Republic of Komi)]. Ed. by V.N. Lazhentsev. Syktyvkar: KNTs UrO RAN, 2008. 344 p.
6. *Problemy i puti perekhoda munitsipal'nykh obrazovanii k innovatsionnoi samoorganizatsii: materialy nauch.-prakt. konf., g. Velikii Novgorod, 25-26 noyabrya 2005 g.* [Problems and Ways of Transition of Municipalities to Innovative Self-Organization: Proceedings of the Research-to-Practice Conference, Veliky Novgorod, November 25–26, 2005]. Ed. by V.L. Makarov. Veliky Novgorod, 2005. 240 p.

7. Ilyin V.A., Povarova A.I. *Problemy effektivnosti gosudarstvennogo upravleniya. Tendentsii rynochnykh transformatsii. Krizis byudzhetnoi sistemy. Rol' chastnogo kapitala. Strategiya-2020: problemy realizatsii: monografiya* [Public Administration Efficiency. Market Transformation Trends. Crisis of the Budget System. Role of Private Capital. Strategy-2020: Implementation Issues: Monograph]. Vologda: ISERT RAN, 2014. 188 p.
8. *Rossiya – 2015: optimisticheskii stsenarii* [Russia – 2015: Optimistic Scenario]. Ed.by L.I. Abalkin. Moscow: MMVB, 1999. 416 p.
9. *Samorazvivayushchiesya sotsial'no-ekonomicheskie sistemy: teoriya, metodologiya, prognoznye otsenki. T. 1: Teoriya i metodologiya formirovaniya samorazvivayushchikhsya sotsial'no-ekonomicheskikh sistem* [Self-Developing Socio-Economic Systems: Theory, Methodology, Forecast Assessments. Vol. 1: Theory and Methodology of Formation of Self-Developing Socio-Economic Systems]. Ed. by A.I. Tatarkin. Moscow: Ekonomika, 2011. 308 p.
10. Uskova T.V., Gutnikova E.A. Problemy funktsionirovaniya i napravleniya razvitiya instituta mestnogo samoupravleniya [The Problems of Functioning and Directions of the Local Government Development]. *Federalizm* [Federalism], 2012, no. 1, pp. 127-136.
11. Uskova T.V., Kozhevnikov S.A. Upravlenie ekonomikoi regiona na osnove partnerskogo vzaimodeistviya organov vlasti i biznes-struktur [Management of the Regional Economy on the Basis of Partnership Interaction between the Authorities and Business Structures]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2014, no. 6 (36), pp. 34-46.
12. Uskova T.V., Povarova A.I. Problemy effektivnosti gosudarstvennogo upravleniya [Problems of Public Administration Efficiency]. *Sbornik nauchnykh dokladov i soobshchenii Uchenogo soveta ISERT RAN. Vyp 9* [Collection of Scientific Reports of ISEDT RAS Academic Council. Vol 9.]. Vologda: ISERT RAN, 2014. Pp. 4-58.
13. Uskova T.V. *Upravlenie ustoichivym razvitiem regiona* [Management of Sustainable Development of the Region]. Vologda: ISERT RAN, 2009. 355 p.
14. L'vov D., Makarov V., Kleiner G. *Ekonomika Rossii na pereput'e vekov* [Russia's Economy at the Crossroads of Centuries]. Moscow, 2000. 88 p.

Cited Works

1. Ilyin V.A., Povarova A.I. *Public Administration Efficiency. Budget Crisis in the Regions: Monograph*. Vologda: ISERT RAN, 2013. 128 p.
2. Ilyin V.A., Uskova T.V. Methods of Overcoming the Spatial Socio-Economic Differentiation. *Federalism,* 2012, no. 3 (67), pp. 7-18.
3. L'vov D.S. *Development Economics*. Moscow: Ekzamen, 2002. 512 p.
4. *Fundamentals of Local Socio-Economic Policy: Recommendations for Their Development and Practical Implementation*. Ed. by A.E. Kogut. Saint Petersburg: ISEP RAN, 1995. 142 p.
5. *Potential of Development of Municipalities: Content, Assessment, Management (Case Study of the Republic of Komi)*. Ed. by V.N. Lazhentsev. Syktyvkar: KNTs UrO RAN, 2008. 344 p.
6. *Problems and Ways of Transition of Municipalities to Innovative Self-Organization: Proceedings of the Research-to-Practice Conference, Veliky Novgorod, November 25–26, 2005*. Ed. by V.L. Makarov. Veliky Novgorod, 2005. 240 p.
7. Ilyin V.A., Povarova A.I. *Public Administration Efficiency. Market Transformation Trends. Crisis of the Budget System. Role of Private Capital. Strategy-2020: Implementation Issues: Monograph*. Vologda: ISERT RAN, 2014. 188 p.
8. *Russia – 2015: Optimistic Scenario*. Ed.by L.I. Abalkin. Moscow: MMVB, 1999. 416 p.

9. *Self-Developing Socio-Economic Systems: Theory, Methodology, Forecast Assessments. Vol. 1: Theory and Methodology of Formation of Self-Developing Socio-Economic Systems*. Ed. by A.I. Tatarkin. Moscow: Ekonomika, 2011. 308 p.
10. Uskova T.V., Gutnikova E.A. The Problems of Functioning and Directions of the Local Government Development. *Federalism*, 2012, no. 1, pp. 127-136.
11. Uskova T.V., Kozhevnikov S.A. Management of the Regional Economy on the Basis of Partnership Interaction between the Authorities and Business Structures. *Economic and Social Changes: Facts, Trends, Forecast*, 2014, no. 6 (36), pp. 34-46.
12. Uskova T.V., Povarova A.I. Problems of Public Administration Efficiency. *Collection of Scientific Reports of ISEDT RAS Academic Council. Vol 9*. Vologda: ISERT RAN, 2014. Pp. 4-58.
13. Uskova T.V. *Management of Sustainable Development of the Region*. Vologda: ISERT RAN, 2009. 355 p.
14. L'vov D., Makarov V., Kleiner G. *Russia's Economy at the Crossroads of Centuries*. Moscow, 2000. 88 p.

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Is Transition in the Russian Economy Complete?

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Abstract. A quarter of a century passed since the beginning of market transformation (transition) in Russia; nevertheless, there are serious doubts about whether the transition is complete. The effective transition to a new type of economy should ideally be a period of transformation, modernization and the formation of a national economic model. Only in this case can it be qualified as full, adequate, and constructive. Such combination has not taken place in Russia; it seems as if the market transformations were taking place independently, and this is the root of Russia's many contemporary problems. The current crisis in the Russian economy primarily reflects the pendency of these tasks that were necessary to be solved from the very beginning of transformation. This crisis is first of all a focused expression and continuation of the transformation and reproduction crises in the national economy, the crisis of the current defective economic models and the then pursued economic policy. External factors only facilitated the exacerbation of Russia's internal problems. In order to respond effectively to such a large-scale crisis it is necessary to consider all its aspects and underlying causes originating in the challenges of the transition period. Only the implementation of economic modernization and the formation of an effective national economic model is able to bring the Russian economy to a new level of development and thus to bring the transformation, which is lagging behind due to historical reasons, in line with these processes. In this case there will be good reason to conclude that the final border of the transition period is overcome. A new model of Russia's economy must be adequate to the entire set of national-specific factors and strategic and vital development goals that Russia has. The core of modernization must be new industrialization, which is characterized by the transition to automation, computerization, greening of industrial production, the transition to a new type of reproduction – science-intensive, high-tech and environmentally-effective and accompanied by a corresponding change in the nature of economic relations and institutions.

Key words: transformation, modernization, new industrialization, Russian model of economy.

1. Transition period boundaries

The issue of transition (transformation, transitive) nature of the Russian economy was highly relevant in the 1990s, when the country implemented radical market reforms. This was reflected not only in practical activity, but also in scientific discussions and economic education, which curriculum included training courses, such as "Transition economy", "Theory of transformational processes", etc. Despite the breadth and diversity of this problem, special attention was drawn to stages and boundaries of the transition period. On the one hand, political economists had been interested in this fundamental question for a long time; on the other hand, at the turn of the century it had practical significance for Russia: the urge (in the 1990s) to obtain the status of a country with market economy was dictated by the desire to acquire a new image, justify effectiveness of the ongoing transformations and get some foreign trade bonuses. The official stance in this period was to extol the market nature of Russian economy and get rid of the transition label.

The theoretical disputes about the transitional period boundaries continued in the early 2000s due to the situation in Russia. Let us note one of the works of that time "Where is the Beginning of That End?" [4], which, among other things, pointed to the danger of "stationary transition economy" in case of informal institutions establishment in the country. Transitional issues still remained in the educational process: "Transformation of the Russian Economy", issued at MSU in 2006, can be considered as one of the last major academic publications devoted to this issue [8]. But gradually it began to reduce its scale. It still retained its relevance, but the acuteness and the extent of its use began to decline markedly.

Has the transition period come to an end in Russia? What are the criteria for finding an adequate answer to this question? How to position the economy prevailing in the country? These questions require reflection, which will be presented in this article.

A quarter of a century has passed since the beginning of economic reforms in Russia. Their length makes us draw some conclusions. The answer to the question about final borders of the transition period usually takes into account the following facts: existence of basic elements of the market economy, market institutions, subjects of market behavior; obtaining (2004) the status of "market economy", supported by Russia's accession to the WTO; positive (for about a decade, excluding 2 recessionary slumps) macroeconomic dynamics, achievement (2007) of the pre-reform GDP level. Besides, some international agencies (in this case, the MSCI Agency) qualify Russia by state of the markets (especially financial) as a country with developing markets, but not as a country with transitional markets [10].

However, can formal, status and statistical changes be true indicators of the transformation period completion? In

this matter we should be guided by more significant characteristics. It is of highest importance whether a country has approached qualitatively new positive boundaries (technological, structural, socio-economic, etc.) due to transformational efforts and the development level fundamentally inaccessible in the old system is achieved? Then we should take into account the following: the existing market relations and mechanisms are largely undeveloped and deformed; there are aspirations for the change in a number of institutions (primarily, social institutions of financial, investment, structural-sectoral and innovative nature), which, according to the institutionalism criteria, is a sign of institutional disequilibrium; the gap with developed countries has increased by many meaningful indicators (competitiveness, innovation and technological characteristics, state of human capital, etc.); the economic growth in Russia in the 2000s was not high-quality, sustainable and was not accompanied by profound technological and structural changes, and 2 crises for the last 8 years have revealed fragility and vulnerability of the national economy. All the characteristics can not prove the completion of the economic transition period. Otherwise, the transition has no meaningful goal-setting, thus, everything is reduced only to the "diversity effect".

It is more correct to speak about the completion of the transformative stage in the Russian economy, which created (albeit in a severely deformed form) the basis for market economy. But one can not reduce the transition period only to transformational activities. How has it passed? How should it have passed? What characteristics should it include? And what are the stages to follow?

2. Transition period stages

In the 1990s Russia had the formula of a "three-phased entry into the market", as the highest authorities claimed. It was believed that the first stage of institutional reforms and economy liberalization is followed by the macroeconomic (or rather, financial) stabilization stage and then by the investment or growth stage. The initial stage covered the first half of the 1990s, the second – the middle of the decade, and the third was scheduled for the late 1990s – early 2000s. However, as we know, the intended logic, formally implemented during the first two stages, led to the deep crisis of 1998, which drew the thick line under this kind of transformation processes modeling. And this ending was inevitable, as the focus on economic growth was deliberately postponed for a decade. Meanwhile, the logic could have been different. Economic liberalization and institutional reforms, the core of the first phase, should have been focused on economic growth, creating favorable competitive and institutional conditions, especially for the real, not speculative sector of the economy. Macroeconomic stabilization should not have been reduced to purely financial stabilization, accompanied by a "lack of money" in

the economy, monstrous extension of barter and non-payments, creeping of the economy in the "equilibrium trap at a zero level"; it should have initially contained the production and social content and the development trajectory. As this focus was neglected during the first two stages of market changes, the outcome turned out to be negative.

But what happened in Russia then? In reality Russia returned to the three-stage framework, but only in a broader historical field. The first stage included the entire decade of the 1990s (without its explication given above). The next stage (most of the "noughties" of the new century) was characterized by the economic course adjustment, followed by the reduction in the accumulated deformations level and the positive turning point in macro-dynamics of the country. The end of the decade witnessed a new stage – modernization: there are modernization programs (first in 2008 and then at the end of 2011), particularly directed to the innovative economy formation in Russia. The need for upgrade and, therefore, for this phase is undisputed. It is sad that the broad and inclusive term "modernization" is less heard nowadays. The attention to the terminology and ideology of modernization is weakening. Probably, it is influenced by the Russian political cycle. However, it would be unproductive to start questioning the idea of the Russian economy modernization, which can not be tied only to the conjuncture of the political cycle and specific political figures and is long overdue. The direction, which is vital for Russia, has aroused great scientific interest and is realizing old and new expirations, can not be side by side with political and opportunistic slogans. The Russian economy modernization, with all the necessary correction of its scientific and practical design, should remain the core of the strategic course of the country's development.

So, there are 3 major stages in new Russia: a transformational stage (simultaneously a transformational crisis stage); a stage of adjustment, stabilization and positive macro-dynamics; a modernization stage. The last stage in these coordinates looks like a necessary link. In general, the specified sequence, first, reflects realities of the historical process in the new Russia and, second, reveals the necessity of transition to modernization – and from this point of view it can be accepted. There is another question: whether it is fair and uncontested? And the answer, in our view, should proceed from the fact that the logic here could be different, as in case of the discussed above "three-stage entry into the market". Transformations should have been focused on the tasks of modernization and the support of the innovation sector of the economy. Huge financial resources, received in the second stage and ensured macro-stabilization and a positive trend in terms of favorable external economic conditions, could have provided quantitative growth in terms

of modernization, but it did not happen in the "fat years". Such neglect during the first two stages of market changes led to an apparent overdue of Russian modernization: it was artificially delayed by a decade and a half. As for modernization and innovative development, they, first, faced the emerging crisis and now are being implemented in adverse conditions and, second, they are not translated into visible, large-scale steps yet.

Returning to the issue about transition period boundaries, we will note that today only the implementation of Russian economy modernization and the achievement of qualitatively new technological and socio-economic boundaries on this basis will mean the completion of this transition. I will just mention that in the early 2000s, a number of scientists from the post-socialist countries of Eastern and Central Europe I talked with (in particular, Hungarian Professor T. Bauer – head of the Department of Comparative Analysis and Transformation of Economic Systems of Frankfurt University, Germany) claimed that the market reforms were to result in "Europeanization" – institutional adaptation and access to social and economic indicators of the European average level. Of course, such statement of the question in relation to Russia is hardly justified (due to geopolitical, historical, civilizational reasons, etc.), but it highlights the qualitative indicator of historical movement of the countries with transitional economy. For Russia, the end of the transition period is connected not with "Europeanization" as such, but with modernization, bringing the country to a qualitatively new development level.

However, we should specify another indicator, still not involved in our analysis: it is reduced to formation of the adequate national economic model that takes into account the whole complex of national characteristics of the country. The transition to the market can not be efficient without building such a model. The transformation should not just result in a market economy, but in the national model of mixed economy, adequate to national-specific factors (economic and non-economic; internal and external) and strategic development objectives, national interests, Russian civilization features. Still it should correspond to progressive modern lines of world development and modernization. The national model should provide an organic unity of economy, society and civilization. We can not speak about such adequacy now. Someone can argue: of course, the Russian economy is imperfect, but after the market reforms everything is more or less "settled down", the economy does not go down, the ties are established anyway, the interaction of economic agents is carried out, the national characteristics (good or bad – whatever we have) are absorbed in this economy – that is a "naturally" formed economic model or a system of the country. However, it is such a "system", described by a popular Soviet song: "And I made it from what I had". It combines

fragments of accumulated deformations, reckless import of institutions, subjective influences, non-constructive orientation of certain economic actors, etc. Rather, it is an inadequate (and in some ways an anti-national, especially for the 1990s) model, which does not comply with the national features of Russia, its strategic interests and development tasks. The economy with these characteristics is unlikely to be qualified as promising.

The transition to a new effective type of economy should ideally combine a period of transformation, a period of modernization and a period of national economic model formation. Only in this case the transition can be viewed as a complete, adequate and constructive. Russia has not had either such transfer, or such combination, and this is the cause of many contemporary problems.

Let us summarize intermediate results on the question of boundaries and stages of transition. If the latter is interpreted extendedly, than, as Russia has not witnessed the combination described above, it is necessary to transfer to a new and final phase of transformation, which involves modernization and formation of an adequate national model and adjusts negative effects of the previous stages. If we identify a transitional period only with reforms and, therefore, consider that this period has already been completed in Russia, we should recognize the need for a new transitional period, which will lead to implementation of the above mentioned structural objectives. In any case, transitivity is preserved. Thus, it is too early to abandon transformational perspective in Russia. Besides, there are global transformation processes. Moreover, the consideration of transitivity helps define the country's development vector and its content more precise, which is extremely important for modern Russia. It is much worse to have "stagnant", allegedly established market economy.

3. Nature of the contemporary crisis in Russia

The crisis occurred "not on time" is a serious obstacle to modernization in Russia. If in the previous 2 years it was possible to talk about a slowdown in economic growth, in 2015 there are direct signs of the crisis. First of all, it is reflected in the real GDP dynamics: according to the Ministry of Economic Development, for the first half of this year it has decreased by 3.4% (and in the second quarter – by 4.4%) and in general in 2015 it may fall by 2.8% (the forecast of the Ministry of Economic Development), 3.4% (the forecast of IMF) and 2.7% (the forecast of the World Bank) [9]. The positive forecasts for subsequent years are highly questionable.

It would be simplistic to attribute this crisis (as well as the previous crisis in 2009–2010) only to economic reasons (reduction in oil and gas prices, slowing the growth of some major trading partners, etc.) and current economic sanctions of the West (unlike in the previous crisis). This crisis is mostly of internal nature and largely linked to the transition period problems. This

crisis has many different aspects. We will mention the most important ones.

The first aspect is reflected in the fact that it is continuation of the transformational crisis in the Russian economy, sharply evident in the 1990s, still unresolved and uncompleted, despite the subsequent positive macro-dynamics. It is manifested in the incompleteness of structural adjustment of the economy, the lack of large-scale diversification, the preservation of raw material orientation, as well as the underdevelopment of many institutions, including, in particular, the national banking system, investment institutions, the national innovation system, etc. This reveals the apparent incompleteness of Russian economy transformation.

The second aspect is that it acts as an uncompleted reproduction crisis of national economy, which began in the Soviet conditions of the 1980s: during the entire period we have not witnessed any radical update of the elements of fixed capital and the economy's achievement of a new technological level. Therefore, the economic cycle is still not ended, which should have "cycled" several times at that time. It is a kind of an autonomous national cyclical crisis, lasted for decades and revealed the lack of modernization in the transformation period.

These aspects suggest that the current crisis in Russia is concentrated expression and continuation of the transformation and reproduction crises in the national economy. The external factors only provoked the exacerbation of internal Russian problems. The positive macro-dynamics in the 2000s, caused mainly by favorable external factors, "prevented" these crises, transferred them to a hidden, latent form. And similar negative external factors (price, financial and now geopolitical) revealed a chronic disease of the Russian economy. Thus, the Russian crisis is predominantly of internal nature.

The third aspect is reflected in the fact that it represents the crisis formed in Russia for a quarter of a century of the national economic model. As mentioned above, this model is flawed and unpromising, inadequate to the national-specific factors and the strategic goals of national development.

The fourth aspect of the current crisis is associated with the economic policy crisis throughout this period. Despite the length and seemingly the diversity of this period, it has been characterized (since 1992 to date) by the financial priority over the needs of development of the real sector of economy and new technological paradigms. Along with other failures of economic policy it has hampered creation of the relevant technological basis for sovereign and long-term development of the country.

The fifth aspect is reduced to the moral values crisis: the system of values based on individualism and "consumer society" incentives, spreading in the Russian society since the early 1990s, has showed its one-sidedness and irrelevance to the Russian conditions and the national consolidation tasks.

And only in the last (sixth) turn this is the foreign economic and geopolitical crisis – but again, primarily, due to the lost self-sufficiency and the extremely weak technological and economic sovereignty.

There are other aspects of the crisis, also emphasizing its national character [2, pp. 23-28]. There is a traditional set of the crisis causes (factors of supply and demand, their ratio, structures of the budget and the balance of payments, monetary reasons, etc.), which despite their functional and practical importance are omitted in this analysis due to their periphery status in relation to the root causes of the crisis.

Thus, only the aggregate characteristics give complete and systematic understanding of the nature and the causes of the contemporary crisis in the Russian economy. And, as you can see, the main thing here is the internal characteristics, most of which trace to the underlying problems of transformation, modernization and the national economic model or, in other words, to the transition period challenges.

To effectively address such an extensional crisis we should take into account all its aspects, such as institutional environment, a national economy structure, technological sphere, parameters of the national economic model, economic policy, a moral-value sphere of social life and national security requirements. In other words, the anti-crisis measures should integrate the genesis and the real state of the Russian economy. They should not isolate themselves in the current crisis "shell", but should be taken in line with the strategic development of Russia, including the implementation of modernization and the formation of the adequate Russian economic model.

4. Formation of the Russian national economic model

As already noted, the elaborated national economic model, appropriate to national-specific conditions of the country is an important feature of the evaluation of the transformational change success.

The objective prerequisites for the formation of such a model are the following: a level and nature of the national productive forces, national-specific factors and vital national development objectives. This dependence can be expressed as the need for bringing the economic relations in the country in correspondence with the national productive forces, national factors and development targets (this is a kind of correlation between a function and its arguments).

Russia has specific (mostly – unique) non-economic factors that have a sustainable and long-term impact on the economy. They are climatic, geographic, geopolitical, socio-cultural factors and many others. They influence a market-state ratio, a degree of social orientation of the economy and many other characteristics of the economy, which should be taken in account.

It is necessary to consider long-term objectives for Russia's development, such as:

– guarantee of independent development and a historical status of the country in the world;

– deep modernization of the economy and on this basis achievement of a significant increase in competitiveness of the national economy;

– "saving the people": improvement of the demographic situation and human potential;

– preservation of the territorial integrity of the country, providing a single economic space throughout the vast territory.

The realization of these goals and the activity of the stated above national factors cause serious consequences, requiring adequate economic relations, particularly concerning the regulatory role of the state and the degree of social orientation of the economy.

On the basis of the identified assumptions and dependencies it is possible to formulate the most important ideal features of the Russian economy model:

– large-scale sovereign economy with high self-sufficiency (technological, scientific-technical, energy, financial, etc.), which can ensure comprehensive advanced national reproduction and national interests realization when using the opportunities offered by globalization;

– mixed coordination method, a greater role of the state compared to "standard" market economies;

– variety of ownership forms, including the important role of state ownership in strategic areas ("commanding heights");

– high degree of social orientation of the economy and social cohesion;

– active use of social and spiritual aspects in the economic life given the historically developed system of values;

– innovative, diversified economy;

– new industrial economy, including new progressive development lines;

– economy, characterized by both openness and national security.

Such Russian economic model will represent modern mixed economy, which will be able to combine national identity with the leading global processes and the task for deep modernization of the domestic economy – in other words, to successfully integrate "soil" and "project". The author wrote about it in more detail [6].

In Russia, as already noted, the market transformations took place as if by themselves, without emphasis on the establishment of a relevant and effective national model. That "model", which de facto exists in the country, has taken over not best elements, does not reflect national needs and, therefore, can not be considered promising. Hence, it is necessary to transfer to an adequate (in fact, new) national economic model, described above.

5. Modernization and new industrialization in the Russian economy

As stressed above, the market transformation that began in the 1990s was initially guided by the need to fit in with

modernization. Meanwhile, since the beginning of the transformation the "market determinism" prevailed and the transition to the market acquired an inherent value. As a result, Russia's transformation was not accompanied with modernization, which caused many economical problems. Russia requires modernization – albeit tardy. Its place in the historical field of modern Russia is defined by the following facts: it is, first, forced and can perform tasks that have not been resolved at previous stages or newly developed (particularly, Western sanctions leading to the broad import substitution); second, it can give a decisive impetus and provide a material base for the completion of national economic model formation; third, it will help bring the economy to a qualitatively new level. Otherwise, we will have large-scale "transformational stagnation" and "stationary transitional economy".

Modernization is a long and multi aspect term. It is risky to "talk round" modernization and reduce it to peripheral aspects. Economic modernization is characterized by the continuity of changes in the economy with profound changes in the sphere of productive forces. It implies a certain production and economic content of modernization. The most important constituent parts of the latter are as such: technological upgrade (upgrade of the production means, formation of a new technological structure), structural modernization (economic restructuring with a focus on advanced industries and areas), reproductive modernization (transition to innovative economy, new quality of human capital and formation of a new type of reproduction). All this should be accompanied with the adequate change in the nature of economic relations and institutions.

Modernization of the Russian economy is of a forced nature. In the conditions of transformation the country's economic capacity sharply weakened and the technological gap with developed countries increased. All this poses a serious threat to the national security of Russia, which casts doubt on its ability to guarantee sovereign development, maintain a global stature and territorial integrity. It undermines social stability, reduces the possibility of "saving people" and human capital reproduction. In these conditions modernization in Russia becomes a matter of survival.

Limited in time, historically compressed frames of Russian modernization will be an inevitable consequence. Drive for the high upper boundary of modernization is another consequence. In the current conditions local and moderate modernization can not form a material and technical base of Russia's sovereign development, ensure its technological and economic security and long-term national competitiveness. To be integrated into the existing structure of the world economy and not to show ambition is not the path that corresponds to the role, status and national interests of Russia. Of course, we should not fall into idealism, lose firm ground and underestimate

the real situation in the country and the world. It is necessary to assess the opportunities offered by globalization to import new technologies, best practices, international cooperation, etc. The course for technological isolationism and reliance solely on internal forces is extremely costly, inefficient and currently difficult to implement. Nevertheless, it is necessary to consider Russia's special situation, specifics of its tasks and available capacities.

The external pressure, Russia is experiencing due to the geopolitical events, has shown the risks of the country's dependence on imported technologies. According to the Ministry of Industry and Trade of the Russian Federation (2014), the import share in several strategic sectors of Russia exceeds 80%, while in machine tool industry – 90%, in heavy engineering – 80%, in light industry it is up to 90%, in electronics – up to 90%, in pharmaceutical and medical industry – up to 80% [3]. Efficient import substitution in these and other areas should become an important part of Russian modernization, a strategic objective.

It is extremely important to theoretically and practically fix the core of modernization. There are several approaches, with two being most visible.

The liberal institutional approach (A. Kudrin, V. Mau, E. Yasin, etc.) [7] is directed on the market-competitive environment and its supporting institutions and avoids recognition of the active, creative role of the state and strategic planning. This approach often uses flashy concepts, such as "innovation economy" and "post-industrialism", that, apparently, substitute the important role of industry and industrial policy. To a noticeable extent, this approach is manifested in the Strategy for Innovative Development of the Russian Federation (Strategy-2020), developed mainly by the liberal economists.

Another approach is called "new industrialization" (S. Glazyev, S. Gubanov, V. Ryazanov, etc.) [1]. Several years ago the term (slogan) appeared at the country level, but was "subjugated" by the Strategy-2020 and began to clean up from the official lexicon.

We can assume that the orientation on "new industrialization" has given a new breath to the idea of modernization, making it more definite, specific, content-filled, the more so that initially, historically modernization is tied to industrial development. Let us highlight some substantial characteristics, detailed in one of the articles of the author [5].

Neo-industrialism (relative to a classical industrial basis) is characterized by the transition to automation, informatization, industrial production greening, formation of a new reproduction type – knowledge-intensive, high-tech and environmental-effective that presents an advanced level of the intensive type of reproduction. Thus, it is not limited to the important role of industry in the structure of modern economy sectors (and it is not necessary

to flaunt the fact of a service sector dominating in the GDP of developed countries), but reflects the technological basis of economy, new quality of human capital and a new type of reproduction. This phenomenon has a complex (rather than sectoral) character, forming a broad picture of advanced changes.

In the last half-century a certain research segment experienced "post-industrial imperialism": all scientific and technological achievements related to 2 recent technical structures, the sphere of formation and use of "human capital", "knowledge economy", "innovation economy" and other such manifestations of the "new economy" were declared post-industrial. Besides, it spread an idea of historical grievance and spatial limitation of industrial economy. However, the closer examination reveals that many new developments were mainly based on the changes in the industrial base or associated with them; and "post-industrialism" is, in fact, a new stage of industrial society. It is rather "post-old industrialism".

The global realities show that industrialism, despite its protracted "funerals", has great potential and capacity for internal change and new stages enter and demonstrated it in the 20th century and the early 21st century. Despite the quantitative predominance of the service sector in the sectoral structure of the GDP of developed countries, their economies are still predominantly industrial by root, technological foundations. We should not forget that in the international classifications the modern states with developed economies are still referred to as "industrialized countries".

Innovation, often considered as "post-industrial", generally involve industrial support or rely on an industrial basis. In addition, industrial innovations are still important in the modern economy. "New economy" can not be divided from the industrial base (constantly updated) as a broad foundation for development. It is new industrialization that ensures higher sustainability of the material and technical base of the country and the possibility of retention and accumulation of the "new economy potential".

It is interesting that the share of industry in some developed countries has recently begun to grow due to the return of the productions withdrawn earlier to the underdeveloped countries for reasons of labor economy (in the West this process was defined by the term "new industrialization"). Moreover, this return is associated with greater labor economy generated by the intensive automation of modern industrial production and application of robotics in developed countries.

We should pay attention to the fact that nowadays the West uses the term "third industrial revolution" [11], aimed at transferring to renewable energy together with knowledge-intensive resource-saving technologies and products. It is important that the environmental aspect does not look as peripheral or local in this concept. It significantly affects the state of economy.

First, greening permeates all sectors, simultaneously creating new production and industry. Second, it is closely associated with innovation and creation of new technologies. Third, it leads to increased economic efficiency (it is believed that "emergency" expenses in case of refusal from the environment protection can lead to the 5–20% reduction of world GDP). Fourth, it improves quality of human capital, as higher qualification levels become in demand. Fifth, it increases the role of long-term collective interest in short-term private interests. Sixth, it also justifies the necessity in strong "ecological industrial policy" aimed at promoting energy efficiency, supporting development of high-tech, eco-efficient technologies, training new personnel, elaborating long-term development strategies, etc. The idea of the third industrial revolution serves as an additional argument in favor of the new industrialization concept.

New industrialization with its above-mentioned characteristics should become the backbone of Russia's modernization, capable to bring the national economy to a new level. "Post-industrialism", as shown above, does not have this quality and looks pretty loose and unsustainable, despite the romantic elevation of the premise. As for "innovation economy", despite attractiveness and perspective of this phenomenon, it often does not have the necessary "anchor" – neo-industrial, as new industrialization (if we interpret the term slightly) is innovative industrialization.

The important issue concerns the state-market relationship in the implementation of modernization. Russia's modernization requires the economic coordination method, characterized by a more active role of the state. The grounds for this are the following: first, it is extremely low innovative activity of private companies (including major); second, time constraints of Russian modernization; third, an aggregate of the above national-specific conditions, objectively established in Russia and limiting the degree of economic environment liberalization. Attractive liberal-institutional modernization proposals do not properly account for all these factors.

Modernization of the Russian economy should be connected with national peculiarities of Russia, including the value system characteristic of its society. Reliance on national and spiritual values does not hampers modernization: first, the latter, on the contrary, gets the natural environment and does not require painful civilizational "break" and, second, traditional Russian values, involving powerful creative drive, have potential for innovation and in this sense are very promising, allow to combine "soil" and "project", national basis and modernization.

Let us summarize the analysis results. In Russia there is a gap between the processes of transformation, modernization and formation of a national economic model, involving accumulation of many complex problems in the domestic economy.

Only the successful implementation of modernization in the form of new industrialization and the creation of an adequate Russian economic model will contribute to the transition period completion in Russia and bring its economy to a qualitatively new development level.

References

1. Gubanov S. Sistemnyi vybor Rossii i uroven' zhizni [The System Choice of Russia and the Standard of Living]. *Ekonomist* [Economist], 2011, no. 11, pp. 3-55.
2. Gubanov S.S. Sistemnyi krizis i vybor puti razvitiya Rossii [Systemic Crisis and the Choice of the Way of Development for Russia]. *Ekonomicheskie i sotsial'nye peremeny: faktory, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2015, no. 2, pp. 23-41.
3. *Dolya importa v strategicheskikh otraslyakh prevysila 80 protsentov* [The Share of Import in Strategic Industries Exceeded 80 Percent]. Available at: http://www.lenta.ru/news/2014/07/10/import
4. Kapelyushnikov R. "Gde nachalo togo kontsa?.." (k voprosu ob okonchanii perekhodnogo perioda v Rossii) ["Where Is the Beginning of That End?.." (On the Question of the Transitional Period in Russia Being over)]. *Voprosy ekonomiki* [Issues of Economy], 2001, no. 1, pp. 138-156.
5. Kul'kov V. O pozitsionirovanii novoi industrializatsii [On the Positioning of the New Industrialization]. *Ekonomist* [Economist], 2014, no. 10, pp. 43-53.
6. Kul'kov V.M. Parametry issledovaniya i formirovaniya natsional'noi ekonomicheskoi sistemy v Rossii [Parameters of the Study and the Formation of the National Economic System in Russia]. *Ekonomicheskoe vozrozhdenie Rossii* [Economical Revival of Russia], 2014, no. 3, pp. 24-31.
7. Mau V. Mezhdu modernizatsiei i zastoem [Between Modernization and Stagnation: Economic Policy in 2012]. *Voprosy ekonomiki* [Issues of Economy], 2013, no. 2, pp. 4-23.
8. *Transformatsionnaya ekonomika Rossii* [Transformation Economy of Russia]. Ed. by A.V. Buzgalin. Moscow: Finansy i statistika, 2006. 616 p.
9. *Ulyukaev ob"yavil o dostizhenii rossiiskoi ekonomikoi dna* [Ulyukaev Announced Russia's Economy Has Reached Its Bottom]. Available at: http://www.lenta.ru/news/2015/07/27/lowest/
10. *Greece First Developed Market Cut to Emerging as UAE Raised*. Available at: http://www.bloomberg.com/news/2013-06-11/
11. Jenike M., Jakob K. Dritte Industrielle Revolution. *Internationale Politilk,* 2008, no. 5, pp. 35-41.

Cited Works

1. Gubanov S. The System Choice of Russia and the Standard of Living. *Economist*, 2011, no. 11, pp. 3-55.
2. Gubanov S.S. Systemic Crisis and the Choice of the Way of Development for Russia. *Economic and Social Changes: Facts, Trends, Forecast*, 2015, no. 2, pp. 23-41.
3. *The Share of Import in Strategic Industries Exceeded 80 Percent*. Available at: http://www.lenta.ru/news/2014/07/10/import
4. Kapelyushnikov R. "Where Is the Beginning of That End?.." (On the Question of the Transitional Period in Russia Being over). *Issues of Economy*, 2001, no. 1, pp. 138-156.
5. Kul'kov V. O On the Positioning of the New Industrialization. *Economist,* 2014, no. 10, pp. 43-53.
6. Kul'kov V.M. Parameters of the Study and the Formation of the National Economic System in Russia. *Economical Revival of Russia,* 2014, no. 3, pp. 24-31.

7. Mau V. Between Modernization and Stagnation: Economic Policy in 2012. *Issues of Economy,* 2013, no. 2, pp. 4-23.
8. *Transformation Economy of Russia*. Ed. by A.V. Buzgalin. Moscow: Finansy i statistika, 2006. 616 p.
9. *Ulyukaev Announced Russia's Economy Has Reached Its Bottom*. Available at: http://www.lenta.ru/news/2015/07/27/lowest/
10. *Greece First Developed Market Cut to Emerging as UAE Raised*. Available at: http://www.bloomberg.com/news/2013-06-11/
11. Jenike M., Jakob K. Dritte Industrielle Revolution. *Internationale Politilk,* 2008, no. 5, pp. 35-41.

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Current Trends and Problems of Development of the Arctic Marine Freight Traffic*

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Abstract. The article analyzes the trends and evaluates the prospects of functioning of the Northern Sea Route. It shows that after the change of its management model its freight traffic has dropped 4-fold, and in the Eastern sector (outside the Vilkitsky Strait) – 40-fold. In the recent years there has been a certain revival of transportation, including transit, which reached its maximum of 1.27 million tons in 2012. However, over the next two years they declined again; the drop was particularly significant in 2014 and amounted to a total of 240 thousand tons. The main problem is that this rather complex system is influenced by many factors, often contradictory and poorly predictable. Thus, the growing need for energy resources determines the overall need for developing the Arctic shelf. However, the possibility of climate cooling and the deterioration of ice situation can influence the possibility of transporting these resources. Besides, the Ukrainian crisis followed by the "war of sanctions" will cause a significant decline, especially in the medium term, the attractiveness of the European oil and gas market, which will cause the shift of strategic interests of Russian companies to the Asia-Pacific region. This necessitates the modernization of the Arctic transport and logistics system and introduction of new technical solutions. For instance, even nuclear-powered icebreakers series LA-60Ya that are currently under construction will not be able to escort linear tankers and gas carriers with a deadweight of more than 100 thousand tons along the eastern sector of the Northern Sea Route. It is necessary to create more powerful vessels of the classical type or to design new models. All these driving forces and constraints are not always predictable within the framework of standard economic and statistical approaches. In this regard, the study reflected in the article used expert approaches

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along with the methods of factor and economic analysis. The main result is a package of proposals for the support of the Arctic marine freight traffic.

Key words: Arctic, marine freight traffic, economy, resources, shelf, factors, icebreakers, climate, program.

The main objective of the study is to analyze trends and assess the prospects of development of sea communications of the Russian sector of the Arctic. Scientific novelty and relevance of the study is determined by the factor analysis applied by the author and by creating the model scenarios on this basis. The functioning of communications in the Arctic and their basic element – the Northern Sea Route – is described in the works of G. Evdokimov, S. Koz'menko, V. Mikhailichenko, A. Pilyasov and other domestic authors; however, there were no attempts to make comprehensive assessments over the last 5 years. It is hardly possible to highlight examples of serious foreign research in this sphere.

At the late 1990s, Russia's economy was ready for radical changes associated with the transition from the criterion of goal management to the criterion of economic efficiency. This transition had a dramatic impact on Arctic marine transportation: having reached their maximum in 1987 (about 6.5 million tons), they decreased to 1.6 million tons (fourfold) in 1999, while in the Eastern sector they decreased 40-fold (to 30 thousand tons). In the recent years there has been a gradual growth of freight traffic, including transit; but in general it clearly does not meet the geo-economic challenges and opportunities of the Russian Arctic.

Seven and a half million tons of crude oil were shipped in the Barents Sea due to the development of the Varandey field in 2010. A sharp decrease (to 3.9 million tons) occurred in 2011 due to the reduction of production at the Yuzhno-Khylchuyuskoye field. However, this sector was not included in the water area of the Northern Sea Route (NSR), although it remains a basic element of all the transportation. Until 2010, the NSR freight flows did not exceed two million tons, out of which over 80% were in the Kara Sea because they supported the activities of JSC Norilsk Nickel and exported oil and gas condensate from the Gulf of Ob.

Freight transportation along the Northern Sea Route in 2011 amounted to 3,111 thousand tons (according to the administration of the NSR), including [8]:

- export (806 thousand tons) – 26% of all the traffic;
- delivery (1,471 thousand tons) – 47.2% including inter-port traffic along the Northern Sea Route;
- transit (834 thousand tons) – 26.8% of all the traffic.

Freight traffic in 2011 in areas adjacent to the NSR and covered with ice for the period of more than six months (in accordance with Article 234 of the UN Convention on the Law of the Sea such areas are considered to be areas with special conditions of regulation), amounted to 3,900 thousand tons in the Pechora Sea (south-east of the Barents Sea), and 415.3 thousand tons in the northern part of the Bering Sea. The total traffic in the Arctic amounted to almost 7.5 million tons including transportation within the boundaries of the NSR (3,111 thousand tons) and adjacent areas (4,315 thousand tons).

It should be noted that transit along the Northern Sea Route is not regarded as traffic between foreign ports (there were no such traffic in 2011, in 2012 there was only one voyage). The majority of cargo flows were effected between the port of Murmansk and the ports of South-East Asia; besides, 14 voyages were made by vessels with a deadweight of more than 20 thousand tons, including 10 voyages by vessels with a deadweight of 70 thousand tons. The geography of the voyages was as follows:

• Murmansk – ports of China: 492.7 thousand tons;

• Murmansk – ports of South Korea: 231.0 thousand tons;

• Murmansk – Bangkok (Thailand): 90.3 thousand tons.

In 2012, transportation grew to almost 4 million tons, including the growth of transit from 0.8 to 1.2 million tons. Its structure will be presented in the next section.

In 2012, a growing trend of cargo traffic continued. If in 2011 thirty-four transit voyages were made and 834 thousand tons of cargo were transported, then in the following year these figures amounted to more than 1.27 million tons and 46 voyages, respectively. Main goods were still shipped from the port of Murmansk to the Asia-Pacific market with the following characteristics [8]:

1. China: import of gas condensate – 181 thousand tons;

• iron ore import – 262 thousand tons;

• exports of general cargo – 30 thousand tons;

2. South Korea:

• import of gas condensate – 303 thousand tons;

• export of aviation gasoline – 198 thousand tons;

3. Singapore: import of fuel oil – 45 thousand tons.

In 2012, in connection with the change in the situation on the European and especially North American markets, the first (in the full sense of the word) transit trip from the port of Hammerfest (Norway) to the port of Hangzhou (China) was made. It was made by the world's only ice-class LNG carrier *Ribera Del Duero Knutsen* with the load-carrying capacity of 173.4 thousand cubic meters.

However, in 2012, the maximum level of the so-called transit along the Northern Sea Route was reached. If in 2012, as was already mentioned, 46 voyages were made (1,270 thousand tons), then in 2013 – only 33 voyages (1,160 thousand tons) and in 2014 – 24 voyages (240 thousand tons) [12].

It should be noted that, in general, the volume of transportation in the water area of the Northern Sea Route was significantly greater – in 2012 it was about four million tons, including 1.5 million tons of oil export from the Gulf of Ob, about 0.6 million tons used to support the functioning of the Norilsk industrial region (including the provision of Kola MMC with matte), and the export of forest, coastal navigation, etc. Icebreaker *Krasin* (Far Eastern shipping company) was the only vessel that could escort 37 ships in the eastern sector of the NSR, these ships delivered 125 thousand tons and exported about 105 thousand tons of cargo, including the waste collected during the execution of the program for cleaning up the Arctic region.

Wood is widely exported to dozens of countries, its export geography is constant-ly expanding. The main importers are Bel-gium, Germany, the UK, Hungary, the Netherlands, France and other EU count-ries. Wood is also delivered to Turkey, Iran and some countries

in the Asia-Pacific region. And although their total volume does not exceed 500 thousand tons and it is not commensurable with the amount of hydrocarbons, the volume of freight traffic along the NSR also amounts to hundreds of thousands of tons.

We consider as a separate issue the transportation in the Barents Sea that is included in the Arctic water areas, but not included in the NSR area. Thus, LUKOIL built a fixed offshore ice-resistant off-loading terminal (FOIROT) that has the throughput capacity of up to 12 million tons of oil per year. The marine terminal for the shipment of oil produced in the Timan-Pechora province is located in the village of Varandey in the Nenets Autonomous Okrug. Small shuttle tankers transport oil from Varandey to the coastal tanker *Belokamenka* in the port of Murmansk for further export. FOIROT was commissioned in 2008. The terminal operates year-round; icebreakers assist its work in winter [2].

The marine oil transportation system established in the Arctic has no analogues; besides the Varandey oil terminal it includes an oil gathering pipeline 158 km long, a coastal tank farm with the capacity of 325 thousand cubic meters, a pump station, power supply facilities, tanker and support fleet that consists of three shuttle tankers with the deadweight of 70 thousand tons, an icebreaker, a tug boat, an offshore transshipment complex with the capacity of 250 thousand tons, and a rotation village.

The shipment of oil from the terminal that started in 2008 reached a maximum of 7.7 million tons in 2009. After that the amount of production began to decline: in 2012 it dropped to 3.9 million tons, in 2013 – to 2.9 million tons. The production was supposed to rise again since 2014; however, preliminary data suggest that a level of about 3 million tons is maintained. The oil is shipped by shuttle tankers to coastal tankers in the Kola Bay and is then delivered to European customers [2].

A project for the development of the Prirazlomnoye field in the Pechora Sea was launched in 2005; for this purpose the country's first offshore ice-resistant oil platform (OIROP) was reconstructed at JSCo "PO "Sevmash" (city of Severodvinsk). Its installation on the field has been repeatedly delayed and was completed only in 2014. The maximum production under the project can reach 9–10 million tons in the next three years. The transport system is provided by OIROP. The data on oil transportation are given in the previous section.

The **Modern Commercial Fleet** (Sovkomflot) is the main Russian company specializing in maritime transportation in the Arctic. Today, one third of Sovkomflot vessels is represented by ice-class fleet, which is the largest, the most modern and technically advanced tanker fleet in the world. It is not surprising that the company has already established long-term cooperation with leading oil and gas companies like Gazprom and its subsidiaries, Exxon Mobil, Vitol, Glencore... [1]

Currently, Sovkomflot is the leading company that provides transit navigation along the Northern Sea Route, a promising marine path that significantly reduces the route from Europe to the countries in the Asia-Pacific region. Thus, in the period from 2010 to 2013, the company's vessels made seven trips between the ports of Europe and South-East Asia and transported 360 thousand tons of hydrocarbons and 67 thousand tons of iron ore concentrate.

In August 2010, a large-capacity Aframax ice-class Arc5 (ICE-1A Super) tanker SCF *Baltica* salied along the route Murmansk (Russia) – Ningbo (China). The tanker with the deadweight of 117 thousand tons was at the time the biggest vessel that ever worked in the Arctic region and it proved the possibility of large-capacity shipping along the Northern Sea Route. The duration of its voyage was 22 days, out of which 8.4 days – along the Northern Sea Route. The time saved on this route compared to the route through the Suez Canal amounted to 18 days.

In 2011, an even larger Suezmax ice-class Arc5 (ICE-1A Super) tanker *Vladimir Tikhonov* with the deadweight of 163 thousand tons passed through the high-latitude route north of the New Siberian Islands, having covered more than two thousand miles along the Northern Sea Route in only 7 days. The voyage from Murmansk (Russia) to Map Ta Phut (Thailand) lasted 28 days. The time saved was 8 days. That opened up an opportunity to use a new deep-water route suitable for deep-draft vessels that carry larger consignments. Thus, the feasibility of transit commercial shipping along the Northern Sea Route was confirmed [1].

In November 2013, an ice-class Ice-2 (1C) tanker *Viktor Bakaev* sailed westward along the Northern Sea Route during the period of intensive ice formation thus proving the possibility of navigation of large tankers of a lower ice class through the improvement of ice navigation tactics, namely, enhancement of interaction with escorting icebreakers and correct routing.

In 2013–2014 Sovkomflot built four gas tankers of a new Arc6 class for the project "Sakhalin LNG", and for the upcoming project "Yamal LNG" (2016). At the same time, OAO NOVATEK itself plans to place an order with Japanese and South Korean shipyards for the construction of ten Arctic LNG carriers for the transportation of liquefied gas from the Yamal Peninsula.

In accordance with the Strategy for development of the Arctic zone of the Russian Federation and provision of national security for the period up to 2020, one of the important tasks is to improve transport infrastructure in regions of the Arctic continental shelf in order to diversify the main routes of deliveries of Russian hydrocarbons to the world markets. It can be noted that fright turnover along the Northern Sea Route is one of the main characteristics of socio-economic development of Russia's Arctic.

The factor analysis of freight traffic along the Northern Sea Route shows that the influence of various forces is rather contradictory, especially in terms of forecasts of these factors for the near and distant future. Thus, according to experts, if the warming continues, then by 2020 the Arc7 class vessels (with ice-breaking capability of up to 1.5 m) will no longer need an icebreaker escort in the Kara Sea. Other forecasts predict the beginning of cooling in the next 5 years, which will restore the mode typical of the late 1990s when icebreaker escorting was necessary in the Kara Sea from December to May. Respectively, according to such forecasts, the thickness of the ice cover in the eastern sector of the NSR will vary from two to three meters; therefore, the requirements for icebreakers' capacity will change [9].

According to experts, navigation in the Arctic in recent years proves that under current climatic conditions the duration of voyages for cargo ships sailing to the ports

of South-East Asia along the Northern Sea Route is by 7 to 22 days shorter compared to their sailing through the Suez Canal, which is an important economic advantage. The fee for icebreaker escorting of ships along the NSR (considering a new flexible tariff) can be equated to the fee for passage through the canal. An increased insurance when sailing along the Northern Sea Route due to the risk of the ship's being damaged by ice can be compared to the increased insurance during the passage of the Aden Strait (risk of encountering pirates). Additional costs of sailing along the NSR include expenditures on ice piloting, but they are not very large (about 10 thousand US dollars per voyage). On this basis, we can assume that a 10 days time-saving for a voyage is equivalent to reducing shipowner's expenses by 250 to 900 thousand US dollars per voyage, depending on the amount and type of cargo [4, 5, 8].

The above-mentioned failure in the transport system of the Northern Sea Route that occurred in the 1990s was determined by the transition of the national economic system from the principle of national expediency to the principle of economic efficiency. Accordingly, there was a sharp reduction in the state support of all elements of the NSR. The development of the transport system on the principles of efficiency requires large-scale growth of freight traffic. It can be facilitated, in our opinion, only by transportation of Arctic hydrocarbon resources.

In this regard it should be noted that, first, they currently make up more than half of all the traffic along the NSR, and at least 70% if we take into account the Barents Sea (which is not included in the water area of the NSR, but is part of the Arctic Sea). Second, in the future it will be determined by a quite rapidly growing demand for energy and a large-scale nature of this demand. In the global aspect it is associated with existing inequalities in the standard of living and, consequently, in the consumption of resources. For instance, members of the so-called Organization for Economic Cooperation and Development (OECD) that comprise a population of about 1.2 billion (15% of the world's population) consume 5.5 billion tons of primary energy (more than 45% of global consumption). Obviously, this inequality will be reducing and it will serve as a "locomotive" in the oil and gas markets [11].

In connection with the growth population and a trend of convergence in consumption levels, the demand for energy will continue to grow steadily. However, it will lag behind the growth of total revenues due to rapid changes in the efficiency of the use of resources, also as a result of the increase in prices for primary energy. The growth of prices is also manifest in the growing supply of unconventional energy resources. The more the economy is faced with price pressure and the greater the opportunities of alternatives, the more prominent is the role of technological change. The energy markets in this respect are no different from others. The only important difference is that energy is a quite inertial sector in which structural changes occur slowly. They are not immediately noticeable, and one of the reasons is the presence in the global energy sector of certain segments in which the activity of market segments and competition is very limited.

The situation in the global markets of hydrocarbon resources can be considered on the example of oil and liquefied natural gas. Natural gas was traditionally consi-dered to be

an energy commodity for local consumption, and until 1990 it was transported exclusively via pipeline. A breakthrough took place in the early 1990s, when technologies of mass production of liquefied natural gas (LNG) and its delivery to consumers were mastered. The production of liquefied gas amounting to less than 10 million tons back in 1995, has reached 100 million tons by 2000, and in 2011, according to preliminary estimates, it can exceed 300 million tons. It means that currently it accounts for almost 15% of the global production of natural gas or more than 40% of total exports [6].

The Russian Federation produces about 12% of the world's oil and over 18% of natural gas. At the same time, the share of national oil sector in 2002 did not exceed 7% in the global export. It reached its peak in 2010 having exceeded 12% of world exports, which was much higher than Russia's share in global reserves. According to leading experts, it is likely that in the near future Russian oil production will begin to decline, even despite the active development of deposits in the Nenets Autonomous Okrug and the Pechora Sea. It should be noted that Arctic marine transportation of oil in the foreseeable future will take place only in the western sector of the NSR (Barents and Kara seas), and it is unlikely to exceed 40 million tons. They will be focused primarily on the European market as before.

This is determined by at least two factors. First, the Asia-Pacific market, which is more attractive in terms of its growth rates and the state of relations, will be impassable for 5–6 months in the eastern sector of the NSR even under the conditions of continued warming (optimistic option); passing will still require icebreaking support, and this poses serious problems for large tankers, as will be shown below. Second, the North American market until at least 2030 will not be interested in the hydrocarbons exported by Russia because the U.S. has its own sufficient reserves of shale oil. Besides, oil reserves in Canada – the U.S. nearest neighbor and ally – are three times greater than those of Russia. Canadian oil is heavy, most of it is bitumen, but technological progress quickly improves the effectiveness of development of such fields. Finally, we cannot forget the traditional "mistrust" of the North American market toward Russian products, the mistrust that has aggravated in the period of the "Ukrainian crisis".

The LNG market, which, in contrast to the "pipeline" gas market secured by long-term contracts, is largely determined by current stock prices. Its volatility proved especially noticeable during the economic crisis in 2009 and the "oil shale" fever in the U.S. when the price of liquefied natural gas dropped almost twofold. As for the geography of export deliveries of LNG, then up to 2000, about 90% of them were made to the Asia-Pacific market (APM), primarily to Japan and South Korea. Europe began to diversify its deliveries by liquefied natural gas in 2002, and its current consumption of LNG reaches 20% of the total consumption [11].

New facilities for the receiving and regasification of LNG were actively designed in virtually all global markets in the pre-crisis period (2007–2008). Their capacity by 2015 was to increase more than twice and provide the receiving of 450 million tons of liquefied natural gas. The relevant projects in Russia were actively worked out in that period.

Almost half of the terminals were supposed to enter into operation in the United States of America. In this respect Russia regarded the North American market as more preferable, because our country is actively engaged in the expansion of pipeline communications in the European market; and as for the Asia-Pacific market of LNG, the access to it is limited because of high transportation costs and economic risks at the transportation from Western Siberian fields, and especially from deposits in the Barents Sea.

However, the NAM gave all exporters an unpleasant surprise: due to a sharp rise in the shale gas extraction, the construction of new terminals for LNG imports in 2009–2010 was almost "frozen". It was done despite the fact that its calorific value is twice lower than that of natural gas, and it contains a considerable amount of harmful contaminants that do not allow it to be transported through high pressure pipeline without preliminary costly purification [3].

Nevertheless, the gas sold in the U.S. was the cheapest. In the first half of 2012 its price at the Henry Hub terminal amounted to 85 U.S. dollars per thousand cubic meters. Moreover, in certain periods it dropped to 70 US dollars thus significantly "exceeding" Russian domestic tariffs. According to Rosstat (Federal State Statistics Service of Russia), the average price at which Russian enterprises purchased gas in the same period was 3.5 thousand rubles (115 U.S. dollars) per thousand cubic meters [10]. In this connection, it is difficult to predict the potential export capacity of the NAM. As for the Pacific market, it is far off; and icebreaker escorting in the Arctic transport system is required almost all year round. But we shall talk more on the subject further.

Currently it is known that Gazprom has indefinitely postponed the Shtokman project and the construction of liquefied natural gas plants in the Yamal Peninsula (Kharasaveyskoye field). But there emerged a new ambitious and innovative project "Yamal LNG", which is being implemented by OAO NOVATEK, the largest independent and the second largest producer of natural gas in Russia. In the framework of this project it is planned to develop the South Tambey gas condensate field in the Yamal Peninsula and to build an LNG plant. It is planned to establish a seaport in the village of Sabetta on the eastern coast of the Peninsula in the Gulf of Ob.

The condition of the icebreaker fleet remains a separate strategic issue for Arctic cargo traffic. It consists of (state-owned) six nuclear and five diesel-electric icebreakers. However, by 2022, when the development of the Arctic shelf will enter its active phase, only half of them will have remained in commission. Given the fact that the latest nuclear icebreaker *50 Let Pobedy* was built almost 20 years under constant shortage of funds, we can see the gravity of the problem. At that, one should bear in mind that the cost of a dual-draft icebreaker can reach a billion US dollars and a leading linear icebreaker can cost 1–2 billion U.S. dollars.

Currently the Transport Strategy of the Russian Federation for the period up to 2030 envisages the construction of three multipurpose LA-60Ya-series icebreakers that will be able to provide escorting in the sea covered with ice of up to 2.8 m thick and in shallow areas in the estuary of the Yenisei and the Gulf of Ob, and in other coastal areas of Arctic seas. They are planned to replace the *Arktika* and

Taimyr-class icebreakers. Obviously, this will not be enough for year-round exports of products of the Arctic zone of the Russian Federation, if their volume reaches millions and tens of millions of tons. Currently advertised transit schemes are designed for the summer period (July – September) and are hardly suitable for mass production of LNG that requires the NSR be accessible all year round [7].

Another problem associated with ice navigation is the width of the ice channel. The existing *Arktika*-class icebreakers are capable of making it 33–34 meters wide including the crumpled ice at each side of the channel, while the width of the *Panamax*-class tankers reaches 40 meters (with the deadweight of up to 80 thousand tons), and the *Suezmax*-class tankers – 50 meters (deadweight of up to 200 thousand tons). By the way, this class includes the modern LNG carriers, the deadweight of which can reach 170 thousand tons.

The already mentioned LK-60Ya-series icebreakers will be capable of making an ice channel 37–38 meters wide, so an issue is raised concerning a new class of icebreakers – LK-110Ya – capable of moving through the ice up to 3.5 meters thick and to escort *Panamax*-class vessels in any ice conditions (ice channel 43–44 meters wide).

Theoretical and experimental studies of various methods of piloting large vessels in ice-infested waters suggest a new innovative technical solution (patent of the Russian Federation) for making wide channels (50 m or more) in the ice. Almost all large ships can safely move along such channels in almost any ice conditions, including ice compression. A traditional single-hulled icebreaker up to 50 m wide is characterized by greater ice resistance and, hence, greater power consumption. Therefore, one of the major challenges when creating a new type of vessel was to reduce its ice resistance [7].

The solution to this problem has been found in designing a new icebreaker that has a multihull structure bound together by a single platform. This icebreaker has three or four relatively small hulls, so that the total area of the hulls is considerably less than the width of the channel created by the icebreaker. The individual hulls of a multihull icebreaker do not overlap each other. The hulls are arranged in such a way that makes it easier for the side hulls to break the ice. Each of the side hulls breaks the ice into the channel made by the middle hull of the icebreaker. Research on the methods of escorting heavy-tonnage vessels show that the work of the hull to break the ice in the channel can reduce ice resistance by up to 40% compared with the movement of the hull in a continuous ice field. Thus, due to the special arrangement of the side hulls it has become possible to achieve additional ice resistance and thus reduce energy costs when making a wide channel.

The proposed technical solution has been thoroughly tested in the laboratories of Krylov State Research Center. Special attention was given to identifying the propulsion qualities in ice-infested waters and controllability of a new icebreaker, and to ensuring its ice resistance. Currently, a preliminary design of the new icebreaker is under way [7].

The beginning of offshore exploration, particularly given the likely changes in the climate, may lead to a rather optimistic scenario. It should be noted that trans-

portation, as well as transit, in the eastern sector of the NSR is unlikely to increase considerably in the next 10 years. A more positive dynamics can be expected in 2025 and in a more remote perspective, especially if the opinions of experts concerning the significant warming and the change in the ice conditions in the Arctic are confirmed.

As we have already noted, according to the optimistic scenario, as the climate gets warmer, the ice cover in the Arctic will become smaller and thinner. Navigation will improve not only along sea routes, but also in the coastal area, along major rivers. More opportunities will arise for the development of water transport, trade and tourism. The Northern Sea Route can become one of the major global freight routes, and the decrease of ice coverage will promote the development of offshore oil and gas production. However, experts warn about new risks. A combination of factors such as rising sea level, thawing permafrost and the increasing impact of waves as a result of increase in the area of open water, will cause the increased erosion of shorelines in the Arctic. All this adversely influences the entire infrastructure, primarily, the port infrastructure [9].

Considering all these circumstances, the sufficiently contradictory results have been obtained through an expert survey, which was conducted in the course of the research-to-practice conference "Economic research in the North: from the past to the future" at the Institute of Economic Problems. The conference participants were asked to fill in a questionnaire devoted to strategic issues of the state policy in the North. Thirty-four participants filled in the questionnaire, among them nine doctors of sciences, eighteen PhDs and seven specialists with no academic degree. The most representative part of the respondents were from research organizations (17 persons), ten respondents were specialists working at higher education institutions, four – in the bodies of regional and municipal authorities and three – at manufacturing enterprises.

A large group of questions touched upon the prospects of development of the Arctic shelf and the Northern Sea Route, which is quite important for making scenario forecasts. In general, the possibilities of gas production at offshore fields in the Arctic are assessed quite positively: more than 70% of the respondents believe that by 2025 the offshore production of natural gas will reach 100 to 200 billion m^3. With regard to the Shtokman project *(tab. 1)* the majority responded that its "first" gas would be produced in 2020 or beyond (60%).

The development of unique gas condensate fields in the Kara Sea is likely to begin in 2025 or beyond (68% of the respondents); 32% of the participants pointed out earlier periods. As for the necessity to build an LNG plant in the Kola Peninsula, this proposal was supported by only 20 experts (59%); however, there were only two negative answers. The rest did not make up their mind. There are individual differences among the positive answers concerning the period of commissioning and possible output, as shown in *table 2*.

At that, 43% of the responses favored the shipment of LNG to the North American market (NAM), and the European market (EM). One respondent answered in favor of the Asia-Pacific market, two experts did not make up their mind. And as for the construction of an LNG plant on the Yamal Peninsula (village of Kharasavey) a lot more doubts were expressed: only 14 respondents

(40%) believe it is possible, and more than 50% of the respondents found it difficult to answer. The respondents consider five million tons to be the most likely capacity in 2020, and for 2025–2030 the answers are so "scattered" that we do not consider it appropriate to provide them here. As for the orientation, 55% of the respondents speak in favor of the exports to the Asia-Pacific region and 40% – to the North American region.

The last question that was raised was connected to the previous question about the possibility (in accordance with the Principles of the state policy of the Russian Federation in the Arctic) of increasing freight traffic along the Northern Sea Route by 2020. Rather, it concerned the most complicated eastern sector of the NSR (from the Vilkitsky Strait to the Bering Strait), where in 2011 the total volume of cargo amounted to 1.0 million tons.

As seen from *table 3*, 60% of the experts consider that the total freight traffic in 2020 will not exceed 3 million tons; 30% believe that they will oscillate in the range from 3 to 10 million tons (which roughly correlates with the possible export of LNG to the Asia-Pacific market). The volume of transit traffic (in the Western and Eastern sectors) is estimated at up to 1 million tons (85% of the respondents). It should be noted that all freight traffic to foreign ports was considered transit.

Thus, the relatively high volatility of all the factors makes it impossible to identify certain statistical correlations, and forces us to consider some extreme expert scenarios. For instance, in a worst-case scenario we proceed from the following main provisions:

• in the next five years cooling will start and ice conditions will worsen to the levels of the 1980s and 1990s;

• world markets do not experience high demand, the demand is growing only slightly, the prices do not promote the large-scale development of the Arctic shelf;

• as a consequence, the project "Yamal LNG" will be completed in the first phase (16.5 million tons); the Novoportovskoye field will be developed according to a minimum option; The Shtokman project will not be implemented (does not produce) in the period up to 2030;

• transit traffic is growing slightly (not more than by 2–3 times compared to 2014); domestic shipment (including cabotage), including the "Northern delivery" (annual provision of Russia's Northern territories with critical goods like foodstuffs and petroleum products), etc., is also growing at a low rate;

• development of the nuclear fleet is limited to the construction of three LK-60Ya-series icebreakers until 2025 and then another two or three such icebreakers in the period up to 2030, which provides the constant presence of four or five icebreakers in the NSR.

According to the optimistic option, climatic and ice conditions will be very favorable, global markets will grow rapidly

Table 1. Possible term for the beginning of development of the Shtokman Natural Gas Field

	Years when the gas will be produced			
	2016–2017	2018–2019	2020	beyond 2020.
Shtokman project	15	26	33	26

Table 2. Evaluation of the timing of construction of an LNG plant on the Kola Peninsula

2020	Capacity, million tons	10	20	25	Over 25
	Distribution, %	70	15	15	-
2025	Capacity, million tons	20	30	35	Over 35
	Distribution, %	35	45	10	10

Table 3. Export assessment of freight traffic in the eastern sector of the Northern Sea Route by 2020

Marine freight traffic, total	Million tons	Under 1	From 1 to 3	From 3 to 10	From 10 to 20	Over 20
	Distribution of responses, %	21	39	30	10	-
Including transit	Million tons	Under 1.0	Under 2.0	From 2 to 4	From 5 to 8	Over 8
	Distribution of responses, %	61	24	15	-	-

and the shelf will be also developed rapidly. "Yamal LNG" will reach its design capacity of 30 million tons already in 2025; a plant in Teriberka (Shtokman project) will produce the first LNG in 2026, and in 2030 it will reach the level of 30 million tons. The icebreaker fleet and the entire structure of the NSR will be also developing.

It is obvious that between these two options there are quite a lot of opportunities for the development of determining factors and, consequently, the forecast indicators of the dynamics of the NSR. We do not believe it is necessary, given the stochastic nature of dependencies, to carry out some "average" calculations and get the "realistic" scenario – although it can really be obtained by "averaging". However, specific changes can have unexpected results, so it is more practical to introduce changes from time to time in the options obtained.

The significance of this study consists in an attempt to substantiate the impact of individual macroeconomic processes, in particular, the situation in the global markets, on the development of the Arctic marine communications. From the methodological point of view a certain novelty can be found in the connection of the factorial approaches and expert assessments that provide a balanced combination of the analytical and the predictive parts. As for practical applications, these include the construction of scenarios and substantiation of measures for the development of the Northern Sea Route.

In conclusion, we note that the provision of positive dynamics of cargo traffic along the Northern Sea Route and the protection of national interests in the Arctic should be supported by a whole set of measures, which includes:

1. Assessment of climate change and the formation of a system of cartographic materials for different variants of ice conditions in the Arctic in the long term.

2. Development of a comprehensive scenario forecast of freight traffic along the Northern Sea Route for the period up to 2030, depending on the changes in the world's major energy markets.

3. Establishment of favored treatment for international shipments, including with the use of special economic zones in ports; formation of the transit marine corridor "Europe – Asia".

4. Adoption of the Federal Target Program "Development of transport system in the water area of the Northern Sea Route", which should include the following spheres:

• restoration of meteorological and hydrological support (control) along the entire NSR;

• restoration of the infrastructure of Arctic communications, primarily, existing ports (Khatanga, Dikson, Tiksi, Pevek, etc.) and newly established (Indiga, Sabetta, Kharasovey, etc.), in accordance with the prospective growth of freight traffic, including transit;

• maintenance of the icebreaker fleet (including the construction of new vessels) at the level necessary to ensure transportation in changing ice conditions;

• establishment of conditions along the Northern Sea Route, which are attractive for carriers (tariff regulation, insurance, safety system, etc.).

5. Normative legal provision of the "economics" of sea communications, including the adoption of the system-wide full-fledge law "On ensuring national priorities in the water area of the Northern Sea Route".

References

1. Arktika pokoryaetsya umelym [The Arctic Surrenders to the Skilled]. *Port-n'yus: portovyi servis. Otchet 2014* [Port-News: Port Service. 2014 Report]. Pp. 22-25.
2. *Varandeiskii terminal* [The Varandey Terminal]. Available at: http:/www.arctic_info.ru/Projects Page/varandeiskji-project. Accessed February 21, 2015
3. Galyamov E. *O "slantsevom blefe" SShA i nesimmetrichnom otvete Rossii* [On the "Shale Bluff" of the U.S. and the Asymmetric Response of Russia]. Available at: http:/www.ras.ru/shownews.aspx?id (accessed October 12, 2014).
4. Evdokimov G.P., Vysotskaya N.A., Kostylev I.I. Perevozki po Severnomu morskomu puti i razvitie arkticheskogo flota [Transportation along the Northern Sea Route and the Development of the Arctic Fleet]. *Strategiya morskoi deyatel'nosti Rossii i ekonomika prirodopol'zovaniya v Arktike: materialy IV Vserossiiskoi morskoi nauchno-prakticheskoi konferentsii, g. Murmansk, 7–8 iyunya 2012 g.* [Strategy of Maritime Activity of Russia and Environmental Economics in the Arctic: Proceedings of the 4th All-Russian Maritime Research-to-Practice Conference, Murmansk, Russia, June 7–8, 2012]. Murmansk: MGTU, 2012. Pp. 99-101.
5. Evdokimov G. Arkticheskii transportnyi flot [Arctic Transport Fleet]. *Morskaya strategiya Rossii i prioritety razvitiya Arktiki* [Maritime Strategy of Russia and the Development Priorities of the Arctic]. Section 4.5. Apatity: KNTs RAN, 2013. Pp. 170-173.
6. Evdokimov G.P., Kostylev I.I. Rossiya na puti osvoeniya mestorozhdenii prirodnogo gaza: sozdanie flota gazovozov [Russia on Its Way Toward the Development of Natural Gas Fields: Creation of Gas Carriers Fleet]. *Transport Rossiiskoi Federatsii* [Transport of the Russian Federation], 2012, no. 1, pp. 86-89.
7. *Arktika: nastoyashchee i budushchee: Materialy IV Mezhdunarodnogo foruma, g. Sankt-Peterburg, 10–11 dekabrya 2014 g.* [The Arctic: the Present and Future: Proceedings of the 4th International Forum, Saint Petersburg, December 10–11, 2014]. Saint Petersburg: Arktik, 2014. Pp. 32-33.
8. Mikhailichenko V.V. Severnyi morskoi put' – natsional'naya transportnaya magistral' Rossii v Arktike [Northern Sea Route – Russia's National Transportation Route in the Arctic]. *Rossiiskii Sever: modernizatsiya i razvitie* [Russian North: Modernization and Development]. Moscow: Tsentr strategicheskogo partnerstva, 2012. Pp. 350-353.
9. Korzun V.A. *Global'noe poteplenie – real'nost' ili politizirovannyi mif* [Global Warming – a Reality or a Politicized Myth]. Moscow: IMEMO RAN, 2009. 191 p.

10. Rossiya nedootsenila "slantsevuyu revolyutsiyu" [Russia Underestimated the "Shale Revolution"]. *Nezavisimaya gazeta* [Independent Newspaper], 2012, August 20.
11. Ruhl Ch. BP: prognoz razvitiya mirovoi energetiki do 2030 goda [BP Global Energy Outlook 2030]. *Voprosy ekonomiki* [Issues of Economics], 2013, no. 5, pp. 109-127.
12. *Severnyi morskoi put' v 2014 godu* [Northern Sea Route in 2014]. Available at: http:www.arctic_info.ru/tag/severayj_morskoj_put (accessed February 10, 2015).

Cited Works

1. The Arctic Surrenders to the Skilled. *Port-News: Port Service. 2014 Report.* Pp. 22-25.
2. *The Varandey Terminal*. Available at: http:/www.arctic_info.ru/Projects Page/varandeiskji-project. Accessed February 21, 2015
3. Galyamov E. *On the "Shale Bluff" of the U.S. and the Asymmetric Response of Russia*. Available at: http:/www.ras.ru/shownews.aspx?id (accessed October 12, 2014).
4. Evdokimov G.P., Vysotskaya N.A., Kostylev I.I. Transportation along the Northern Sea Route and the Development of the Arctic Fleet. *Strategy of Maritime Activity of Russia and Environmental Economics in the Arctic: Proceedings of the 4th All-Russian Maritime Research-to-Practice Conference, Murmansk, Russia, June 7–8, 2012.* Murmansk: MGTU, 2012. Pp. 99-101.
5. Evdokimov G. Arctic Transport Fleet. *Maritime Strategy of Russia and the Development Priorities of the Arctic*. Section 4.5. Apatity: KNTs RAN, 2013. Pp. 170-173.
6. Evdokimov G.P., Kostylev I.I. iRussia on Its Way Toward the Development of Natural Gas Fields: Creation of Gas Carriers Fleet. *Transport of the Russian Federation*, 2012, no. 1, pp. 86-89.
7. *The Arctic: the Present and Future: Proceedings of the 4th International Forum, Saint Petersburg, December 10–11, 2014.* Saint Petersburg: Arktik, 2014. Pp. 32-33.
8. Mikhailichenko V.V. Northern Sea Route – Russia's National Transportation Route in the Arctic. *Russian North: Modernization and Development.* Moscow: Tsentr strategicheskogo partnerstva, 2012. Pp. 350-353.
9. Korzun V.A. *Global Warming – a Reality or a Politicized Myth*. Moscow: IMEMO RAN, 2009. 191 p.
10. Russia Underestimated the "Shale Revolution". *Independent Newspaper*, 2012, August 20.
11. Ruhl Ch. BP Global Energy Outlook 2030. *Issues of Economics,* 2013, no. 5, pp. 109-127.
12. *Northern Sea Route in 2014*. Available at: http:www.arctic_info.ru/tag/severayj_morskoj_put (accessed February 10, 2015).

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Main Directions of Increasing Efficiency of Foreign Trade Activities of the Fishing Industry of the European North

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Abstract. Analysis of the List of Orders of the Russian Federation President Vladimir Putin has shown that many priority challenges of the fishing industry development, including promotion of fish production with a high degree of processing and its exports have not been solved. Analysis of exports of cod, haddock and saithe from Russia (Murmansk Oblast) and Norway proves that there is a wider range of products from Norway with high added value. The unit cost of the same products from Norway is also significantly higher. The consequence of these factors is the low unit cost of Russian exports, compared to Norwegian. For 2009–2013 the average unit cost of cod is lower by 2.66 US dollars (47.9%), of haddock – by 0.23 US dollars (10.6%). The article estimates foreign currency revenues, which were not fully received due to the reasons mentioned above. The author points out key directions of increase of economic efficiency of Russian exports of cod, haddock and saithe:

1. Change in the access of economic agents to marketable resources by stimulating the obtainment of larger quotas of biological resources at the expense of profit ratio.
2. Establishment of an organization for the export of fish products. The purpose of the organization is to study international markets, to regulate foreign trade activities and perform other functions as set forth above, in accordance with the Russian legislation.
3. Exclusion of intermediaries in the sales of fish products by organizing electronic auctions.
4. Prohibition of using fishery products for the payment of loans obtained from foreign banks.
5. Use of trawlers that are not able to produce products with added value, to provide fish processing enterprises of Russia with fish resources.

Key words: exports of fishery products, Russia (Murmansk Oblast), Norway, comparative effectiveness, establishment of an export council.

The List of Instructions on Developing the Fisheries Industry [14] signed by the President of the Russian Federation Vladimir Putin determines the year 2013 as a deadline to which the Government was to set out priority areas of development of Russia's fishing industry, including the support of production of highly processed fish products, the development of processing facilities, the promotion of production of fish products with a high degree of processing and its export. An analysis of the information on the implementation of the List proves that these problems have not been assessed properly and the solutions have not been found.

Efficient use of aquatic biological resources, given their depletion, is a necessary and prime objective. However, neither the planning nor the forecast of the development of the fishing industry contain any indicators that would characterize the efficiency of raw materials processing; this fact is contrary to the objective of "... shifting the development of the fisheries industry from the raw materials exporting type to the innovative type..." under the Concept for the Development of Fishing Industry of the Russian Federation until 2020 [6] and other forecasting documents.

The issues of increasing economic efficiency of fishery in the Barents and Norwegian seas through the harvesting of large cod were considered in a monograph by V.V. Komlichenko, E.G. Lukmanov, V.T. Shevchenko, M.S. Gromov, S.Yu. Fomin, V.V. Shevchenko [1, 19], and in a monograph by V.V. Shevchenko and V.A. Belyaev. In the Far East, the issues of economic efficiency of harvesting pollock – the main commercial object – are considered most informatively in monographs by V.V. Shevchenko and A.V. Datskii [18]. The current state of the fisheries industry and the prospects for its development are described in numerous scientific articles in leading Russian journals and in a monograph by the author of the present paper.

The goal of this research is to analyze the export of cod, haddock and saithe products from Russia (Murmansk Oblast) and Norway in 2009–2013. These aquatic organisms are the main export types, the value of which depends largely on the range of products. In addition, they accounted for 44.6% of the total physical volume and 59.1% of its cost in the Murmansk Oblast exports. The research also aims to identify the comparative effectiveness of export, the reasons for this fact, and to substantiate organizational and incentive measures to improve foreign economic activity and to increase its efficiency.

Domestic fish-harvesting and, to a lesser extent, fish-processing enterprises are largely involved in global economic relations. Russian fish products are competitive in foreign markets and enjoy steady demand. The volume of exports in 2009–2014 was from 1.372 to 1.883 million tons, which is 41.5 and 51.2% of the total volume of output [8, 9, 10, 11, 12, 13]. Export is dominated by frozen fish with a low level of processing or whole fish – about 90% of the total volume; it is the main reason for the low economic efficiency of foreign trade [8, 9, 10]. For example, in

2012, Russian exports to China 13.9-fold exceeded that of Canada by physical volume and only 3.78-fold – by cost [7]. According to the journal "Economic Status of the Groundfish Fisheries of Alaska", the cost of fish products produced from one ton of pollock was 1,011–1,329 U.S. dollars on the American processing trawlers in 2012 [20] and only 858,6 U.S. dollars – on the similar Russian trawlers (calculations according to [15]). As for Norwegian exports of 2012, the value of fishery products produced from one ton of cod was 5594,4 U.S. dollars, which is 77.6% higher than the price prevailing in Russian exports in 2013 (respectively 4104,4 U.S. dollars) and 47.9% higher than in exports from the Murmansk Oblast (the author's own calculations based on the data of the Regional Office of the Federal State Statistics Service of the Russian Federation in the Murmansk Oblast [16] and Nofima The Norwegian Institute of Food, Fisheries and Aquaculture Research (Norway) [5]).

In general, Russia's exports in 2012 were dominated by pollock – 47.0%, herring – 12.8%, cod and haddock – 8.7%, salmon – 4.1%. Most of the fish – 861.5 thousand tons (51.5%) – was exported to China and Western European countries, where it was processed into fillet and other finished products.

Due to the underdevelopment of logistic schemes of transportation of fish products, the vastness of territory and a number of other reasons, Russia imports and exports abroad the same species of fish. Thus, along with harvesting 391 thousand tons of salmon and 355 thousand tons of herring in the Russian economic zone of the Pacific Ocean in 2012, Russia imported 212.5 thousand tons of marine cultured salmon and trout that are of much lower quality; it also imported 95.5 thousand tons of herring, 85.7 thousand tons of mackerel, 61.9 thousand tons of sardine and 49.8 thousand tons of capelin [2].

The export of fish products abroad by the fishermen from the Murmansk Oblast also tends to increase *(tab. 1)*. In 2014, its volume will be 326.4 thousand tons, which exceeds the level of 2009 by 114.3 thousand tons (53.9%). The share of exported

Table 1. Foreign trade activities of the fisheries industry in the Murmansk Oblast [16]

Indicators	2009	2010	2011	2012	2013	2014
Fish products produced, thousand tons	516.6	554.3	496.2	459.4	564.1	541.7
Export of fish products from Russia, thousand tons	212.1	273.4	247.3	209.0	304.3	326.4
Share of exported fish products in total production, %	41.1	49.3	49.8	45.5	53.9	60.3
Value of exported fish products, thousand U.S. dollars	340388.9	567968.3	692864.5	547700.2	627657.4	888863.8
Cost of 1 ton of exported fish products, U.S. dollars	1604.8	2077.4	2801.7	2620.6	2062.6	2723.2
Imports of fishery products, thousand tons	31.6	26.5	15.2	21.3	18.9	5.6
Cost of imported fish products, thousand U.S. dollars	28528.6	35338.3	30139.7	31706.3	43404.5	20143.0
Cost of 1 ton of imported fish products, U.S. dollars	901.4	1333.0	1982.9	1490.1	2297.6	3597.0
Output factor of fishery products	84.8	84.1	80.1	79.7	81.0	80.7

fish products in the total volume of fish production in 2014 amounted to 60.3%, thus exceeding the 2009 level by 19.2%. The value of exported fish products increased by 548.4 million U.S. dollars, and by 183.4 million U.S. dollars – at the expense of the increase in its volume, and by 365.1 million U.S. dollars – due to the price increase.

497.5 tons of fish were used for the production of fishery products shipped abroad in 2014; it makes up 71.4% of the total catch *(tab. 2)*. In comparison with the figure for 2009, the proportion of the catch used for these purposes increased by 24.9%.

The exported share of the catch of these species of fish, since the most part of them is exported abroad, was 93.4% in 2014; this resulted in a lack of supply of fish products and growing prices in Murmansk and in the Murmansk Oblast.

In the last six years, 2094.8 thousand tons of raw fish (54.3% of the total catch in these years), including 1416.7 thousand tons (71.7% of the total catch) of demersal fish species, which are more currency-intensive, were used for the production of fishery products intended for export. Thus, it is the main area of using aquatic biological resources (ABD) by the fishing fleet of Russia's European North.

It is known that Russia and Norway harvest demersal fish species (except for saithe) in Western Arctic in approximately equal amounts. Therefore, we find practical interest in comparative study of economic efficiency of using the catches of cod, haddock and saithe, which are the most valuable species and which are harvested in the greatest amounts compared to other demersal fish species. Since the data on fisheries in Norway are available only for 2009–2013, the present research is performed on the example of this very period.

Table 2. Proportion of catches in the Murmansk Oblast intended for export*, %

Type of product	2009	2010	2011	2012	2013	2014
Cod	82.4	72.4	80.9	66.1	72.8	109.3**
Haddock	55.4	50.9	54.9	47.6	47.0	96.8
Saithe	4.9	4.0	12.2	48.2	20.7	11.2
Perch, total	64.5	69.9	68.7	50.4	82.8	54.6
Halibut, total	46.2	60.2	57.3	35.0	48.7	43.5
Mackerel	46.9	41.4	26.2	26.6	56.7	38.2
Horse mackerel	100.9	98.9	96.9	96.8	100.0	99.6
Blue whiting	37.6	30.2	22.2	33.6	52.5	47.9
Sardine	18.9	47.7	48.7	18.8	11.0	84.5
Herring	5.8	-	37.8	-	-	-
Other	32.9	54.0	46.9	90.7	85.5	65.3
Including marine products	64.7	15.3	36.5	27.9	32.5	66.3
Total exports	46.4	47.3	51.7	48.7	57.8	74.1

* According to the author's calculated data.
** The figure is over 100 %, probably as a result of double counting in official documents on exports.

The above information shows that approximately 72% of demersal fishes that Russia harvested in 2009–2014 were used for the production of export products. The share for cod was 80.2% (1054.3 thousand tons out of 1314.8 thousand tons caught), for haddock – 56.6% (231.9 out of 409.7 tons caught) and for saithe – 17.1% (11.2 out of 65.8 thousand tons caught). Norway uses approximately 95% of both its own and imported fish for the production of export products.

In Russia (Murmansk Oblast), the main type of cod product that is intended for export is frozen headed and gutted fish *(tab. 3)*. Its share on average for the analyzed period is 82.5% (333.55 thousand tons out of 404.35 tons of total cod products export). There is a tendency toward the decline in the share of its production (from 88.2% in 2010 to 76.8% in 2013). As part of the Norwegian export, the share of headed gutted cod is much less significant – an average of 28.8% (242 thousand tons out of 839.9 thousand tons). Its value increased from 22.4% in 2009 to 38.8% in 2013.

Fillet is the second most important cod export product in Russia (Murmansk Oblast). Its average share in the assortment of 2009–2013 was 15.5% (62.5 thousand tons out of 404.35 thousand tons of total cod production), in Norway – 12.2% (102.4 out of 839.9 thousand tons, respectively), including 8.9% (74.4 thousand tons) of frozen fillet and 3.3% (28.0 thousand tons) – more expensive chilled fillet.

Table 3. Range and value of exports of cod products in 2009–2013

Type of product	Volume, thousand tons	Value, million U.S. dollars	Price of 1 kg, U.S. dollars
Russia (Murmansk Oblast)			
Chilled	0.3	0.5	1.7
Frozen	333.55	824.8	2.47
Frozen fillet	62.5	303.1	4.85
Dried	4.46	24.77	5.55
Salted	3.3	13.09	3.97
Total	40411	1167.8	2.89
Total export	1155.3	2401.5	2.08
Norway			
Chilled	126.8	466.9	3.68
Frozen	242.0	696.9	2.88
Chilled fillet	22.55	236.9	10.5
Frozen fillet	79.87	517.4	6.48
Salted fillet	1.55	11.0	7.10
Dried	21.10	410.5	19.00
Salted	131.2	692.9	5.28
Klipfish	207.8	1613.2	7.76
Dried heads	4.5	15.9	3.53
Farce	2.43	6.7	2.76
Total	839.8	4658.3	5.55
Total export	11828.8	43802.0	3.70

The export of fish fillet by the Murmansk Oblast increased in the last 4 years from 7.9 to 20.9 thousand tons (in 2.6 times), while in Norway it remains approximately at the same level, and in the middle of the analyzed period it slightly increased.

Other types of exported Russian products (salted and dried) account for 1.0–2.7% in the range of products and they do not play a significant role. In Norway, on the contrary, klipfish and other salted cod products occupy a predominant position in the export: klipfish – an average of 24.7% (207.8 thousand tons), salted fish – 15.6% (131.2 thousand tons).

Comparative cost of similar products is of practical interest. For instance, the price of 1 kg of frozen gutted and headed cod in the Norwegian exports is 2.880 U.S. dollars and in the Russian exports – 2.287 U.S. dollars, which is 0.593 U.S. dollars (20.6%) less. As for frozen cod fillet, the difference in the price of 1 kg amounted to 1.628. U.S. dollars (33.6%). For this reason, in 2009–2013, fishermen in the Murmansk Oblast lost 197.8 million U.S. dollars of revenues from the export of gutted cod and 101.75 million U.S. dollars from the export of fillet.

It should be noted that in order to increase the revenues from sales of cod the Norwegians export chilled gutted cod and chilled fillet that are much more expensive than frozen products: the difference in their price in some years reaches two times.

The Russian (Murmansk Oblast) exports of haddock products are also dominated by frozen gutted fish *(tab. 4)*. On average over the period under review, its export abroad amounted to 80.0% (84.7 thousand tons), frozen haddock fillet – 19.1% (20.25 thousand tons), the rest was other fish products; in the Norwegian fisheries, respectively, 66.3% (274.4 thousand tons) and 8.9% (37.0 thousand tons), the

Table 4. Range and value of exports of haddock products in 2009–2013

Type of product	Volume, thousand tons	Value, million U.S. dollars	Price of 1 kg, U.S. dollars
Russia (Murmansk Oblast)			
Chilled	1.19	1.57	1.32
Frozen	84.7	146.3	1.73
Frozen fillet	20.25	93.0	4.95
Total	106.14	240.87	2.27
Total export	1155.3		
Norway			
Chilled	92.7	199.2	2.15
Frozen	274.4	677.16	2.47
Chilled fillet	6.02	51.7	8.59
Frozen fillet	37.0	190.58	5.15
Salted	0.17	0.40	2.35
Klipfish	0.9	4.60	5.11
Farce	2.31	5.52	2.39
Total	413.5	1129.16	2.73
Total export			

remaining production is exported chilled (gutted fish and fillet) and in small amounts – salted products and klipfish.

As is the case with cod, the ratio of prices of the same types of fish products from the Russian and Norwegian exports is of the greatest practical interest. On average over the period under review, the cost of 1 kg of frozen gutted haddock in the Russian exports was 1.931 U.S. dollars, which is 21.76% lower than the price (2.468 U.S. dollars) in the Norwegian exports of haddock; the cost of 1 kg of frozen fillet is 10.83% lower (by 0.558 U.S. dollars). Due to the difference in the prices of frozen gutted haddock, over the analyzed period of 5 years, the Murmansk Oblast lost 45,484 thousand U.S. dollars of export revenues, 11,300 thousand U.S. dollars for frozen fillet, and the total of 56,781 thousand U.S. dollars for the export of haddock.

The range of haddock products exported by Murmansk fishermen consisted mainly of two positions, and that of the Norwegians – of seven (see tab. 4). In addition to the fish products considered above, Norway exported significant volumes of chilled gutted haddock and chilled fillet. The price of chilled gutted fish was higher than that of frozen fish only in 2009, and the price of chilled fillet was significantly higher in all the analyzed years.

The total allowable catch (TAC) of saithe granted to Russia in the last two years was 12 thousand tons, in the previous years it was 4–6 thousand tons. So the export of saithe products in 2009–2013 is insignificant – 5.1 thousand tons – and it is carried out mainly in the form of gutted frozen fish *(tab. 5)*. Russia's price of 1 kg of this product is 1.516 U.S. dollars; Norway's price of this product is 1.844 U.S. dollars,

Table 5. Range and value of exports of saithe products in 2009–2013

Type of product	Volume, thousand tons	Value, million U.S. dollars	Price of 1 kg, U.S. dollars
Russia (Murmansk Oblast)			
Chilled	0.49	0.54	1.10
Frozen	2.89	4.38	1.52
Frozen fillet	1.79	4.85	2.71
Total	5.17	9.77	1.89
Total export			
Norway			
Chilled	33.50	64.9	1.94
Frozen	173.85	320.6	1.84
Fresh fillet	2.12	11.40	5.37
Frozen fillet	25.83	119.60	4.63
Klipfish	224.6	1051.40	4.68
Salted	3.40	8.30	2.44
Dried	3.00	21.8	7.27
Farce	0.17	0.40	2.35
Total	466.3	1598.4	3.43
Total export			

which is higher by 21.6%. The total volume of production of their own saithe exported by Norway in 2009–2013 amounted to 459.2 thousand tons or 1598.9 million U.S. dollars. The price of 1 kg of non-specific products is 3.482 U.S. dollars, in the Russian exports – 1.924 U.S. dollars.

The narrowness of the range of Russian cod, haddock and saithe products that are the main objects of export, and the prevalence of fish of primary processing in it are the main factors determining the low unit cost of non-specific products in comparison with those of Norway. On average for 2009–2013 the price of 1 kg of the Russian exported cod products amounted to 2.888 U.S. dollars; that of the Norwegian was 5.546 U.S. dollars, which is 1.92 times higher; the price of haddock was, respectively, 2.44 and 2.73 U.S. dollars (by 11.85% higher).

Significant differences between the ranges of export products of Russia and Norway can be explained by the structure of fixed assets and the location of the main fishing areas.

One might say that the market structure of Russia's fisheries in the European North was formed without the intervention of the state – under the influence of market factors. Reforms of the fishing fleet that took place in the 1990s and early 2000s aimed to achieve the greatest economic efficiency in the fisheries industry and meet the private interests of fishing vessels owners. Due to the fact that freezer fishing vessels are more productive and not "tied" to certain coastal points, trawlers that lacked freezing installations and that were designed to supply raw fish to coastal factories were re-equipped or sold. A buyer's market that existed during the operation of salting-and-fresher trawlers has turned into a seller's market. Over 40 coastal fish processing enterprises in Murmansk cannot develop effectively, produce wide range of products, develop and introduce new technology, because they are not integrated with fish-harvesting organizations and do not have a sufficient amount of raw fish at affordable prices. In the end, fishing vessels that are not able to produce a wide range of fish products have become the main sellers of fish products in both domestic and foreign markets.

Russia's accession to the WTO in 2012 does not contribute to the improvement of the range of export products, because of the step-by-step zeroing of export duties for dressed fish, except for fillet and other types of deep gutting. Thus, in fact, the provision of foreign countries with raw fish of valuable species that are popular in Western countries, China, Japan, Korea and others is promoted.

The reduction of export duties on the frozen fish of demersal species will benefit Russian exporters, and can lead to a growth of prices in Russia and the narrowing of the market of white fish, halibut and perch. It is probable that in order to stimulate sales in the domestic market it will be necessary to use economic, organizational and legislative measures that do not violate the conditions of the WTO.

According to our calculations, under the current structure and volume of exports (2013) in the Murmansk Oblast, economic

entities will receive additional profit in the amount of 25–30 million U.S. dollars from the export of cod, haddock and saithe, and the state will lose the same amount. In general, according to the Federal Agency for Fishery (Rosrybolovstvo), economic entities engaged in fisheries activities will receive additional profit in the amount of 150–200 million U.S. dollars thanks to the abolition of customs duties. [7]. In our opinion, the following measures can be implemented in order to promote sales in the domestic market: the introduction of differentiated rates of fees for bioresources, change in the order of VAT refund, etc.

Federal authorities propose to stimulate an increase in the production of fish products with high added value by differentiating the amount of fees for bioresources. However, the countries that import fish products may hamper the use of this economic lever that has characteristic features of tax benefits. In our opinion, the most suitable option for promoting the production of deeply-processed fish products that does not contradict the WTO rules is to change the system of access of economic entities to commercial biological resources.

The fact that the allocation of shares of aquatic biological resources to harvesting companies in late 2003 (2004 is the year in which the share system was put into practice) did not take into consideration the level of economic efficiency of using biological resources in the accounting period, which subsequently, including at the present time, has not contributed to the increase in the output of fish products of deep cutting. If we add to this the market situation in Russia, Western Europe, China and Korea, to which a large share of dressed fish (cod, haddock, pollack, Pacific salmon, and others) is delivered, it becomes clear why the Russian fishery has acquired a raw materials exporting orientation.

The proposed adjustment of the access of economic entities to aquatic biological resources on a historical basis consists in the accounting of the results of the use of catches for the production of fish products in previous years by multiplying them by the coefficient representing the quotient of the profit by the cost of production or expenses.

The fisheries industry of Norway, which in many ways is considered the most advanced in the world, has been developing and operating according to another scenario. It performs the main governmental task of providing employment to the population living on the coast. For these purposes, the presence of floating fish factories in the fishing fleet and their endowment with quotas of bio-resources is limited and regulated by licenses. For example, the production of fillet by factory ships comprises about 15% of its total volume.

The main part of the fleet for harvesting demersal fish (cod, haddock, saithe and other) consists of light fishing boats and fresher trawlers; and the fleet for harvesting pelagic fish – of seiner-trawlers with RSW-tanks. They supply coastal fisheries with chilled raw fish. A buyer's market has been established and is now in operation. But, in order to ensure effective operation of factories and fishing vessels, "minimum

prices" for fish raw materials and semi-finished products are revised at least three times a year, they are based on reliable data obtained from factories and fishing vessels. Raw fish is sold via online auctions under strict control of fishing cooperatives that have certain state functions.

In Norway, coordination of exports of fish products and the activities of major fish markets is carried out by a quasi-governmental body – the Export Council.

The Council is organized in the form of public joint stock company. It is governed by the Board appointed by agreement with the member companies of the Council and fishing organizations for a period of two years. The Chairman is appointed by the Ministry of Fisheries of Norway on a permanent basis.

The main functions of the Council are:

1. Formation of national policy in the sphere of exports and imports of fish and fish products.

2. Establishment of bilateral export-import relations with various countries and the regulation of pricing, volume and range of exports.

3. Implementation of marketing of Norwegian goods *at the national and international levels*.

4. Collection of information on exports, market research, statistical analysis, development of recommendations on the export and import markets; coordination of lists of exporters and export licenses.

5. Regulation of export prices, range and directions of the export market (in consultation with the Ministry of Fisheries of Norway).

6. Preparation of recommendations on foreign and internal trade activities, participation in the preparation of bilateral and multilateral agreements on trade in fish and fish products; control over export and import activities of fisheries enterprises and their fulfillment of financial, customs and other regulations in the use of issued licenses.

7. Processing of the data on Norwegian exports and imports.

8. Preparation and dissemination of statistical and other information on the Norwegian export and import among the members of the Seafood Export Council; provision of advisory services on issues of export, import, and marketing of Norwegian fish products.

The activities of the Seafood Export Council are funded partly through budgetary sources, since the Council's Chairman is appointed by the Ministry. Main sources of funding are membership fees of the companies included in the Council (all exporters), and royalties from the sale of products for export. Note that the Murmansk Oblast Government plans to establish a regional sales company for trade in fishery products within and beyond the region [3].

The establishment of a body on the example of Norway's experience for the purpose of licensing export and import of fish products and for studying internal and external fish markets and their regulation is, in our opinion, the main effort necessary to improve the efficiency of trade in fish products. The lack of a single point of coordination of interests

of the foreign trade activity in the Russian fisheries complex is a serious reason for its low efficiency. Pricing policy is imposed on the Russian goods producers by foreign contracts, intermediaries and traders. Meanwhile, each assignment in the pricing policy of one Russian participant of foreign trade activity, according to A.V. Ivanov and V.A. Teplitskii, causes damage to all others [4].

Lower export prices, in our view, result from unnecessary competition between the Russian participants of foreign economic activity, and from the supply of goods in large quantities. In this regard, it is necessary to analyze the effectiveness of supply of fish products abroad directly from the sea in the quantities of several hundred tons.

As can be seen, the structure of exports of the Russian business entities and the level of prices are influenced by the system of loans secured against future products through Western contractors due to the complexity and inefficiency of lending for production activities in the Russian banks. The funds received are used for purchasing fuel, food, harvesting equipment and other procurement for the next voyage. Thus, the business value of the Russian company is taken into account as collateral (guarantees) of such "loan". Business valuation is made by assessing the market value of fixed assets of an enterprise, the amount of quota allocated, established business reputation in the market, etc. The loan provided under the terms of "overdraft" is returned in the period agreed upon by both parties, which is very convenient. As a company develops a positive credit record, it gains an opportunity to obtain more loans on the conditions specified above. The procedure for granting loans under the terms of "overdraft" in the Russian banks is extremely difficult, it requires a significant amount of documents and virtually ignores the real value of the company's business in general (questions arise concerning collaterals). In some banks this loan can be unsecured. The sum is calculated depending on the turnover on the accounts in the bank. It has a specific feature: it must be repaid on a monthly basis, so it is not quite suitable for fishermen, since the period of turnover is longer.

The issue of underpricing the customs value of fishery products when exporting them or selling them on the domestic market without many intermediaries, as evidenced by the global market, can be successfully solved through the organization of sales of fish products via online auctions.

The issue of producing a wide and effective range of fish products for export under the monopoly of the freezer fishing fleet in foreign trade activities is challenging but it can be achieved. Thus, the state should pursue appropriate economic policy to expand the supply of chilled raw fish to coastal fish processing factories "at the lowest prices" and limit the participation in foreign economic activity of organizations that do not have fishing vessels with equipment for deep cutting of harvested aquatic organisms. In this case, the exports of fishery products of primary cutting from the sea will reduce, and the increased supply of raw fish to coastal businesses

will expand the range of products both for export and for the domestic market.

A change in the system of access of economic entities to fishing resources, the establishment of an organization for the export of fish products, the elimination of intermediaries in foreign trade through online auctions, the payment of loans obtained in foreign banks in currency, the rationalization of the use of outdated trawlers, the use of other recommendations substantiated in the article will help improve the economic efficiency of using aquatic biological resources in foreign economic activity, improve economic returns from the fisheries sector, stimulate the renewal of the fishing fleet and the development of the coastal fish processing base.

References

1. Komlichenko V.V., Lukmanov E.G., Shevchenko V.T., Gromov M.S., Fomin S.Yu., Shevchenko V.V. Bioekonomicheskaya effektivnost' ispol'zovaniya vodnykh biologicheskikh resursov Barentseva morya [Bioeconomic Effectiveness of the Usage of Aquatic Biological Resources of the Barents Sea]. *Voprosy rybolovstva* [Issues of Fishery], 2008, no. 2 (34), pp. 406-430.
2. Vasil'ev A.M. Kak povysit' effektivnost' rybnoi otrasli? [How to Improve the Efficiency of the Fishing Industry?]. *EKO* [All-Russian Economic Journal], 2014, no. 4, pp. 96-111.
3. *Vremya trebuet bystrykh reshenii: interv'yu s A.M. Glushkovym* [Time Requires Quick Decisions: an Interview with A.M. Glushkov]. Available at: http://www.mvestnik.ru/shwpgn.asp?pid=2014111212 (accessed April 17, 2015).
4. Ivanov A.V., Teplitskii V.A. Sovershenstvovanie upravleniya vneshneekonomicheskoi deyatel'nost'yu rybokhozyaistvennogo kompleksa Rossii [Improvement of the Management of Foreign Economic Activity of the Fisheries Complex of Russia]. *Rybnoe khozyaistvo* [Fisheries Industry], 2014, no. 2, pp. 27-28.
5. *Institut rybolovstva Nofima (Norvegiya)* [Nofima The Norwegian Institute of Food, Fisheries and Aquaculture Research (Norway)]. Available at: http://nofima.no/en/ (accessed April 13, 2015).
6. *Kontseptsiya razvitiya rybnogo khozyaistva Rossiiskoi Federatsii na period do 2020 g. (odobrena rasporyazheniem Pravitel'stva Ros. Federatsii 02 sent. 2003 g., №1295-R)* [The Concept for Development of Fisheries Industry of the Russian Federation for the Period until 2020 (Approved by the Order of the Government of the Russian Federation of September 02, 2003 No. 1295-R)]. Moscow, 2003. 23 p.
7. Krainii A. *Problemy rybokhozyaistvennogo kompleksa v usloviyakh VTO i puti ikh resheniya* [The Problems of the Fisheries Complex under the WTO and Their Solutions]. Available at: http://www.fishnews.ru/interviews/328 (accessed: 12.03.14).
8. *Materialy k zasedaniyu Kollegii po voprosu: "Itogi deyatel'nosti Federal'nogo agentstva po rybolovstvu v 2011 godu i zadachi na 2012 god"* [Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2011 and the Tasks for 2012"]. Available at: http://fish.gov.ru/files/documents/ob_agentstve/kollegiya/Kollegiya_2012.pdf (accessed April 13, 2015).
9. *Materialy k zasedaniyu Kollegii po voprosu "Itogi deyatel'nosti Federal'nogo agentstva po rybolovstvu v 2012 godu i zadachi na 2013 god"* [Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2012 and the Tasks for 2013"]. Available at: http://fish.gov.ru/files/documents/ob_agentstve/kollegiya/Rosrybolovstvo_Itogi_2012-18.03.2013.pdf (accessed April 13, 2015).
10. *Materialy k zasedaniyu Kollegii po voprosu: "Itogi deyatel'nosti Federal'nogo agentstva po rybolovstvu v 2013 godu i zadachi na 2014 god"* [Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2013 and the Tasks for 2014"]. Available at: http://fish.gov.ru/files/documents/ob_agentstve/kollegiya/Materialy_k_zasedaniyu_Kollegii_Itogi_deyatelnosti_Federalnogo_agentstva_po_rybolov-stvu_v_2013_godu_i_zadachi_na_2014_god.pdf (accessed April 13, 2015).

11. *Materialy k zasedaniyu Kollegii po voprosu: "Itogi deyatel'nosti Federal'nogo agentstva po rybolovstvu v 2014 godu i zadachi na 2015 god"* [Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2014 and the Tasks for 2015"]. Available at: http://fish.gov.ru/ob-agentstve/kollegiya-rosrybolovstva (accessed April 13, 2015).
12. *Materialy k zasedaniyu Kollegii Federal'nogo agentstva po rybolovstvu po voprosu: "Itogi raboty Rosrybolovstva v 2009 godu i zadachi na 2010 god"* [Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2009 and the Tasks for 2010"]. Available at: http://fish.gov.ru/files/documents/ob_agentstve/kollegiya/Materialy_Kollegii.pdf (accessed April 13, 2015).
13. *Materialy k zasedaniyu Kollegii Federal'nogo agentstva po rybolovstvu po voprosu: "Itogi raboty Rosrybolovstva v 2010 godu i zadachi na 2011 god"* [Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2010 and the Tasks for 2011"]. Available at: http://fish.gov.ru/files/documents/ob_agentstve/kollegiya/Material_kollegii1.pdf (accessed April 13, 2015).
14. *Perechen' Poruchenii Prezidenta Rossiiskoi Federatsii po voprosam razvitiya rybokhozyaistvennogo kompleksa. Pr-613 ot 21 marta 2013 goda* [List of Orders of the President of the Russian Federation on Development of the Fisheries Industry. PR-613 of March 21, 2013]. Available at: http://rybnyisoyuz.rf/?p=3802 (accessed March 24, 2014).
15. *Promysel v Rossii (2013)* [Fishery in Russia (2013)]. Available at: http://ruspelagic.ru/promysel_v_rossii (accessed December 20, 2013).
16. Rybokhozyaistvennyi kompleks Murmanskoi oblasti [The Fisheries Complex of the Murmansk Oblast]. *Murmanskstat* [Regional Office of the Federal State Statistics Service of the Russian Federation in the Murmansk Oblast]. Murmansk, 2014. 49 p.
17. Shevchenko V.V., Belyaev V.A. *Bioekonomika promyshlennogo rybolovstva Barentseva morya* [Bioeconomy of Industrial Fisheries in the Barents Sea]. Murmansk, 2009. 306 p.
18. Shevchenko V.V. *Bioekonomika i ispol'zovaniya promyslovykh resursov mintaya Severnoi Patsifiki. Opyt rossiiskikh i amerikanskikh rybopromyshlennikov* [Bioeconomy and Utilization of the Fisheries Resources of Alaska Pollock in the Northern Pacific. The Experience of the Russian and American Fishermen]. Ed. by V.V. Shevchenko, A.V. Datskii. Moscow: VNIRO, 2014. 212 p.
19. Shevchenko V.V., Nikonorov I.V., Komlichenko V.V. Bioekonomicheskaya effektivnost' ispol'zovaniya morskikh biologicheskikh resursov Severnogo basseina [Bioeconomic Efficiency of the Use of Marine Biological Resources of the Northern Basin]. *Voprosy rybolovstva* [Fisheries Issues], 2001, no. 2 (6), pp. 194-222.
20. *Economic Status of the Groundfish Fisheries of Alaska. 2009.* NOAA, December 2010.

Cited Works

1. Komlichenko V.V., Lukmanov E.G., Shevchenko V.T., Gromov M.S., Fomin S.Yu., Shevchenko V.V. Bioeconomic Effectiveness of the Usage of Aquatic Biological Resources of the Barents Sea. *Issues of Fishery,* 2008, no. 2 (34), pp. 406-430.
2. Vasil'ev A.M. How to Improve the Efficiency of the Fishing Industry? *All-Russian Economic Journal,* 2014, no. 4, pp. 96-111.
3. *Time Requires Quick Decisions: an Interview with A.M. Glushkov.* Available at: http://www.mvestnik.ru/shwpgn.asp?pid=2014111212 (accessed April 17, 2015).
4. Ivanov A.V., Teplitskii V.A. Improvement of the Management of Foreign Economic Activity of the Fisheries Complex of Russia. *Fisheries Industry*, 2014, no. 2, pp. 27-28.
5. *Nofima The Norwegian Institute of Food, Fisheries and Aquaculture Research (Norway).* Available at: http://nofima.no/en/ (accessed April 13, 2015).
6. *The Concept for Development of Fisheries Industry of the Russian Federation for the Period until 2020 (Approved by the Order of the Government of the Russian Federation of September 02, 2003 No. 1295-R).* Moscow, 2003. 23 p.

7. Krainii A. *The Problems of the Fisheries Complex under the WTO and Their Solutions*. Available at: http://www.fishnews.ru/interviews/328 (accessed March 12, 2014).
8. *Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2011 and the Tasks for 2012"*. Available at: http://fish.gov.ru/files/documents/ob_agentstve/kollegiya/Kollegiya_2012.pdf (accessed April 13, 2015).
9. *Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2012 and the Tasks for 2013"*. Available at: http://fish.gov.ru/files/documents/ob_agentstve/kollegiya/Rosrybolovstvo_Itogi_2012-18.03.2013.pdf (accessed April 13, 2015).
10. *Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2013 and the Tasks for 2014"*. Available at: http://fish.gov.ru/files/documents/ob_agentstve/kollegiya/Materialy_k_zasedaniyu_Kollegii_Itogi_deyatelnosti_Federalnogo_agentstva_po_rybolovstvu_v_2013_godu_i_zadachi_na_2014_god.pdf (accessed April 13, 2015).
11. *Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2014 and the Tasks for 2015"*. Available at: http://fish.gov.ru/ob-agentstve/kollegiya-rosrybolovstva (accessed April 13, 2015).
12. *Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2009 and the Tasks for 2010"*. Available at: http://fish.gov.ru/files/documents/ob_agentstve/kollegiya/Materialy_Kollegii.pdf (accessed April 13, 2015).
13. *Materials for the Board Meeting on the Issue: "Results of Activity of the Federal Agency for Fishery in 2010 and the Tasks for 2011"*. Available at: http://fish.gov.ru/files/documents/ob_agentstve/kollegiya/Material_kollegii1.pdf (accessed April 13, 2015).
14. *List of Orders of the President of the Russian Federation on Development of the Fisheries Industry. PR-613 of March 21, 2013*. Available at: http://rybnyisoyuz.rf/?p=3802 (accessed March 24, 2014).
15. *Fishery in Russia (2013)*. Available at: http://ruspelagic.ru/promysel_v_rossii (accessed December 20, 2013).
16. The Fisheries Complex of the Murmansk Oblast. *Regional Office of the Federal State Statistics Service of the Russian Federation in the Murmansk Oblast*. Murmansk, 2014. 49 p.
17. Shevchenko V.V., Belyaev V.A. *Bioeconomy of Industrial Fisheries in the Barents Sea*. Murmansk, 2009. 306 p.
18. Shevchenko V.V. *Bioeconomy and Utilization of the Fisheries Resources of Alaska Pollock in the Northern Pacific. The Experience of the Russian and American Fishermen*. Ed. by V.V. Shevchenko, A.V. Datskii. Moscow: VNIRO, 2014. 212 p.
19. Shevchenko V.V., Nikonorov I.V., Komlichenko V.V. Bioeconomic Efficiency of the Use of Marine Biological Resources of the Northern Basin. *Fisheries Issues*, 2001, no. 2 (6), pp. 194-222.
20. *Economic Status of the Groundfish Fisheries of Alaska. 2009*. NOAA, December 2010.

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On the Question of Studying the Role of Social Capital under the Conditions of the Socio-Economic Crisis

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Abstract. The concept of social capital has gained considerable popularity in the social sciences, as well as in practical politics on a national and international scale. Its heuristic potential is confirmed by numerous studies demonstrating the positive impact of the level and types of social capital on a wide range of economic, social and political phenomena, and especially the use of the concept of social capital to study economic growth and development issues. However, there is no universally accepted definition of social capital, and there is no unanimous opinion concerning the ways of measuring it. The paper contains a review of the current status of the theoretical field of the concept; it shows that researchers from different countries are interested in the impact of social capital on economic growth and development at the regional level. Specific comparative studies in different countries and regions strongly support the presence of a correlation that proves social capital is one of the powerful driving forces of development. However, since the majority of studies on the effects of social capital on economic development are concentrated in the developed countries of Western Europe and the USA, it is important to evaluate the potential of this approach in the countries of post-Communist development that have different experience, in particular, in Russia. In this regard, the article points out that there is a clear lack of such studies with regard to Russia's regions, where there are only occasional fragmentary attempts to study social capital. The aim of the paper is to substantiate on the theoretical basis and to indicate the prerequisites for empirical studies on the effects of social capital of regions on their economic growth and development, especially under the conditions of the general economic and structural crisis.

Key words: social capital, economic growth, crisis, regional studies.

Social capital represents one of the most powerful and popular metaphors in current social science research. In recent years social capital has become a key concept in academic theories and research, and a powerful basis for making policy decisions that are intended to shape everyday practices in creating social integration. Broadly understood as referring to the community relations that affect personal interactions, social capital has been used to explain an immense range of phenomena, ranging from voting patterns to health to the economic success of countries. Hundreds of papers have appeared throughout the science literature arguing that social capital matters in understanding individual and group differences and further that successful public policy design needs to account for the effects of policy on social capital formation.

Several reasons were proposed for explaining such attention. They include the concern with the extremes of today's individualism and the nostalgia for the lost unity in the past, the desire to re-introduce the regulatory and social aspects in the understanding of how society works; the desire for greater control over the modern society that is becoming more diverse and is experiencing rapid social change, including the fact that social capital allows the state to save on distributive economic policy at the expense of (less expensive) informal social relations.

However, this concept cannot be considered an established one. Academic discourse contains different viewpoints, approaches and expectations; this fact leads to a wider interpretation of social capital. And this, in turn, entails even a greater blurring of the concept that is already expressed not very clearly, up to the loss of its heuristic potential and turning it into a popular publicistic cliché.

The present paper, first, provides an overview of conceptual issues that form the basis of the studies of social capital. Second, it determines the fruitfulness of usage of the concept of social capital to study the issues of economic growth and development both at the macrolevel and at the level of individual regions. Third, we make several suggestions about how to empirically explore the role and importance of regional social capital in the conditions of the crisis.

Social capital: the concept, its historical development and variations

We will not consider some occasional and rather metaphorical references to social capital in earlier works (L. Hanifan, D. Jacobs, G. Laurie[1]), but we note the fundamental contribution that James Coleman, Robert Putnam and Pierre Bourdieu – the authors who represent the classic studies of social capital – made to the development of the concept of social capital. Coleman and Putnam, who highlighted values and networks, formed a "mainstream" theory of social capital. Bourdieu, who represents the critical aspect in this trio, put forward the issues of inequality and social justice[2].

[1] See: [33; 34; 39].

[2] A detailed examination of historical roots of the concept is given in: [1].

Table 1. Number of publications with key words "social capital" according to the Web of Science data (1994–2013)

Year of publication	Number of publications
2014	1107
2013	1063
2012	1025
2011	1024
2010	959
2009	872
2008	740
2007	641
2006	514
2005	441
2004	223
2003	217
2002	182
2001	170
2000	113
1999	102
1998	89
1996	25
1995	22
1994	10
Source of calculations: Web of Science. Available at: http://www.isiknowledge.com/	

Currently, the literature on social capital is extremely vast and it continues to increase *(tab. 1)*. Numerous researchers representing different disciplines have contributed to our current understanding of the prerequisites and consequences of social capital.

Defninitions of cocial capital

The term "social capital" has spread throughout the social sciences and has spawned a huge literature that runs across disciplines. Despite the immense amount of research on it, however, the definition of social capital has remained elusive. Moreover, it has been argued that it is unreasonable and old-fashioned to believe that in general it is possible to develop a unified concept of social capital which would explain and predict diverse and complex fields such as economics, politics, and social sphere, i.e. as a new Grand Theory. In the beginning of the century the criticism of ambiguity and contradiction of different definitions of the term "social capital" went so far that some researchers proposed to abandon the term altogether[3]. A new rise in the popularity of the concept is associated with its application to a new virtual reality of communications, i.e.

[3] See, for example: [13].

to the social media. From a historical perspective, one could argue that social capital is not a concept but a praxis, a code word used to federate disparate but interrelated research interests and to facilitate the crossfertilization of ideas across disciplinary boundaries. The success of social capital as a federating concept may result from the fact that no social science has managed to impose a narrow definition of the term that captures what different researchers mean by it within a discipline.

In order to illustrate this diversity, we will present several of the most influential definitions of social capital. Let us begin with Coleman, who defined social capital as follows: "...Social organization constitutes social capital, facilitating the achievement of goals that could not be achieved in its absence or can be achieved only at a higher cost" [23, p. 304]. And in another work: "It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors – whether persons or corporate actors – within the structure" [2, p. 124].

R. Putnam and his colleagues provide a similar characterization: "...Social capital... refers to features of social organization, such as trust, norms, and networks that can improve the efficiency of society..." [49, p. 167]. In another well-known work [51] he emphasizes characteristics of social organization, including networks, norms and social trust that facilitate coordination and cooperation in the interests of the public goal.

Both definitions emphasize the beneficial effects social capital is assumed to have on social aggregates. According to these definitions, social capital is a type of positive group externality. Coleman's definition suggests that the externality arises from social organization. Putnam's definition emphasizes specific informal forms of social organization such as trust, norms and networks.

In his own definition of social capital Fukuyama argues that only certain shared norms and values should be regarded as social capital: "Social capital can be defined simply as the existence of a certain set of informal rules or norms shared among members of a group that permits cooperation among them. ...The sharing of values and norms does not in itself produce social capital, because the values may be the wrong ones... The norms that produce social capital must substantively include virtues like truth-telling, the meeting of obligations, and reciprocity" [8, p. 30].

Other definitions characterize social capital not in terms of outcome but in terms of relations or interdependence between individuals. In later research, Putnam defines social capital as "...connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them" [52, p. 19].

E. Ostrom writes that "social capital is the shared knowledge, understandings, norms, rules, and expectations about patterns of interactions that groups of individuals bring to a recurrent activity" [45, p. 176].

Table 2. Various definitions of the term "social capital"

Author, publication date	Defintions of the concept "social capital"
Bourdieu, 1980 [20]	Social relations that can act as a resource to obtain benefits
Knack and Keefer, 1997 [36]	Trust, norms of cooperation and membership in associations
Narayan and Pritchett, 1999 [43]	Quantity and quality of associational life and the related social norms
Woolcock, 2001 [66]	Social capital, unlike its other forms, is not the exclusive characteristic of an individual, rather, it describes the relationships between people in which the individual is involved
Lin, 2001 [38]	Resources embedded in social networks assessed and used by actors for actions
Sobel, 2002 [56]	Circumstances in which individuals can use membership in groups and networks to secure benefits
Shikhirev, 2003 [11]	Quality of social relationships, of which the key qualitative characteristic is ethical level
Organization for Economic Cooperation and Development (OECD: Côté, Healy, 2001) [44]	Networks, norms, values and understandings that facilitate cooperation within or among groups
World Bank, 2005 [24]	Norms and networks facilitating collective action
Polishchuk, 2010 [5]	Capacity of a society or communities for self-organization and joint action

Here is a list of popular definitions of social capital.

As this small sample shows, there remains significant variation of definitions, and this inevitably gives rise to the difficulties in measuring social capital and considerable controversy around this concept; and the number of disputes is ever increasing.

Without plunging into a detailed discussion of all the existing definitions of social capital, it is important to specify how we understand social capital exactly because there are so many of its diverse interpretations. We agree with the conclusions of Durlauf and Fafchamps who distinguish three main underlying ideas from almost all the definitions of social capital: "First, social capital generates (positive) externalities for members of a group. Second, these externalities are achieved through shared trust, norms, and values and their consequent effects on expectations and behavior. Third, shared trust, norms, and values arise from informal forms of organizations based on social networks and associations [266, p. 1644]. Thus, they argue that "the study of social capital is that of network-based processes that generate beneficial outcomes through norms and trust" [ibid.].

Although certain scientific works sometimes reduce social capital to its individual attributes or aspects (networks, trust or participation), one in isolation would probably not be considered social capital. Social capital refers to networks of social relations characterised by norms of trust and reciprocity.

Like physical capital (e.g., technology and tools) and human capital (e.g. education, talent and skills), social capital increases productivity of individuals and groups. Unlike physical capital, however, social capital does not wear out or devalue in the process of its use. Also, unlike physical capital, social capital is not exclusive and can be used by many people at a time. In this sense, social capital has many attributes of a "social good".

The studies that identify and describe the role of social capital, have provided some convincing answers to the question about the popularity of social capital and interest in this subject.

The concept of social capital is based on the idea that social relationships and social norms can provide access to valuable resources that can improve well-being of man [28], family [43], communities [19] or even regions or countries [36]. The benefits of social capital are now well established both at the micro- and macro levels. One of the long-standing assertions in the literature is that social capital can facilitate the solution of collective action problems. In politics, the generalized trust and other civil attitudes allow citizens to unite their forces in social and political groups and enable them to unite in civil initiatives more easily. Having proved that the effects of social capital, no doubt, entail social benefits for individuals, the research thus reveals a direct link between certain aspects of social capital and large-scale results, such as economic growth [25; 30; 36], low crime rate [34; 61] and authorities that are more responsible to the society [49].

Despite all the controversy, research suggests that social capital is an intangible factor and resource that affects the economy, social welfare, the effectiveness of social programs and many other things. It is important for the quality of public services such as education, health care, health status, reproductive potential, public safety, and the quality of public services and public administration. Generalized trust in the social sphere makes life easier in a heterogeneous society and promotes tolerance and acceptance of differences. Life in multicultural societies is easier, happier and more confident if there is generalized trust [60]. There are fewer cases of expulsion from school among the children integrated into supportive social networks [22]; moreover, some studies have found a strong connection between mental and even physical health and involvement in networks [52; 53].

These various examples of the impact of social capital demonstrate the seeming inconsistency in the numerous studies of social capital. The sociological tradition of research on social capital seems to focus on a wide range of positive outcomes that social capital provides for a person or for individual groups. This approach is indeed very broad and includes diverse examples such as a network of diamond dealers, a network of concerned parents of schoolchildren and strong family relationships as a form of social capital. Such networks can be of benefit for individual network members and other individuals who are not their members (e.g., other parents at school); or, on the contrary, sometimes they can be so exclusive that the benefits become a kind of club benefits that exclude outsiders.

Types of social capital

Initially, social capital was viewed as a unidimensional construct, which produces exclusively positive results, but it is now generally acknowledged that there are different types of social capital and that it also has a "dark side". Although it is shown that social capital enables and facilitates collective action, but society can

have detrimental collective goals, and the presence of social capital may allow them to achieve these goals more easily. This has led to the conclusion that not only the level of social capital is important for society, but also its type. Not all types of social capital are considered benign, and only some aspects of social capital can have positive consequences for society as a whole.

In this regard, Putnam distinguished two types of social capital: **bonding** capital and **bridging** capital[4]. The latter can be defined as the connections of bonds that are formed on top of various social groups, while bonding social capital cements only homogenous groups.

According to Putnam, bridging social capital refers to social networks that bring together different people, and bonding social capital brings together similar people. This is an important distinction, because external effects for bridging groups will, most likely, be positive, while networks that are bonding (limited to certain social niches), are at greater risk of negative externalities.

This distinction in types of social capital was proposed by other researchers [29; 47; 63] who sometimes used different terminology, but pointed to the same underlying phenomena. For example, Granovetter introduced the useful distinction between strong and weak ties, arguing that the latter kind provides various benefits to its members, particularly in terms of job searches [31]. Weak ties allow for more efficient information flows and are therefore particularly beneficial for facilitating collective action. Polishchuk and Menyashev operate with the concepts of "open social capital", "closed social capital", "Olson-like" and "Putnam-like" groups, in fact, identifying them with the forms of capital distinguished by Putnam [3].

Beugelsdijk and Smulders [16] show that bridging social capital has a positive effect on growth, whereas bonding social capital has a negative effect on the degree of sociability outside the closed social circle. This result finds evidence for Fukuyama's claim that "the strength of the family bond implies a certain weakness in ties between individuals not related to one another" [8, p. 103].

It should again be noted that any form of social interaction – whether it is bridging social capital or bonding social capital – provides benefits and advantages for atomized agents. Homogeneous bonding groups can also pursue positive goals, but there is a danger that they can sharpen and deepen social cleavages, especially in pluralistic societies fragmented because of the deeply rooted ethnic, racial, religious, etc. conflicts.

It is important that, unlike bonding social capital, bridging social capital has a greater (positive) impact on economic growth. Having said that, we do not claim that communication with one's family and close friends is a bad activity in itself. The key point is the distinction between types of communication; investment in bridging social capital are better from the perspective of economic growth.

[4] The translation of the terms is not established.

Some researchers [52; 57; 63] define the third component – **linking** social capital – describes connections with people in positions of power and is characterised by relations between those within a hierarchy where there are differing levels of power. It is good for accessing support, resources, and ideas from formal institutions and leaders in positions of power outside the range of the individual's circle of communication and which can distribute resources that are often rare. Linking social capital is different from bonding and bridging in that it is concerned with relations between people who are not on an equal footing. Thus, the nature of relationships in this type of social capital is *vertical* – it connects people at different levels of power. Bridging and bonding relationships (or horizontal networks) are also called trust networks, while linking (or vertical) relationship forms power networks.

Social capital, economic growth and development

Western and Russian researchers [6; 15; 36; 66] agree that in the realities of modern economic development the social aspect of the category "capital" is becoming increasingly important. The idea of social capital sits awkwardly in contemporary economic thinking. Even though it has a powerful, intuitive appeal, it has proven hard to track as an economic good. Among other things, it is fiendishly difficult to measure. This is not because of a recognised paucity of data, but because we do not quite know what we should be measuring. Comprising different types of relationships and engagements, the components of social capital are many and varied and, in many instances, intangible.

Attention to social capital is increasing due to the recognition that his absence is one of the main obstacles to economic development. In general, the conclusion that "social institutions have economic value" was first made by R. Putnam and D. Helliwell in their analysis of activities of enterprises in Italy in the 1960s – 1970s [50]. A significant part of current interest in social capital stems from the later classical book by Putnam, Leonardi and Nanetti [49], who argued that Northern Italy is growing faster than Southern Italy, by virtue of greater social capital endowements of the former, measured by membership in groups and clubs. The researchers found that a high level of "associative" life, trust and norms of reciprocity and civic cooperation strongly correlate with income per capita in the region. Subsequent criticism has identified the insufficient validity and strictness of straightforward conclusions of the authors and doubtless positive external effects of social capital on the economy.

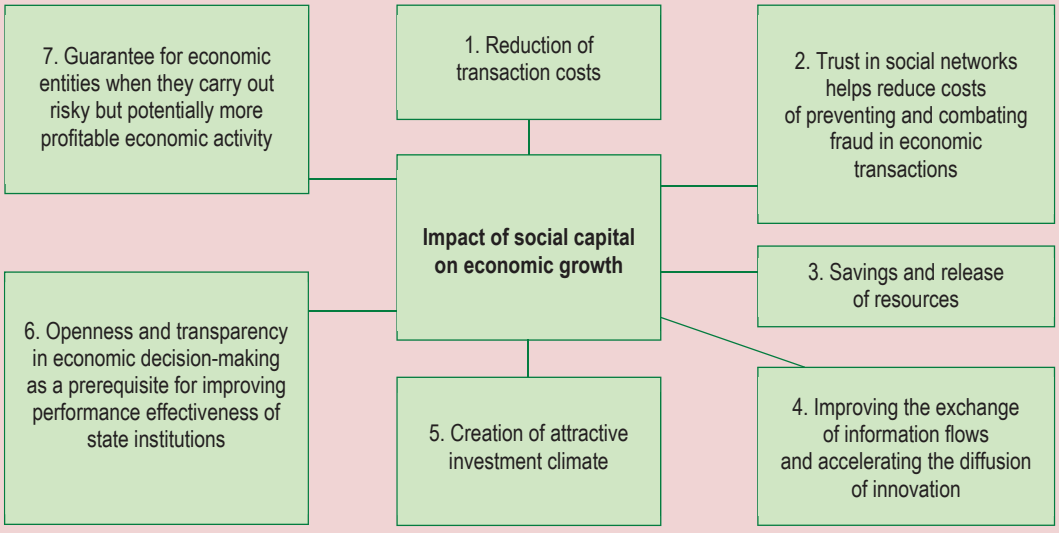
Knack and Keefer were initiators of studying the impact of social capital on economic growth in the empirical analysis [36]. They built a model that links economic growth of countries to the level of trust, ethic norms and membership in associations. They show that trust and civic cooperation have a significant impact on economic performance; and, moreover, not all the elements of the minimal definition of social capital are significant – in particular, participation in networks has little to do with trust and economic performance.

Woolcock [63] presented a broad conceptual analysis of the role of social capital in the development of society and economy; Dasgupta and Sergaldin [25, p. 15], and Grootaert and van Bastelaer [32] made a list of effects of social capital on economic development. Whiteley [62] investigated the relationship between social capital and economic growth in a sample of thirty-four countries for the period from 1970 to 1992 in the framework of the modified neoclassical model of economic growth. In general, these results indicate that social capital influences growth, and this influence is at least as strong as that of human capital, the former center of attention of many works on the growth theory.

S. Beugelsdijk and S. Smulders [16], analyzing the properties of the model, suggest that the link between economic growth and social capital depends on the internal characteristics of the system and may have different directions for different societies and periods of development, namely, for more developed and less developed countries. The charasteristics of the current status can be identified by empirical analysis.

R. Menyashev and L. Polishchuk carried out a pioneering and unique research on the effect of social capital of Russia's regions on economic performance. On the basis of the data obtained by the Public Opinion Foundation (FOM) within the framework of the national survey, they carried out the factor and regression analysis and came to a conclusion that "despite the doubts about the ability of the Russian society to become an independent driving force of the country's development, social capital in the Russian context provides a tangible economic return, primarily through the increased accountability of authorities" [3].

Figure 1. Impact of social capital on economic growth



T. Shapovalova systematized positive effects of social capital on economic growth [10].

Although quantitative measures used by different authors to prove the thesis about the impact of social capital on economic growth and development continue to cause controversy, one can summarize the qualitative findings relating to the subject matter of the controversy.

Social capital, first of all, reduces transaction costs of:

– searching for information and verification of counterparties;

– coordination (execution of formal bureaucratic procedures, contracts, etc.);

– control and coercion of counterparties to comply with the obligations for state regulation (because social capital is associated with the expectations that other economic agents will meet their obligations without application of sanctions).

Thus, it is possible to speak of the cheaper cost of negotiations, the facilitation of personalized informal interaction between the participants of economic relations, the potential of self-regulation of economic activity, the reduction of costs on the maintenance of state institutions and other implicit costs that society bears.

Social capital facilitates access of its owners to the resources gained (created, redistributed) in the social network. The results are as follows:

– cheap loans, greater access to information, innovation, better jobs, etc.;

– decrease of vulnerability, assistance in case of failure, crisis and other force majeure.

General effects of social capital at the level of society are as follows:

– compensation of the weakness of the institutional environment of economic activities, ineffectiveness of formal institutions;

– improvement of socio-political stability and quality of governance;

– general improvement of the social situation, enhanced possibility of cooperation, collective action for the common goal;

– positive social well-being of individuals, the lowering of the risk threshold for decision making in conditions of uncertainty.

Social capital and crises

So far, the impact of the crisis on social capital and the reverse impact of social capital on the course of the crisis has not been the subject of systematic study, although scientific literature considers occasional and fragmentary research on different aspects of the relationship of these two concepts.

First of all, here we speak about the cyclical financial and economic crises, but we also need to talk about structural local or national crises associated with the depreciation of certain industries and sectors of economy and with the crisis of relevant national or local communities (regions, cities and villages).

Exploring the impact of the crises of the first type (and if the hypothesis is correct, we see a direct and strong correlation between economic crisis and social capital), we can hope to find regularities in the dynamics of social

capital between 2006 and 2015, which correlated with the dynamics of economic indicators.

Theoretically, in this connection, a question arises concerning what happens to a country after a major economic trauma, such as the current crisis: does its social structure begin to burst at the seams or, on the contrary, people are uniting to cope with misfortunes they are going through? Do people in a crisis situation become more dependent on their families and friends as a means of overcoming their economic difficulties than they used to be before the crisis, and how actively do they participate in civil actions and political life, or they just lose faith in political participation? Do they shift the responsibility for the crisis on the government or build strategies to respond to the crisis in their own networks? These issues stem from an important and urgent contemporary social issue: they are a starting point for research into the social consequences of economic crisis.

On the one hand, it can be assumed that economic crisis is accompanied by the crisis of trust. In this sense, crisis destroys social capital. And this process starts a vicious circle, since the crisis of social capital, in turn, becomes an obstacle to the recovery from economic crisis with the help of cooperation, coordination and joint action. Thus, we can formulate a hypothesis that crisis conditions can threaten the social fabric of the country due to the growth of distrust. But it is possible that if the recession has really affected the level of trust, then it lowered it to a considerable, but not to a catastrophic, degree.

At the same time it is not enough just to show that economic crisis leads to a fall in the indicators of social capital. It is necessary, first, to prove that it is not part of other long-term societal changes and second, to figure out exactly what type of social capital we seak of.

Thus, it is possible to put forward some more hypotheses.

a. A higher level of social capital facilitates the overcoming of the crisis. Regions with a higher level of social capital ceteris paribus recover from the crisis faster.

b. Bonding social capital contributes to survival in the short term by transferring resources across the networks of closed groups that could be confirmed by the identified increase in family and kinship ties, and by the weakening of social and political activity, etc.

c. Bridging capital contributes to overcoming the crisis in the long term, because it promotes the inter-network search for ways out of the crisis and for resources.

In addition, it is not enough to consider only the ways in which economic crisis may have a negative impact on social capital. From the point of view of social capital, the impact of crisis on individuals and society can be not only negative but also positive.

We can assume that *social capital is a protective factor* in the period of economic crisis. Social capital and social networks may represent a network that offers protection from adverse effects of rapid macroeconomic changes. This makes us think of whether and to what extent *social capital can act as a means of compensation for the damage* caused

by greed, selfishness, short-sightedness, or outright stupidity of politicians, bankers, financial speculators, etc.

Sociologists and economists should also consider how the *existing stock of social capital can help people to cope with the severity of the crisis* and how this process may over time even *help replenish the social capital* of the country and the region. So, Jóhannesson, Skaptadóttir and Benediktsson [35, p. 4] show that the priority in determining a person's ability to cope with economic crisis is the prevalence of social networks, the ability to innovate and a strong sense of both individual and social identity, or in other words, social capital.

It is possible that *individual and collective attempts to resolve the crisis can prevent the decline of social capital*. In some cases, the period of crisis may *lead to the strengthening of social cohesion* and even *generate new relationships that improve the general social capital* when communities are finding innovative ways of handling their problems.

In our analysis we attach importance to factors such as the level of social capital that changes during the crisis, and the greater or lesser role of social capital during and after the financial and economic crisis, the role that is manifest in civic activity and politics.

Future research should pay attention to the fact whether frequent appeals to social capital (and civil society) in the crisis discourse are a disguised *attempt by the government to pass on to the society some of social expenses* under the shortage of public resources and decline of its effectiveness.

Scientific research has not given due attention to the impact of structural crises – the second type of crises which affect single-industry cities and regions – on social capital (and vice versa: the impact of social capital on the course of the crisis), the studies are fragmentary, although the importance of the topic itself does not cause any doubt.

Baerenholdt and Aarsaether use the concept of social capital in connection with their concept of a "coping strategy"[5] [14] of the region, the strategy of responding to crisis, which is based on the existing social capital and, at the same time, contributes to its development. The work of Jóhannesson, Skaptadóttir and Benediktsson also links the concept of social capital to the capacity of the region to get out of the crisis through coping strategies, demonstrating the power of this approach on the example of Iceland's regions [35].

Perhaps the most notable study in this direction is the work of Sean Safford, built on the comparison of the stories of two American single-industry towns caught in the crisis. Safford, like other researchers, was looking for an answer to the question why some cities within the U.S. Rust Belt experienced a dramatic restructuring of their economy, and then flourished during the economic boom of the 1990s – early 2000s, while others failed. The author tries to answer this question by exploring two middle-sized industrial cities – Allentown, Pennsylvania and Youngstown, Ohio, when

[5] The term "coping strategy" was borrowed from social psychology, where it denotes the reactions of an individual to stresses of various kinds.

they faced a collapse of their main industry – metallurgy [54; 55]. Safford argues that their different fate was a direct result of different evolutions of social networks in the two cities. He comes to the conclusion that a community that is facing a severe economic crisis, profits the most from the layers of independent associations that connect at key points, build critical bridges over the social, economic and geographic divisions within the community. Through a brilliant network analysis Safford shows that the developed networks of the bridging type in one of the cities contributed to a more rapid and successful recovery from the crisis as opposed to the networks of the bonding type, which contribute more to survival and economic exchange.

The relevance of such studies focusing on the dynamic role of local social systems and structures in the response of the community to the impact of economic crisis is doubtless because they offer a viable alternative to purely economic development strategies in times of crisis.

Regional development and social capital

Scientific research has quickly turned its attention to the following issue: national indicators of the level and type of social capital hide significant variations at the regional level. On the one hand, regional studies help identify correlations and dependencies on broad representative samples, on the other hand – to empirically test the hypotheses about the contribution of social capital to economic growth and development on the basis of regional differences in the types and levels of social capital.

It should be recalled that the very concept of social capital owes its existence in many respects to Putnam and Helliwell who carried out a comparative study of the regions of Northern and Southern Italy. S. Panebianco used similar indicators and applied their research findings to the regions of Germany [46].

The majority of subsequent empirical studies show positive effects of social capital and its components on regional development. Knack and Keefer, La Porta and colleagues, Zak and Knack use the data of the World Values Survey for different regions and countries to show that differences in trust – measured by the question "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" – have a significant impact on national growth rates [36; 37; 67].

Beugelsdijk and van Schaik, and Tabellini presented similar results for economic growth in European regions [17; 58]. Tabellini used additional variables relevant to post-material values, and also discovered a positive relationship to regional growth. Algan and Cahuc [12] calculated the impact of trust – a component of social capital – on the change in the index of per capita income across countries in 1935–2000. Callois and Schmitt [21] carried out an econometric analysis of the data on rural areas of France; they used indirect indicators of social capital and found positive influence of all forms of social capital on economic growth, and complementarity of bridging and bonding types of social capital.

Blume and Sack showed differences in the patterns of social capital that influence the pace and nature of economic growth on the example of the regions of Western Germany [18].

Thus, empirical testing on the material of Western countries confirms the earlier hypotheses of a positive correlation between regional social capital and economic growth. At the same time, it is not yet possible to make an equally confident conclusion about the regions of the countries that are at a lower stage of economic development. As for the post-Communist countries, including Russia, the relevant data are fragmentary and they cannot be compared properly.

A paper by J. Dzialek [27] describes spatial patterns of social capital in Poland and focuses in particular on its relationship to economic development in the context of experience of the post-Communist countries of Central Europe. The author tried to answer two main research questions: how diversified the resources of social capital in Polish regions are and if the model of social capital can be used to explain the differences in the pace of economic growth in Polish regions.

Zalek has shown, first, that social capital resources in Poland are characterized by high spatial differentiation only partially related to previous ways of development and historical heritage of the regions. Second, he has found out that this differentiation has an impact on the current regional economic development dynamics, i.e. the regions with a higher level of social capital, especially bridging social capital, can develop faster, which is similar to the trends revealed in the course of research conducted in the regions of Western Europe.

However, the overall resources of social capital in Poland's regions are relatively low, which makes the contribution of social capital to economic development significantly weaker than in developed countries.

Initial attempts to apply the concept of social capital to the research on Russia's regions were made in the beginning of the century.

C. Marsh in his several papers [40; 41; 42] proposed an original methodology for measuring the index of social capital in some regions of Russia. The index is formed by indicators such as "voter turnout", "newspaper publishing" and "membership in clubs and cultural associations" in a given region of the Russian Federation. Marsh has found a correlation between the civic community index and the index of democratization. Regions with a higher civic community index demonstrate a higher index of democratization and vice versa. However, the set of indicators used by March, can hardly be called generally accepted, that is why its data are poorly comparable with those of other researchers; and the proposed indicators of social capital must be considered very critically.

J. Twigg [59] proposes a different scale for comparative measurement of social capital in Russia's regions. Since there was no data that would directly characterize social capital in Russia and one of its features, namely, trust, she used statistical indicators that, in her opinion, act as

"substitutes" for direct indicators: "crime rate", "culture", "family" and "work", and six additional indicators of social capital. On this basis she also found out a significant differentiation of the regions by level of social capital. However, her extremely broad interpretation of social capital diminishes the analytical value of the findings and makes the data incomparable with those obtained with the use of conventional approaches.

The above-mentioned study by R. Menyashev and L. Polishchuk started out from the apparent pattern of significant differences in the level of social capital in different regions and within them [5].

E. Trubekhina used the methodology of Beugelsdijk and Smulders [16] and the data of "Georating" by FOM and economic statistics (GRP per capita and the turnover of small business per capita in the region); she has found a positive correlation between the participation in various groups and organizations (like an aspect of open social capital) and the value of GRP per capita. She has also found out that the development of small business depends to a great degree not only on the open, but also on the closed type of social capital. The indicators of subjective trust proved to be insignificant [7].

Of course, these data on Russian regions are unique and fragmented. Realizing this fact, researchers write that "it is also important to find a more convincing evidence of a *causal* link between social capital and development by choosing suitable instrumental variables" [3, p. 169].

Thus, there are several obstacles from the viewpoint of the task to study comprehensively the relationships between social capital in Russia's regions and other social and economic characteristics. These obstacles are as follows: relatively limited and non-diversified sets of variables used to describe a wide range of different types of social capital; the use of variables that describe possible effects of the presence or absence of social capital (for example, crime rate and voter turnout) rather than social capital itself; and the neglect of economic and human capital in the models of influence of social capital on economic growth.

Still the question remains why some locations (for instance, regional industrial systems, industrial clusters, urban areas) are more conducive to the development and strengthening of civic cooperation and, consequently, are endowed with more resources of social capital.

Thus, the first step for analysis is to study the resources and types of social capital in Russia's regions. Only after that can we consider whether it has a positive or negative impact, and test the hypotheses about the relationship of this concept and economic growth and about the nature of this relationship.

Prerequisites for the research on social capital in the regions

So, Russia has not carried out a comprehensive assessment of social capital that would give reasonable conclusions about its level, types, role in economic and social development, the dynamics of change and contribution to anti-crisis

strategies. Social capital has not been studied in various aspects and at different levels (time or geographical; belonging to social strata and occupational groups, etc.). As a consequence, there is no database that would combine the features and characteristics of social capital for the purposes of its study and management in general, and in the spatial perspective, in terms of regions. Not less scarce are the ways and means needed for an unambiguous measurement of capital and definition of mechanisms and tools for its development. All this shows that the issue concerning the research into the role of social capital for socio-economic development of a region and individual locations in Russia remains open and unresolved.

References

1. Afanas'ev D.V. Sotsial'nyi kapital: kontseptual'nye istoki i politicheskoe izmerenie [Social Capital: Conceptual Origins and Political Dimension]. *Sotsial'nyi kapital kak resurs modernizatsii v regione: problemy formirovaniya i izmereniya: materialy Mezhregional'noi nauchno-prakticheskoi konferentsii, g. Cherepovets, 16–17 oktyabrya 2012 g.* [Social Capital as a Resource of Modernization in the Region: Problems of Formation and Assessment: Proceedings of the Interregional Research-to-Practice Conference, Cherepovets, October 16–17, 2012]. In 2 parts. Part 1. Pp. 11-22.
2. Coleman J. Kapital sotsial'nyi i chelovecheskii [Social and Human Capital]. *Obshchestvennye nauki i sovremennost'* [Social Sciences and Modernity], 2001, no. 3, pp. 122-139.
3. Menyashev R.Sh., Polishchuk L.I. Ekonomicheskaya otdacha na sotsial'nyi kapital: o chem govoryat rossiiskie dannye? [Economic Returns on Social Capital: What Do the Data on Russia Indicate?]. *XI Mezhunarodnaya nauchnaya konferentsiya po problemam razvitiya ekonomiki i obshchestva* [The 9th International Scientific Conference on the Issues of Development of Economy and Society]. Moscow: Izd. dom Vysshei shkoly ekonomiki, 2011. Vol. 2 . Pp. 159-170.
4. Natkhov T.V. Sotsial'nyi kapital i obrazovanie [Social Capital and Education]. *Voprosy obrazovaniya* [Education Issues], 2012, no. 2, pp. 63-67.
5. Polishchuk L. *Sotsial'nyi kapital v Rossii: izmerenie, analiz, otsenka vliyaniya* [Social Capital in Russia: Measurement, Analysis, Impact Assessment]. Available at: http://www.liberal.ru/articles/5265 (accessed May 10, 2015).
6. Polishchuk L., Menyashev R.Sh. Ekonomicheskoe znachenie sotsial'nogo kapitala [Economic Significance of Social Capital]. *Voprosy ekonomiki* [Issues of Economics], 2011, no. 12, pp. 46-65.
7. Trubekhina I.E. Sotsial'nyi kapital i ekonomicheskoe razvitie v regionakh Rossii [Social Capital and Economic Development in the Regions of Russia]. *INEM – 2012. Trudy II Vserossiiskoi (s mezhdunarodnym uchastiem) nauchno-prakticheskoi konferentsii v sfere innovatsii, ekonomiki i menedzhmenta. Tomsk, 24 apr. 2012* [INEM – 2012. Proceedings of the 2nd All-Russian Research-to-Practice Conference (with International Participation)in the Field of Innovation, Economics and Management. Tomsk, April 24, 2012]. Tomsk: Tomskii politekh. un-t, 2012. Pp. 357-361.
8. Fukuyama F. *Velikii razryv* [The Great Divide]. Moscow: AST, 2008.
9. Fukuyama F. *Doverie: sotsial'nye dobrodeteli i put' k protsvetaniyu* [Trust: Social Virtues and the Creation of Prosperity]. Moscow: AST; ZAO NPP "Ermak", 2004.
10. Shapovalova T.V. Vpliv sotsial'nogo kapitalu na ekonomichne zrostannya [The Impact of Social Capital on Economic Growth]. *Ekonomichnii analiz: zb. nauk. prats'* [Economic Analysis: Collection of Scientific Works], 2013, vol. 14, no. 1, pp. 167-175.
11. Shikhirev P.N. Priroda sotsial'nogo kapitala: sotsial'no-psikhologicheskii podkhod [The Nature of Social Capital: Socio-Psychological Approach]. *Obshchestvennye nauki i sovremennost'* [Social Sciences and Modernity], 2003, no. 2, pp. 17-32.

12. Algan Y., Cahuc P. Inherited Trust and Growth. *American Economic Review*, 2010, vol. 100, no. 5, pp. 60-92.
13. Arrow K. Observations on Social Capital. *Social Capital: A Multifaceted Perspective*. Ed. by P. Dasgupta, I. Seragilden. Washington, DC: World Bank, 2000. Pp. 3-5.
14. Baerenholdt J., Aarsaether N. Coping Strategies, Social Capital and Space. *European Urban and Regional Studies,* 2002, no. 9 (2), pp. 151-161.
15. Bebbington A., Guggenheim S., Olson B., Woolcock M. Exploring Social Capital Debates at the World Bank. *Journal of Development Studies*, 2004, vol. 40, no. 5, pp. 33-64.
16. Beugelsdijk S., Smulders S. Bonding and Bridging Social Capital and Economic Growth. *Center Discussion Paper,* 2009, no. 27, pp. 1-39.
17. Beugelsdijk J., van Schaik T. Differences in Social Capital Between 54 Western European Regions. *Regional Studies,* 2005, no. 39, pp. 1053-1064.
18. Blume L., Sack D. Patterns of Social Capital in West German Regions. *European Urban and Regional Studies,* 2008, no. 15, pp. 229-248.
19. Bowles S., Gintis H. Social Capital and Community Governance. *Economic Journal,* 2002, vol. 112, no. 483, pp. 419-436.
20. Bourdieu P. The Forms of Capital. *Handbook of Theory and Research for the Sociology of Education*. Ed. by J. Richardson. New York, Greenwood, 1986. Pp. 241-258.
21. Callois J.-M., Schmitt B. The Role of Social Capital Components on Local Economic Growth: Local Cohesion and Openness in French Rural Areas. *Review of Agricultural and Environmental Studies,* 2009, no. 90 (3), pp. 257-286.
22. Coleman J., Hoffer T. *Public and Private High Schools: The Impact of Communities*. New York: Basic Books, 1988.
23. Coleman J. *The Foundations of Social Theory*. Cambridge, MA: Belknap of Harvard UP, 1993.
24. *Community Driven Development and Social Capital: Designing a Baseline Survey in the Philippines*. Washington, DC: World Bank, 2005.
25. Dasgupta P., Sergaldin I. *Social Capital: a Multifaceted Perspective*. Washington, DC: World Bank, 2000.
26. Durlauf S.N., Fafchamps M. Social Capital. *Handbook of Economic Growth*. Ed. by P. Aghion, S. Durlauf. Elsevier, 2005. Vol. 1b. Pp. 1639-1699.
27. Dzialek J. Is Social Capital Useful for Explaining Economic Development in Polish Regions? *Geografiska Annaler: Series B, Human Geography,* 2014, vol. 96, no. 2, pp. 177-193.
28. Fafchamps M., Minten B. Property Rights in Flea Market Economy. *Economic Development and Cultural Chance*, 2001, vol. 49, no. 2, pp. 229-267.
29. Fedderke J.W., De Kadt R.H.J., Luiz J. Economic Growth and Social Capital. *Theory and Society,* 1999, no. 28, pp. 709-745.
30. Fukuyama F. *Trust: the Social Virtues and the Creation of Prosperity*. New York: The Free Press, 1995.
31. Granovetter V.S. The Strength of Week Ties. *American Journal of Sociology,* 1973, vol. 78, no. 6, pp. 1360-1380.
32. Grootaert C, van Bastelaer T. *Understanding and Measuring Social Capital. A Multidisciplinary Tool for Practitioners*. Washington, DC: World Bank, 2002.
33. Hanifan L.J. The Rural School Community Centre. *Annals of the American Academy of Political and Social Sciences,* 1916, vol. 67, pp. 130-138.
34. Jacobs J. *The Death and Life of Great American Cities*. New York: Random House, 1961.
35. Jóhannesson G., Skaptadóttir U., Benediktsson K. Coping with Social Capital? The Cultural Economy of Tourism in the North. *Sociologia Ruralis,* 2003, no. 43 (1), pp. 3-16.
36. Knack S., Keefer P. Does Social Capital Have an Economic Pay-Off? A Cross Country Investigation. *Quarterly Journal of Economics,* 1997, no. 112 (4), pp. 1251-1288.

37. La Porta R., Lopez-de-Silanes F., Schleifer A., Vishny R. W. Trust in Large Organizations. *American Economic Review,* 1997, vol. 87, pp. 333-338.
38. Lin N. *Social Capital: A Theory of Social Structure and Action*. Cambridge: Cambridge University Press, 2001.
39. Loury G. A Dynamic Theory of Racial Income Differences. *Women, Minorities and Employment Discrimination*. Ed. by P. Wallace. Lexington Books, 1977. Pp. 153-186.
40. Marsh C. *Making Russian Democracy Work*. Lewiston: The Edwin Mellen Press, 2000.
41. Marsh C. Social Capital and Democracy in Russia. *Communist and Post-Communist Studies,* 2000, no. 33, pp. 183-199.
42. Marsh C. Social Capital and Grassroots Democracy in Russia's Regions: Evidence from the 1999–2001 Gubernatorial Elections. *Demokratizatsiya: The Journal of Post-Soviet Democratisation*, 2002, vol. 10, no. 1, pp. 19-36.
43. Narayan D., Pritchett L. Cents and Sociability: Household Income and Social Capital in Rural Tanzania. *American Sociological Review,* 1997, no. 9, pp. 871-897.
44. Healy T., Côté S. *OECD. The Well-Being of Nations. The Role of Human and Social Capital.* Paris, 2001.
45. Ostrom E. Social Capital: Fad or a Fundamental Concept? *Social Capital, a Multifaceted Perspective*. Ed. by P. Dasgupta, I. Serageldin. Washington, DC: World Bank, 2000.
46. Panebianco S. The Impact of Social Capital on Regional Economic Development. *ACSP Congress*. Lovanio, 2003.
47. Paxton P. Is Social Capital Declining in United States? A Multiple Indicator Assesment. *The American Journal of Sociology,* 1999, vol. 105, no. 1, pp. 88-127.
48. Putnam R. *Making Democracy Work: Civic Tradition in Modern Italy*. Princeton: Princeton University Press, 1993.
49. Putnam R.D., Leonardi R., Nanetti R.Y. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton: Princeton University Press, 1993.
50. Putnam R., Helliwell J. Economic Growth and Social Capital in Italy. *Eastern Economic Journal,* 1995, no. 21 (3), pp. 295-307.
51. Putnam R. Bowling Alone: America's Declining Social Capital. *Journal of Democracy,* 1995, January, pp. 65-78.
52. Putnam R.D. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster, 2000.
53. Rose R. How Much Does Social Capital Add to Individual Health? A Survey Study of Russians. *Social Science & Medicine,* 2000, vol. 51, no. 9, pp. 1421-1435.
54. Safford S. *Why the Garden Club Couldn't Save Youngstown: Civic Infrastructure and Mobilization in Economic Crises. Working Paper.* MIT Industrial Performance Center, 2004.
55. Safford S. *Why the Garden Club Couldn't Save Youngstown: The Transformation of the Rust Belt*. Harvard University Press, 2009.
56. Sobel J. Can We Trust Social Capital? *Journal of Economic Literature,* 2002, vol. 40, pp. 139-154.
57. Szreter S., Woolcock M. Health by Association? Social Capital, Social Theory, and the Political Economy of Public Health. *International Journal of Epidemiology,* 2004, vol. 33, pp. 650-667.
58. Tabellini G. Culture and Institutions: Economic Development in the Regions of Europe. *Journal of the European Economic Association,* 2010, vol. 8 (4), pp. 677-716.
59. Twigg J.L., Schecter K. Social Capital. *Social Capital and Social Cohesion in Post-Soviet Russia*. Armonk: M.E. Sharpe, 2003. Pp. 168-188.
60. Uslaner E. *The Moral Foundations of Trust.* New York: Cambridge University Press, 2000.
61. Wilson W.J. *The Truly Disadvantaged: the Inner City, the Underclass and Public Policy.* Chicago: University of Chicago Press, 1987.
62. Whiteley P. Economic Growth and Social Capital. *Political Studies,* 2000, vol. 48, no. 3, pp. 443-466.
63. Woolcock M. Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework. *Theory and Society,* 1998, no. 27 (2), pp. 151-208.

64. Woolcock M., Narayan D. Social Capital: Implications for Development Theory Research and Policy. *World Bank Research Observer,* 2000, no. 15 (2), pp. 225-251.
65. Woolcock M. Exploring Social Capital Debates at the World Bank. *Journal of Development Studies,* 2004, no. 40 (5), pp. 33-64.
66. Woolcock M. The Place of Social Capital in Understanding Social and Economic Outcomes. *Isuma: Canadian Journal of Policy Research,* 2001, vol. 2:1, pp. 1-17.
67. Zak P.J., Knack S. Trust and Growth. *Economic Journal,* 2001, vol. 111, pp. 295-321.

Cited Works

1. Afanas'ev D.V. Social Capital: Conceptual Origins and Political Dimension. *Social Capital as a Resource of Modernization in the Region: Problems of Formation and Assessment: Proceedings of the Interregional Research-to-Practice Conference, Cherepovets, October 16–17, 2012.* In 2 parts. Part 1. Pp. 11-22.
2. Coleman J. Social and Human Capital. *Social Sciences and Modernity*, 2001, no. 3, pp. 122-139.
3. Menyashev R.Sh., Polishchuk L.I. Economic Returns on Social Capital: What Do the Data on Russia Indicate? *The 9th International Scientific Conference on the Issues of Development of Economy and Society*. Moscow: Izd. dom Vysshei shkoly ekonomiki, 2011. Vol. 2 . Pp. 159-170.
4. Natkhov T.V. Social Capital and Education. *Education Issues*, 2012, no. 2, pp. 63-67.
5. Polishchuk L. *Social Capital in Russia: Measurement, Analysis, Impact Assessment.* Available at: http://www.liberal.ru/articles/5265 (accessed May 10, 2015).
6. Polishchuk L., Menyashev R.Sh. Economic Significance of Social Capital. *Issues of Economics,* 2011, no. 12, pp. 46-65.
7. Trubekhina I.E. Social Capital and Economic Development in the Regions of Russia. *INEM – 2012. Proceedings of the 2nd All-Russian Research-to-Practice Conference (with International Participation)in the Field of Innovation, Economics and Management. Tomsk, April 24, 2012.* Tomsk: Tomskii politekh. un-t, 2012. Pp. 357-361.
8. Fukuyama F. *The Great Divide.* Moscow: AST, 2008.
9. Fukuyama F. *Trust: Social Virtues and the Creation of Prosperity*. Moscow: AST; ZAO NPP "Ermak", 2004.
10. Shapovalova T.V. The Impact of Social Capital on Economic Growth. *Economic Analysis: Collection of Scientific Works*, 2013, vol. 14, no. 1, pp. 167-175.
11. Shikhirev P.N. The Nature of Social Capital: Socio-Psychological Approach. *Social Sciences and Modernity,* 2003, no. 2, pp. 17-32.
12. Algan Y., Cahuc P. Inherited Trust and Growth. *American Economic Review*, 2010, vol. 100, no. 5, pp. 60-92.
13. Arrow K. Observations on Social Capital. *Social Capital: A Multifaceted Perspective*. Ed. by P. Dasgupta, I. Seragilden. Washington, DC: World Bank, 2000. Pp. 3-5.
14. Baerenholdt J., Aarsaether N. Coping Strategies, Social Capital and Space. *European Urban and Regional Studies,* 2002, no. 9 (2), pp. 151-161.
15. Bebbington A., Guggenheim S., Olson B., Woolcock M. Exploring Social Capital Debates at the World Bank. *Journal of Development Studies*, 2004, vol. 40, no. 5, pp. 33-64.
16. Beugelsdijk S., Smulders S. Bonding and Bridging Social Capital and Economic Growth. *Center Discussion Paper,* 2009, no. 27, pp. 1-39.
17. Beugelsdijk J., van Schaik T. Differences in Social Capital Between 54 Western European Regions. *Regional Studies,* 2005, no. 39, pp. 1053-1064.
18. Blume L., Sack D. Patterns of Social Capital in West German Regions. *European Urban and Regional Studies,* 2008, no. 15, pp. 229-248.
19. Bowles S., Gintis H. Social Capital and Community Governance. *Economic Journal,* 2002, vol. 112, no. 483, pp. 419-436.

20. Bourdieu P. The Forms of Capital. *Handbook of Theory and Research for the Sociology of Education*. Ed. by J. Richardson. New York, Greenwood, 1986. Pp. 241-258.
21. Callois J.-M., Schmitt B. The Role of Social Capital Components on Local Economic Growth: Local Cohesion and Openness in French Rural Areas. *Review of Agricultural and Environmental Studies,* 2009, no. 90 (3), pp. 257-286.
22. Coleman J., Hoffer T. *Public and Private High Schools: The Impact of Communities*. New York: Basic Books, 1988.
23. Coleman J. *The Foundations of Social Theory*. Cambridge, MA: Belknap of Harvard UP, 1993.
24. *Community Driven Development and Social Capital: Designing a Baseline Survey in the Philippines*. Washington, DC: World Bank, 2005.
25. Dasgupta P., Sergaldin I. *Social Capital: a Multifaceted Perspective*. Washington, DC: World Bank, 2000.
26. Durlauf S.N., Fafchamps M. Social Capital. *Handbook of Economic Growth*. Ed. by P. Aghion, S. Durlauf. Elsevier, 2005. Vol. 1b. Pp. 1639-1699.
27. Dzialek J. Is Social Capital Useful for Explaining Economic Development in Polish Regions? *Geografiska Annaler: Series B, Human Geography,* 2014, vol. 96, no. 2, pp. 177-193.
28. Fafchamps M., Minten B. Property Rights in Flea Market Economy. *Economic Development and Cultural Chance*, 2001, vol. 49, no. 2, pp. 229-267.
29. Fedderke J.W., De Kadt R.H.J., Luiz J. Economic Growth and Social Capital. *Theory and Society,* 1999, no. 28, pp. 709-745.
30. Fukuyama F. *Trust: the Social Virtues and the Creation of Prosperity*. New York: The Free Press, 1995.
31. Granovetter V.S. The Strength of Week Ties. *American Journal of Sociology,* 1973, vol. 78, no. 6, pp. 1360-1380.
32. Grootaert C, van Bastelaer T. *Understanding and Measuring Social Capital. A Multidisciplinary Tool for Practitioners*. Washington, DC: World Bank, 2002.
33. Hanifan L.J. The Rural School Community Centre. *Annals of the American Academy of Political and Social Sciences,* 1916, vol. 67, pp. 130-138.
34. Jacobs J. *The Death and Life of Great American Cities*. New York: Random House, 1961.
35. Jóhannesson G., Skaptadóttir U., Benediktsson K. Coping with Social Capital? The Cultural Economy of Tourism in the North. *Sociologia Ruralis,* 2003, no. 43 (1), pp. 3-16.
36. Knack S., Keefer P. Does Social Capital Have an Economic Pay-Off? A Cross Country Investigation. *Quarterly Journal of Economics,* 1997, no. 112 (4), pp. 1251-1288.
37. La Porta R., Lopez-de-Silanes F., Schleifer A., Vishny R. W. Trust in Large Organizations. *American Economic Review,* 1997, vol. 87, pp. 333-338.
38. Lin N. *Social Capital: A Theory of Social Structure and Action*. Cambridge: Cambridge University Press, 2001.
39. Loury G. A Dynamic Theory of Racial Income Differences. *Women, Minorities and Employment Discrimination*. Ed. by P. Wallace. Lexington Books, 1977. Pp. 153-186.
40. Marsh C. *Making Russian Democracy Work*. Lewiston: The Edwin Mellen Press, 2000.
41. Marsh C. Social Capital and Democracy in Russia. *Communist and Post-Communist Studies,* 2000, no. 33, pp. 183-199.
42. Marsh C. Social Capital and Grassroots Democracy in Russia's Regions: Evidence from the 1999–2001 Gubernatorial Elections. *Demokratizatsiya: The Journal of Post-Soviet Democratisation*, 2002, vol. 10, no. 1, pp. 19-36.
43. Narayan D., Pritchett L. Cents and Sociability: Household Income and Social Capital in Rural Tanzania. *American Sociological Review,* 1997, no. 9, pp. 871-897.
44. Healy T., Côté S. *OECD. The Well-Being of Nations. The Role of Human and Social Capital.* Paris, 2001.
45. Ostrom E. Social Capital: Fad or a Fundamental Concept? *Social Capital, a Multifaceted Perspective*. Ed. by P. Dasgupta, I. Serageldin. Washington, DC: World Bank, 2000.

46. Panebianco S. The Impact of Social Capital on Regional Economic Development. *ACSP Congress*. Lovanio, 2003.
47. Paxton P. Is Social Capital Declining in United States? A Multiple Indicator Assesment. *The American Journal of Sociology,* 1999, vol. 105, no. 1, pp. 88-127.
48. Putnam R. *Making Democracy Work: Civic Tradition in Modern Italy*. Princeton: Princeton University Press, 1993.
49. Putnam R.D., Leonardi R., Nanetti R.Y. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton: Princeton University Press, 1993.
50. Putnam R., Helliwell J. Economic Growth and Social Capital in Italy. *Eastern Economic Journal,* 1995, no. 21 (3), pp. 295-307.
51. Putnam R. Bowling Alone: America's Declining Social Capital. *Journal of Democracy,* 1995, January, pp. 65-78.
52. Putnam R.D. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster, 2000.
53. Rose R. How Much Does Social Capital Add to Individual Health? A Survey Study of Russians. *Social Science & Medicine,* 2000, vol. 51, no. 9, pp. 1421-1435.
54. Safford S. *Why the Garden Club Couldn't Save Youngstown: Civic Infrastructure and Mobilization in Economic Crises. Working Paper.* MIT Industrial Performance Center, 2004.
55. Safford S. *Why the Garden Club Couldn't Save Youngstown: The Transformation of the Rust Belt*. Harvard University Press, 2009.
56. Sobel J. Can We Trust Social Capital? *Journal of Economic Literature,* 2002, vol. 40, pp. 139-154.
57. Szreter S., Woolcock M. Health by Association? Social Capital, Social Theory, and the Political Economy of Public Health. *International Journal of Epidemiology,* 2004, vol. 33, pp. 650-667.
58. Tabellini G. Culture and Institutions: Economic Development in the Regions of Europe. *Journal of the European Economic Association,* 2010, vol. 8 (4), pp. 677-716.
59. Twigg J.L., Schecter K. Social Capital. *Social Capital and Social Cohesion in Post-Soviet Russia*. Armonk: M.E. Sharpe, 2003. Pp. 168-188.
60. Uslaner E. *The Moral Foundations of Trust*. New York: Cambridge University Press, 2000.
61. Wilson W.J. *The Truly Disadvantaged: the Inner City, the Underclass and Public Policy*. Chicago: University of Chicago Press, 1987.
62. Whiteley P. Economic Growth and Social Capital. *Political Studies,* 2000, vol. 48, no. 3, pp. 443-466.
63. Woolcock M. Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework. *Theory and Society,* 1998, no. 27 (2), pp. 151-208.
64. Woolcock M., Narayan D. Social Capital: Implications for Development Theory Research and Policy. *World Bank Research Observer,* 2000, no. 15 (2), pp. 225-251.
65. Woolcock M. Exploring Social Capital Debates at the World Bank. *Journal of Development Studies,* 2004, no. 40 (5), pp. 33-64.
66. Woolcock M. The Place of Social Capital in Understanding Social and Economic Outcomes. *Isuma: Canadian Journal of Policy Research,* 2001, vol. 2:1, pp. 1-17.
67. Zak P.J., Knack S. Trust and Growth. *Economic Journal,* 2001, vol. 111, pp. 295-321.

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Sociological Aspects of Rotational Employment in the Northern Territories of Western Siberia*

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Abstract. The article describes features of the lifestyle associated with rotational employment system in developing oil and gas resources of Northwestern Siberia. It shows the change in conceptual approaches to the organization of commuting, the dynamics of key parameters, the socio-cultural features of mobile and multilocal lifestyle of commuters. The consideration of the rotational method as complex and significant for the implementation of the tasks set for the Arctic and subarctic areas of Russia has allowed to reveal the interaction system of basic elements of commuting and offer more efficient tools and technologies as compared to traditional management. The author presents some results of the sociological research in the oil and gas companies located in Northwestern Siberia. The work discloses the factors of negative impact of commuting on health, physical and social well-being of people leading "double" and mobile lives. They are the following: need for long stay in closed space with strangers, differences in natural conditions of places of residence and work (pressure drops, oxygen deficiency in the North, light aperiodicity, food and water quality, cold and mosquitoes, separation from family, etc.), increased physical and emotional stress. The surveys of employees on rotation, their families and management of the enterprises using this method in the oil and gas areas of the Western-Siberian North, conducted by the author for four decades, have given the opportunity to identify the causes of people's dissatisfaction with conditions of their life, their attitude to authorities and different aspects of organization of production and life, transportation from place of residence to place of employment and back, etc. Geography of fly-in fly-out transportation and the level of satisfaction with various elements of such work have recently changed. The priority importance of payment

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for labor efforts has only preserved. Besides, if in the Soviet period of development of northern oil and gas resources the workers were employed in the Middle Ob region, nowadays the fall in oil production volumes has encouraged the formed groups of workers to begin working for the development of Eastern Siberia, Yamal, etc. The article substantiates the necessity of developing new interdisciplinary research on the basis of acquired results to mitigate negative social consequences of commuting and implementing a sociological monitoring system.

Key words: commuting, multilocal lifestyle, social monitoring, Northwestern Siberia, circumpolar regions, oil and gas production company, Arctic and Subarctic.

The critical need in non-traditional forms of work organization that meet the challenges of production in underdeveloped areas with extreme climatic conditions has originated due to intensive formation of the oil and gas complex in Northwestern Siberia. Provision of cost-efficiency, high labor mobility and presence of staff have been required.

Aside from a lack of production, construction, communication and human resources of the undeveloped areas there is an acute problem of extreme natural-climatic conditions, as the main volume of oil and gas fields are located in the high latitude circumpolar region of the country. Commuting is the only acceptable way to organize production in such conditions.

The idea of commuting is not innovative. According to the archaeological excavations in Egypt, nearby the pyramids there are remains of camps, where commuters lived [6].

In the world practice this form of work organization is widely used both in the development of new territories, construction of large industrial and infrastructure facilities in remote areas and in industry, mainly mining, forestry, branches with seasonal activities, geology, etc. The rotational system differs from shift work, as mobile units regularly travel to objects located so far from the enterprise that the daily return of workers to place of residence becomes either impossible or uneconomic. In Russia the first rotational method was widely applied in the early 1950s in the development of Oil Rocks in the Caspian Sea.

In general, this concept is taken from nautical terminology, where it means the duty on the ship ensuring the continuity of its service. The term is more widely used in other fields.

In the late 1960s due to the need of developing new sparsely populated territories the authorities realized the idea of a "rotational expedition method" to provide new remote work sites with qualified personnel from other regions.

In the Tyumen Oblast the interregional form of the rotational expedition method was first experimentally implemented on a large scale during Kara oil and gas exploration expedition in 1974, when rotational teams flew to work from Tyumen to Yamal (Kharasavey) [3].

In the 1930s, the beginning of Soviet colonization of the Far North, the following development model was adopted – a new town is built close to the new deposit (or group of deposits). In such a way the following cities appeared: Norilsk, Nadym and the rotational village of Pangody – during the development of the Medvezhye Gas Field, Novy Urengoy – the Urengoy Gas Field, Nizhnevartovsk and Megion – the Samotlor Field.

The region formed a unique urban system, differentiated by heterogeneous territory of the Tyumen North. In the Middle Ob region towns were created near each medium and large oil deposits. So, 17 new towns and dozens of villages appeared for less than 2 decades. The situation is different in gas producing Subpolar and Polar Regions. The innovative category of settlements – rotational villages (r.v.) –emerged there: r.v. Pangody in Nadymsky District, r.v. Yamburg and r.v. Novo-Zapolyarny in Tazovsky District of Yamalo-Nenets Autonomous Okrug, r.v. Vyngapurskiy in Noyabr'skiy District, r.v. Pioneer in the Tomsk Oblast, etc.

Hence, if Khanty-Mansi Autonomous Okrug has an extensive network of settlements, new major cities, such as Khanty-Mansiysk, Nefteyugansk, Surgut, Kogalym, Langepas, raduzhnyy and others, Yamalo-Nenets Autonomous Okrug –only Novy Urengoy, Nadym and Noyabrsk.

At the same time, in the Soviet period of the oil and gas complex formation the northern settlements of the Tyumen Oblast were considerably ahead of other Russian regions by level of residents' income, but lagged behind by living standard and social infrastructure development. Extreme cold, low-quality water, mosquitoes, lack of fresh vegetables and fruits and lack of oxygen characterize life conditions of the North, which presuppose higher wages than in central and southern parts of the country.

Compared to other countries, the Russian North, in general, and the northern part of the Tyumen Oblast, in particular, are distinguished by relatively high density of the resident population in the field of natural resources development (in Khanty-Mansi Autonomous Okrug – 2.9, in Yamal-Nenets Autonomous Okrug – 0.7 person per 1 km^2).

At the same time, there is practically no staff qualified in gas and oil processing among the North residents. Meanwhile, for the last 25 years of intensive development the population of Khanty-Mansi Autonomous Okrug has increased 5-fold, Yamalo-Nenets Autonomous Okrug – 6-fold and in 2010 amounted to 1,528.6 thousand and 546.5 thousand people, respectively.

The development concept changed in Russia only in the mid 1980s – 20 years after the formation of the West Siberian oil and gas complex. Novy Urengoy was the last major city established under the old model. The rotational model was adopted as a basis during the development of the next gas giant – Jamburg. The new city was not built; Yamburg was created as a rotational

village for accommodation of staff without family members, who have reduced free time. So, though basic social infrastructure objects are limited, some support functions are expanded, in particular in the field of nutrition and consumer services, usually performed by the family. For greater mobility rotational settlements are constructed from lightweight and dismountable modules of high degree of prefabrication. As a rule, they have built-in or bundled-supplied engineering equipment and furniture.

Nowadays the rotation method is legally regulated by the Labor Code of the Russian Federation, which determines a length and a schedule of work, a system of remuneration and allowances, an employment period of personnel and some general limitations. It should be noted that this legislation does not establish standards of health care and industrial sanitation, organization of a rotation village, nutrition of workers, etc.

Thus, the Labor code contains some framework principles to organize commuting and in each particular case it is necessary for all interacting entities associated with rotational labor organization (heads of enterprises, administrations of northern territories, other federal, regional and municipal structures) to conduct sociological, economic, biomedical and other studies, implementing a multidisciplinary approach to making managerial decisions and adopting necessary regulatory documents.

At the same time, the state authorities have recently refused to regulate the organization of commuting and give complete control to the companies. The research in the rotational method has decreased as well. Russia has not recently hosted any conference devoted to the study of the problems of commuting. Meanwhile, many countries, on the contrary, encourage this work. Especially large interdisciplinary research is conducted in Australia and Canada and also at the University of Vienna [8, 9, 11, 12].

It should be noted that the use of long-distance commute work in Russia has been constantly expanding since the 1960s. Only in the post-Soviet period in 1991–2011 it more than tripled and today one of four workers is a commuter in Yamalo-Nenets Autonomous Okrug. In Northwestern Siberia, in general, the share of commuters is a bit lower, but greater than 10% of the total employment. This area invites employees from old oil and gas producing regions (the Republic of Bashkortostan, the Republic of Tatarstan), residents of the Russian stagnating heartland and CIS countries. The volume of used labor resources from other areas is increasing today in the region (*tab. 1 and 2*) will grow even more in the foreseeable future, given the planned amount of work to develop the Yamal Peninsula and continental shelf of northern seas.

To be ready for this, it is necessary to draw attention to the need for multi-disciplinary research and analytic studies of all problems associated with the large-scale use of commuting.

Table 1. Number of commuters in Khanty-Mansi Autonomous Okrug – Yugra, thousands of people

Employment industry	2009		2010	2011
	Total	Including an interregional form	Total	Total
Total	69.3	65.1	72.3	69.7
Extraction of energy resources	35.8	32.8	48.9	48.5
Geological exploration	3.1	2.9	-	-
Construction (including drilling)	20.9	20.1	11.1	9.1
Transport and communications	5.7	5.6	6.2	6.0
Electricity	2.2	2.1	1.7	1.7
Social infrastructure	5.5	5.3	3.2	1.3

Source: compiled by: *Ekonomicheskie i sotsial'nye pokazateli rayonov Kraynego Severa i priravnennykh k nim mestnostey Statist. byulleten'* [Economic and Social Indicators of the Far North and Equated Localities: Statistic Bulletin]. Moscow: Rosstat, 2012.

Table 2. Number of commuters in Yamalo-Nenets Autonomous Okrug, thousands of people

Employment industry	2009		2010		2011		2012	
	Total	Including an interregional form	Total	Including an interregional form	Total	Including an interregional form	Total	Including an interregional form
Total	84.1	66.3	75.5	58.7	82.9	63.9	90.1	71.3
Extraction of energy resources	68.7	54.1	62.0	48.4	69.6	54.1	75.7	60.5
Geological exploration	27.5	18.4	27.6	18.5	26.9	17.0	27.0	16.7
Construction (including drilling)	19.2	16.7	18.1	15.8	21.4	18.7	26.8	24.5
Transport and communications	15.1	13.1	14.1	12.1	16.7	14.7	18.8	16.6
Electricity	2.7	2.0	3.6	2.7	4.0	3.1	4.3	3.3
Social infrastructure	2.5	2.2	2.2	2.0	2.0	1.8	1.8	1.6

Source: compiled by: *Ekonomicheskie i sotsial'nye pokazateli rayonov Kraynego Severa i priravnennykh k nim mestnostey Statist. byulleten'* [Economic and Social Indicators of the Far North and Equated Localities: Statistic Bulletin]. Moscow: Rosstat, 2012.

It is required to identify all latent problems, their hierarchy and interaction and find possible solutions, evaluating their effectiveness. Anyway, they are associated with different elements of rotational labor organization (*fig. 1*) and the management mechanism (*fig. 2*), which consists of 3 blocks, reflecting commuters' activity in place of residence, place of employment and in the process of movement from one

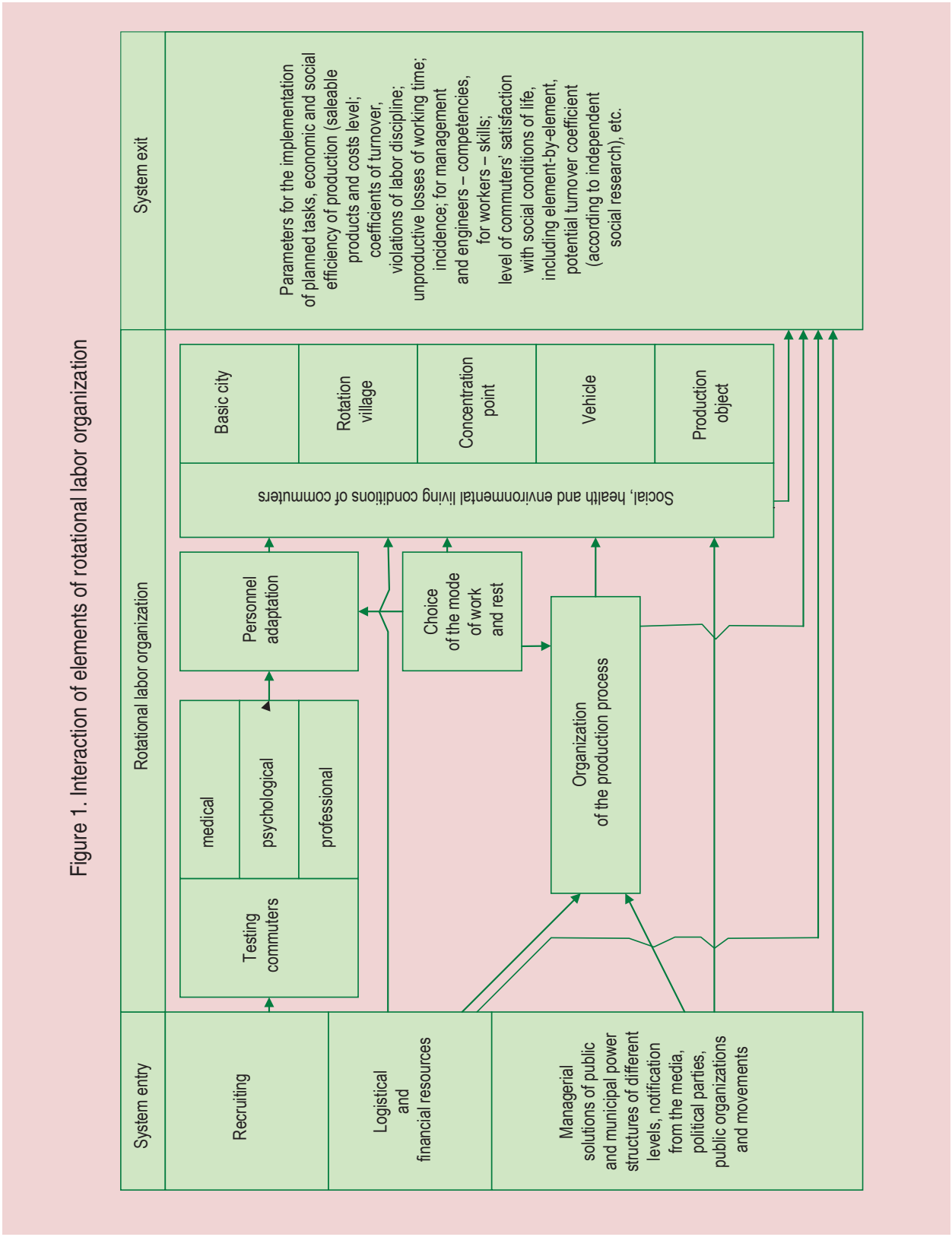

Figure 1. Interaction of elements of rotational labor organization

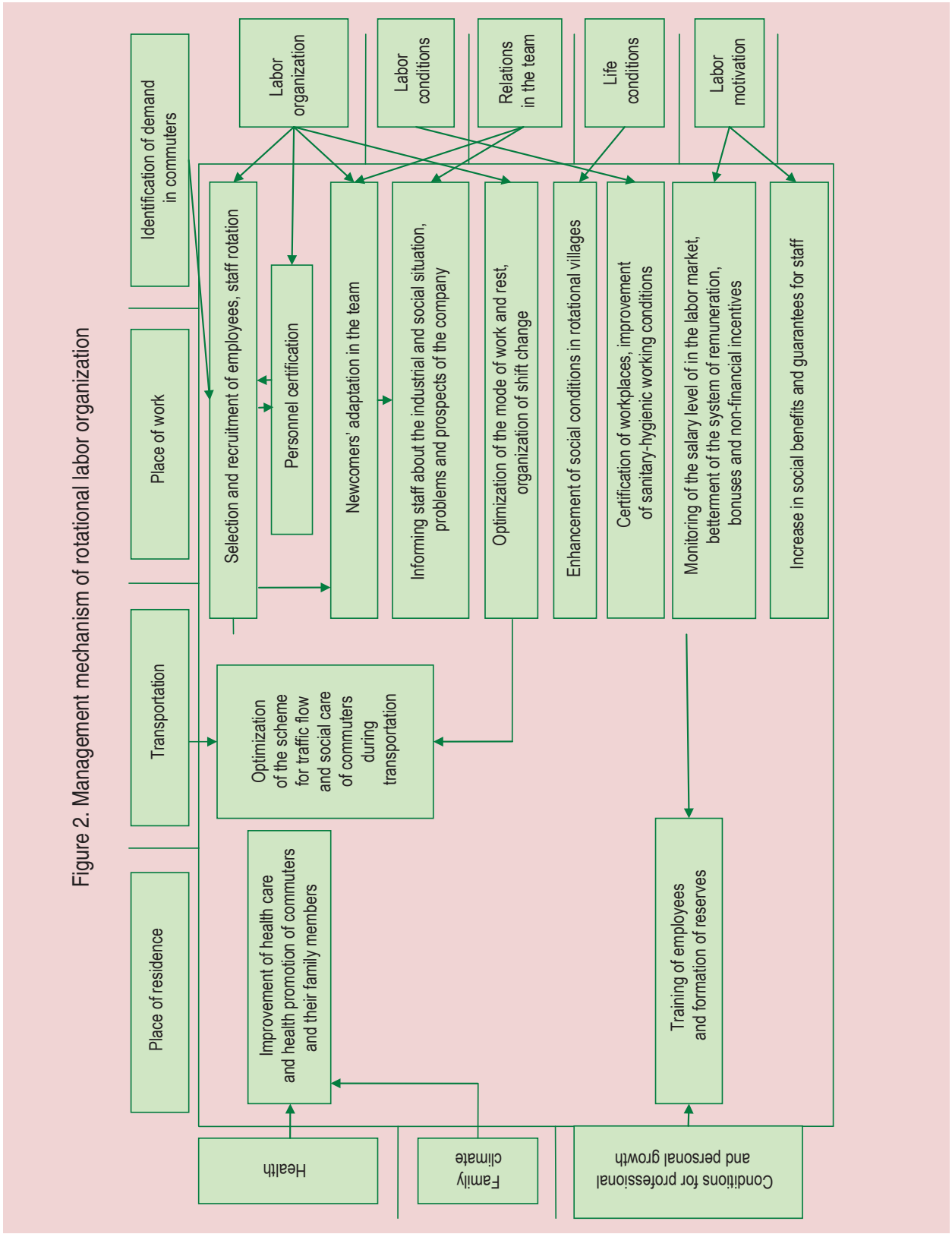

Figure 2. Management mechanism of rotational labor organization

place to another [10]. The model and the mechanism presented in figures 1 and 2 reflect a conceptual approach to the methodology of the conducted sociological research, which, in our opinion, should be interdisciplinary and include a wide range of issues, such as nutritional standards, aesthetic arrangement of social and cultural space in rotational villages, psychological features of commuting, etc. So, it is important to consider information and visual pressure of shift work due to insufficient spatial and excessive time limits and socio-psychological load due to prolonged social isolation in a small group.

Life in motion, a mobile lifestyle of commuters requires continuous comprehensive research of sociologists, psychologists, physiologists, lawyers, anthropologists and representatives of other scientific fields. Commuters themselves evaluate their life as "consisting of two halves" or just "double".

It is clear that different values and views on life of uneven-aged workers, representatives of different regions, ethnic groups and religions, inevitably sharing a room for a long time, can lead (and lead) to conflicts, negative impacts on the psycho-emotional state of employees on rotation and conditions for their relax after a hard shift. Commuters arriving in the North from different region bring here values of their subcultures, which often contradict with each other [5].

In this case, commuting lacks the element of social infrastructure, which can not be created even having any investment. It is socio-spiritual space, including parents and other relatives, grandparents, cemetery, where close people are buried. Thus, many northerners-stationary workers have difficulties with their identity; they are not sure where there is their home: here in the North, where they have lived long or in the place where they came from. Even those who have spent most of their adult life in the North, consider themselves as temporary workers

Commuting as a social phenomenon is like an iceberg, with periodic movement of a person from place of permanent residence to place of work being its top. However, it contains diverse social phenomena and processes related to the characteristics of life of commuters, their implementation of production tasks, adaptation and socialization in the non-traditional environment, including development and settlement of new territory, creation of new socio-territorial communities, etc.

The rotational method of work organization has different adverse effects on person's health, for example, long stay with strangers. The North does not only give anything, but also takes something in return: in the Far North the lack of oxygen amounts to 30% compared to the midland of Russia. Chronic oxygen deficiency, sudden pressure changes within a short period of time lead to the development of cardiovascular disease, the change of pressure level of a person, contribute to the rise in blood sugar. The medical and

physiological studies do not recommend working in the Far North for more than 5–7 years without a break.

When hiring employees an employer considers the state of health of candidates who undergo a medical examination to confirm the absence of contraindications to work in unfavorable circumstances. Besides, the constant change of climate due to movement across time and climate zones can not but affect the human body. An employee, permanently residing in the territories bordering the West Siberian region, endures labor conditions in the Far North than an employee from the midland of Russia and especially from the southern regions of the country.

The work of commuters involves high emotional stress. Suffice it to say that their average work week, depending on the mode of work and rest, amounts to 50–60 hours, which is significantly above the standard 40 hours. It is worsened by many emotional factors (cold, mosquitoes, light aperiodicity in the polar night, need for constant adaptation and re-adaptation, recurrent communication relations in rotational villages, domestic troubles, caused by separation from family, thoughts about children, etc.). Stress leads to frustration, emotional "burnout" and mental illness.

Thus, our sociological research is aimed at identifying social aspects of the rotational labor organization in the circumpolar areas and on this basis developing the technologies that minimize negative effects of a mobile multilocal lifestyle of commuters and improve their quality of life.

The author studied the social processes associated with commuting in the West-Siberian North since 1974 to date, analyzing the dynamics of changes and its influencing factors. Commuters, their families and experts were regularly surveyed. The majority of commuters (82–88%) are satisfied with their lifestyle and not going to return to the traditional way of life.

The methodological tools (questionnaires, expert surveys, etc.), developed by the author, remained the same, which allowed us to analyze the dynamics of changes. The survey was conducted in the workplace in the period between shifts, hostels, educational and training centers, concentration points, airports and helipads while waiting for transport.

Sampling based on the territorial and socio-demographic criteria for the selection of observation units consisted of 2 stages: the first involves the selection of settlements according to their status in the system of settlement and industry specialization, the second – the selection of respondents according to the social structure and labor experience in commuting [4]. Meanwhile, many elements of the social situation associated with rotational work have changed over the years (*tab. 3*).

Thus, in the Soviet period commuters were most displeased with transportation associated with long waiting for transport in unsuitable places and social services in rotational villages. I often had to visit them and watch how people slept on dirty

Table 3. Change in the acuteness of problems in the teams of commuters (rank 1 – most relevant)

Problems	Significance rank by year		
	1990	2005	2014
Dissatisfaction with payment	1	1	1
Poor working conditions	2	3	3
Dissatisfaction with logistical support	8	4	6
Inefficient organization of production	5	3	2
Bad care of managers about employees	4	8	4
Lack of information about the state of affairs in the organization	6	5	7
Bad living conditions	7	6	5
Dissatisfaction with transportation	3	7	8

mattresses without bed linen and workers returned from a shift waited for free place to rest. After it I experienced culture shock, having visited a rotational village in Alaska. In the post-Soviet period these two problems have been largely solved.

Employees' dissatisfaction and related conflicts in commuter teams in recent years are caused by insufficient wages and delayed payment associated with leaving for home. According to table 3, this factor remains the most important for commuters during the entire period of the study.

In addition to commuters' evaluations of various aspects of their life, the geography of transportation has changed over the years. If in the Soviet period the Tyumen North attracted mainly oil industry workers from Azerbaijan, gas workers from Ukraine, builders from the Baltic States and Armenia, in the post-Soviet years – commuters from different regions of Russia, Kazakhstan and other Central Asian countries.

Many respondents single out the inability to be alone as one of their main problems. Meanwhile, it is known that this ability helps a person not only reflect and introspect, but also relieve emotional stress.

It is found out that the employees who have greater rotational experience suffer from insomnia, feelings of emotional exhaustion, lack of appetite (or overeating), abuse of nicotine, coffee and alcohol.

The relevance of research in commuting is associated not only with the need for new natural resources in the North and the East of the country. The rotational method is important for many citizens of Russian settlements and border territories of the CIS with a high level of unemployment. The work in the North is almost the only opportunity to improve a level and quality of life. Therefore, it is necessary to study both regional social issues (at places of permanent residence and work) and problems of inter-regional cooperation

and, first of all, of strengthening the role of civil society institutions, which could have a significant influence here [1].

Thus, in spite of the problems commuting has significant potential for all related parties: commuters, their employers, Northern cities and regions-donors of the workforce. This quite flexible technology can reduce costs and time required to accomplish goals, timely respond to the dynamic market situation and adapt to the changes in demand. In addition, the rotational work organization method can significantly reduce an unemployment rate, promote social mobility of workers and their family members and enhance a level and quality of their lives.

Commuters connect various socio-economic spaces of the "Mainland" and the North, significantly affecting both.

It is clear that commuting requires much more organizational effort than traditional. In addition to the common management functions it is necessary to organize delivery according to the scheme "basic city – rotational village – deposit", provide commuters with social services, etc.

In general, commuting is economically beneficial due to reduced costs of all resources for the creation and maintenance of settlements and less number of workers of oil and gas production there (Tatarstan, Bashkiria, etc.); employees retain usual conditions in the inhabited areas of the country, as their families are not relocated to a new place of residence.

Social aspects of commuting are not so unambiguous. Although the majority of respondents assess it positively and do not want to work differently, there are objective negative factors that require special studies. Primarily they are connected with frequent and significant movements in space (climate-zonal contrasts, temporal gradients, changes in the quality of food and water, epidemiological and radiation environment, etc.), violations of daily routine, raised labor intensity, physical and psycho-emotional loads, long periods of life without family (insufficient participation in upbringing children, changes in sexual life), etc. All this sooner or later leads to significant deterioration of people's health and ultimately affect health of future children. The medical researches confirm irreversible changes in people's health living over 10 years in the Extreme North, and undesirability of the sharp change of climatic zones for subsequent permanent residence. In addition, life in rotational villages and closed groups with little personal space requires special personal qualities: social flexibility, ability to get on with the team and accept group norms and values.

Social dissatisfaction can manifest itself in the negative attitude to power structures and lead to protest actions. We studied a level of trust in different state institutions and authorities among northerners (*tab. 4*).

So, most respondents have little trust in power structures and their representatives.

Table 4. Trust in the authorities among northerners, %

Trust level		Ordinary employees	Commuters
2007 survey	Trust	25.6	32.8
	Do not trust	40.9	25.4
	Difficult to answer	33.8	41.8
2010 survey	Trust	26.2	31.2
	Do not trust	30.1	41.4
	Difficult to answer	43.0	27.4
2013 survey	Trust	25.5	28.4
	Do not trust	38.7	28.6
	Difficult to answer	36.3	43.0

However, the level of distrust among permanent residents of the North is much higher than among mobile workers from other regions.

The impact of commuting on the environmental situation in the Northern region is also ambiguous. On the one hand, employees on rotation spend here much less time than the resident population, live without second and third family members and require the construction of smaller volumes of social facilities. Therefore, anthropogenic pressure on natural landscapes and negative impacts on living conditions of aboriginal people are significantly reduced. However, commuters have an obvious negative subjective impact, as they are temporary workers, not owners of this land.

Complex social and labor problems are registered in the oil companies in the Middle Ob region, which the volume of hydrocarbon production is sharply reduced and the maintenance of the existing teams requires the application of their labor potential in other regions. It presupposes the extensive use of the rotational work organization method in the future; however, its paradigm is radically changed: nowadays employees from other regions do not fly to the Ob North and resident oil industry workers are employed on a large scale in Eastern Siberia, Yamal, etc.

Since December 2012 UTair Aviation operates charter rotation flights to Talakan airport of the Sakha (Yakutia) Republic from Surgut with the aircraft "Boeing 737" in support of OJSC "Surgutneftegas". Commuters arrive there due to UTair regular flights from various points. Then passengers continue flying to remote work sites by helicopter provided by UTair and based at the airport. In the reverse direction commuters fly home after finishing work. The complete transportation cycle with airplanes and helicopters of the same airline helps optimize routes and delivery time of workers, saves time and reduces cost of the customer.

In 2013 84,218 passengers were transported in the direction Surgut–Talakan–Surgut. The development of the Talakan field will stimulate the increase in traffic through Talakan due to the opening of regular flights for people living in the remote areas of Yakutia, the Irkutsk Oblast and Krasnoyarsk Krai in the coming years [2].

However, there are still many social and managerial problems of effective rotational work organization: social well-being of employees, preservation of their health, need to improve their standard of living, etc. Social processes taking place in commuters teams in the North require careful study and development of adequate management mechanisms and technologies aimed at improving the social situation and making commuters from "human resource" into social actors.

It is necessary to create social technologies neutralizing the impact of negative aspects of commuting. We are talking primarily about technologies to select workers, able to work in the North, their adaptation, effective work motivation, choice of modes of work and leisure, transportation, social services, etc. The list also includes social benefits and guarantees for commuters and mechanisms of interaction between companies and public authorities in the places of permanent residence of commuters and the places of their work.

The author has developed, tested and implemented such technologies in the form of rotational work standards and regulations for the departments of Glavtyumen'geologiya, one of the largest subsidiaries of Gazprom – LLC "Gazprom dobycha Yamburg" and OJSC Var'eganneft'. Obviously, that requires constant monitoring and, if necessary, adjustment, with the situation dynamics being taken into account.

Commuting should be scientifically supported by sociological, biomedical, economic, legal, psychological and other studies. The monitoring system is required to regularly control changes in the economic situation and social processes in commuters teams and take timely and necessary corrective management measures.

References

1. Markin V.V. Regional'naya sotsiologiya i upravlenie: "dorozhnaya karta" vzaimodeistviya [Regional Sociology and Management: a "Roadmap" for Interaction]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2014, no. 5 (35), pp. 135-142.
2. Ol'khovskaya U. Polnyi vakhtung [Integrate Commuting]. *Ekspert-Sibir'* [The Expert-Siberia], 2011, no. 44, pp. 10-14.
3. Silin A.N. O netraditsionnykh formakh organizatsii truda na Krainem Severe [On Alternative Forms of Work Organization in the Far North]. *Sotsiologicheskie issledovaniya* [Sociological Studies], 1987, no. 4, pp. 76-78.

4. Silin A.N. Mezhregional'noe ispol'zovanie chelovecheskikh resursov na Krainem Severe [Interregional Use of Human Resources in the Far North]. *Sotsiologicheskie issledovaniya* [Sociological Studies], 2011, no. 9, pp. 41-47.
5. Silin A.N. Mul'tilokal'nost' obraza zhizni: opyt sotsiologicheskogo issledovaniya [Multilocality of a Lifestyle: Experience of Sociological Research]. *Obshchestvo i sotsiologiya v sovremennoi Rossii* [Society and Sociology in Modern Russia]. Vologda: ISERT RAN, 2015, pp. 41-44.
6. Khaitun A.D. *Ekspeditsiono-vakhtovoe stroitel'stvo v Zapadnoi Sibiri* [Expedition-Rotational Construction in Western Siberia]. Leningrad : Stroiizdat, 1982. 176 p.
7. Belonozko M.L., Silin A.N. Russian North: Change of Social. *Viddle – East Journal of Scientific Research*, 2013, no. 16 (2), pp. 150-155.
8. Buscherm Urry J. Mobil Methods and the Empirical. *European Journal of Social Theory*, 2009, no. 12 (1), pp. 99-116.
9. Saxinger G., Öfner E., Shakirova E. Ich bin bereit – Die Nächste Generation Mobiler Fachkräfte in der Russischen Erdgas – und Erdölindustrie. *Austrian Studies in Social Anthropology*, 2014, no. 2, pp. 1-24.
10. Silin A.N. Long Distance Commuting in Oil and Gas Production Industry in the Northwestern Siberia: Sociological Analysis of Change. *Mediterranean Journal of Social Sciences,* 2015, no 3, pp. 199-206.
11. Storey K. Fly-in. Fly-out: Implications for Community Sustainability. *Sustainability*, 2010, no. 2, pp. 1161-1181.
12. Weichhart P. Multilocalitat Konzepte, Tgeorie Bezuge und Forschungsfragen. *Informationen zus Rauman Twicklung*, 2009, no. 1(2), pp.1-14.

Cited Works

1. Markin V.V. Regional Sociology and Management: a "Roadmap" for Interaction. *Economic and Social Changes: Facts, Trends, Forecast*, 2014, no. 5 (35), pp. 135-142.
2. Ol'khovskaya U. Integrate Commuting. *Expert-Siberia*, 2011, no. 44, pp. 10-14.
3. Silin A.N. On Alternative Forms of Work Organization in the Far North. *Sociological Studies*, 1987, no. 4, pp. 76-78.
4. Silin A.N. Interregional Use of Human Resources in the Far North. *Sociological Studies*, 2011, no. 9, pp. 41-47.
5. Silin A.N. Multilocality of a Lifestyle: Experience of Sociological Research. *Society and Sociology in Modern Russia*. Vologda: ISERT RAN, 2015, pp. 41-44.
6. Khaitun A.D. *Expedition-Rotational Construction in Western Siberia*. Leningrad : Stroiizdat, 1982. 176 p.
7. Belonozko M.L., Silin A.N. Russian North: Change of Social. *Viddle – East Journal of Scientific Research*, 2013, no. 16 (2), pp. 150-155.
8. Buscherm Urry J. Mobil Methods and the Empirical. *European Journal of Social Theory*, 2009, no. 12 (1), pp. 99-116.
9. Saxinger G., Öfner E., Shakirova E. Ich bin bereit – Die Nächste Generation Mobiler Fachkräfte in der Russischen Erdgas – und Erdölindustrie. *Austrian Studies in Social Anthropology*, 2014, no. 2, pp. 1-24.
10. Silin A.N. Long Distance Commuting in Oil and Gas Production Industry in the Northwestern Siberia: Sociological Analysis of Change. *Mediterranean Journal of Social Sciences*, 2015, no 3, pp. 199-206.

11. Storey K. Fly-in. Fly-out: Implications for Community Sustainability. *Sustainability*, 2010, no. 2, pp. 1161-1181.

12. Weichhart P. Multilocalitat Konzepte, Tgeorie Bezuge und Forschungsfragen. *Informationen zus Rauman Twicklung*, 2009, no. 1(2), pp.1-14.

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Analysis of migration flows of the population of the Vologda Oblast districts

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Abstract. The article presents the research on the main directions and scale of migration in municipal districts of the Vologda Oblast and considers the main types of migration and the specifics of their statistical accounting. The data by Rosstat served as a basis upon which a general analysis of migration dynamics in the Vologda Oblast districts was carried out; and the article presents its periodization. Three main periods are defined: the "migration shock" of 1991–1999 after the collapse of the Soviet Union, the migration stability of 2000–2008 and the post-crisis rural out-migration that began in 2009 and is increasing year by year. At the same time, gross migration indicators have shown high sensitivity to significant socio-economic change, in particular, to the economic crises of 1999 and 2008. The article describes the main age and gender characteristics of migrants, it has been determined that the most active migrants are girls aged 15–29, who move from rural to urban settlements. In general, it is the young people aged 15–34 who are most likely to migrate. The author has found out that most of the Vologda Oblast districts are characterized by a higher outflow of the population, which is in some places restrained by a relative migration attractiveness of a number of areas. The author has found out that most districts of the Oblast are characterized by a higher outflow of the population, which is sometimes restrained by relative migration attractiveness of some areas. The author highlights the region's territories with the highest migration attraction; in the long run they can play the role of "growth points" in the region; these territories comprise Velikoustyugsky and Chagodoshchensky districts, as well as several districts of the central part of the Vologda Oblast – Ust-Kubinsky and Vologodsky. The author also points out the territories that suffered the most from out-migration: Kichmengsko-Gorodetsky, Vashkinsky, Babushkinsky, Nyuksensky, and Kharovsky districts. Timely and targeted support provided to these territories will help to curb out-migration and thus contribute to an even and sustainable development of the region.

Key words: municipal districts, rural area, migration, growth points.

Increase in the mobility of rural population essentially shows economic growth of a state and globalization and modernization of a society. This is reflected in occupational mobility (withdrawal from employment in agriculture) and in spatial mobility (migration of rural population to big cities) [20]. The fact that working population is gradually leaving agriculture with its low wages and lower dependence on the number of workers is a natural result of modernization processes, and in general it can have a positive impact on economic development. At that, rural residents themselves more and more often abandon farming due to the low profitability of the industry [17, p. 14]. At the same time, the economic effect of spatial mobility growth, which is manifested mainly in migration, is not so clear. On the one hand, migration plays an important role in the distribution of labor on the regional labor market. Territorial redistribution of specialists allows a greater number of enterprises to use the best practices of high-tech production. Migration inflow to cities with low natural increase supplies them with employees. Educational migration raises the general level of education and training of the population and of the region [10]. The relationship between spatial and professional mobility is also important, which is due to the reduction in the number of agricultural workers in favor of more economically attractive jobs, which are generally less in demand in rural areas. On the other hand, the outflow of people from underdeveloped areas and rural areas exacerbates the differences in economic development, leads to depopulation of villages and small towns, and creates obstacles to the smooth and sustainable development of regions [13, p. 47]. Thus, we consider it relevant to study internal migration in the region with a focus on municipal districts, the intensity of migration flows between which can significantly exceed foreign and interregional migration [9].

According to a modern definition, migration is the movement of population between different localities, placed either in one or in several areas [6, p. 179]. There are two main types of migration: return migration and migration without return. As the name implies, return (temporary) migration, regardless of the number of completed movements, presupposes a return to the starting point. Return migration is subdivided primarily on seasonal migration and commuting. Seasonal migration involves changing the place of stay for a limited period of time with a specific purpose (performance of seasonal work, training, vacation at a resort, etc.). Unlike seasonal migration, commuting is limited to a narrow time frame and is usually expressed as daily (or weekly) work or cultural and household trips (trip to work in the city, vacation out of town, etc.). Migration without return (of the resident population), by contrast, is associated with the "one way" movement, i.e. does not imply a return to the starting point. As a result, migration without return involves changing the place of residence, and return migration implies the change of the place of stay. In general, both types of migration

have a similar reason, which lies in the contradiction between the needs of an individual and the possibilities of satisfying them in the place of permanent residence. As noted, individual choice between permanent and temporary migration are determined by territorial remoteness and availability of migration opportunities (migration policy, affordability of housing, availability of jobs, difference in wages and price level, etc.) [16, p. 15].

Educational migration can help demonstrate the similarities and, at the same time, the differences between these types of migration. For example, a resident of Sokol (Sokolsky District) studying at a Vologda university, usually has to travel from his/her place of residence to the place of training, thus taking part in commuting. However, if there is an additional place in the hostel, and the student takes it, the duration of stay in Vologda will increase to several weeks or months, indicating the seasonal character of migration. If a student gets a part-time job, which will allow him/her to have the money to pay for accommodation in the city, he/she will be able to change the place of residence permanently and thereby participate in (from the point of view of terminology) migration without return. As a result, approximately identical prerequisites, depending on the conditions, lead to different types of migration and, consequently, are registered differently.

It is important to take into consideration differences between types of migration and their triggers (the factors) when analyzing migration flows, since this is directly connected with specifics of their statistics accounting. According to the Rosstat methodology, migration data are obtained from official statements of local offices of the Directorate of the Federal Migration Service of Russia, i.e. they include only information about permanent residential registration (place of residence), temporary registration at the place of residence for a period of 9 months or more [5, p. 403]. At the same time, we know that, of all kinds of spatial movements, only a small proportion is accompanied by the change of permanent residence (or long-term registration): the volume of commuting over the weekend in large cities and metropolitan areas may exceed the volume of permanent migration over a year [11]. Of course, in most cases, this statement does not concern international migration, which involves strict registration and control. Since, in accordance with the legislation of the Russian Federation, citizens have a formal freedom of movement, migration exchange within the Russian Federation is controlled to a much lesser extent. In this case, the data of the national statistics service allow us to estimate only the scale of migration without return and also certain special cases of seasonal migration (for example, living in a dormitory, which requires temporary registration). There is no opportunity to assess the volume of commuting on the basis of official statements, which excludes from the analysis a significant part of migration movements, primarily within the range of short distances.

Another significant limitation of migration statistics is its formal connection to the administrative-territorial division.

According to migration law[1], no citizen is obliged to undergo registration if the place of stay is in the same region as the place of residence. In other words, intraregional migration is registered only on a voluntary basis. Moreover, the movements within the same municipal district, even in case of registration, are not recorded in statistical accounting, despite the fact that the distance between two settlements in one district can be greater than when one moves from one district to another. As a result, statistics collections do not contain information about the volume of migration within a single municipal district, which makes the scope of the analysis even narrower.

Thus, unlike the statistics of international migration, impressive in its detailed description, intraregional accounting of migration exchange is inaccurate and fragmentary. In this regard, the analysis of migration between districts is inevitably accompanied by a number of assumptions. The first and basic assumption is equating the trends of registered migration without return to migration trends in general. The example above shows that temporary migration often leads to permanent migration. The author [11] points out that the presence of migration activity experience contributes to the formation of migration intentions in the future, i.e. a statistical indicator of permanent migration indirectly points to temporary migration. Another assumption would be the exception of intraregional migration from the analysis of overall migration flows. This may somewhat distort the findings on the highly populated municipal districts or districts with two or more relatively large (compared to villages) settlements, because migration activity within the district can play a significant role in them. However, with a reservation to the above mentioned limitations and assumptions, it is possible to carry out a general analysis of main migration flows in the Vologda Oblast.

The Vologda Oblast, which is the typical region of North-West Russia, is characterized by moderate migration outflow and natural decline, relatively high share of rural population (28.7% of the total population)[2]. The region is on the 3rd place in the Northwestern Federal District by the number of migrants and on the 2nd – by the intensity of intraregional migration [5]. It is worth noting that, compared with the indicators for earlier years (late 1990s – early 2000s), natural population growth has significantly improved, although it has not yet reached the level of the early 1990s *(tab. 1)*. However, a problem of migration outflow has become more acute, and, as in the case of a natural population decrease, the main losses occur in municipal districts. But since the main direction of migration is

[1] *O prave grazhdan Rossiiskoi Federatsii na svobodu peredvizheniya, vybor mesta prebyvaniya i zhitel'stva v predelakh Rossiiskoi Federatsii: FZ ot 21.12.2013 № 376* [On the Right of the Citizens of the Russian Federation to the Freedom of Movement, Choice of Place of Stay and Residence within the Russian Federation: Federal Law of December 21, 2013 No. 376].

[2] For comparison: in 2013 the average share of rural population in Russia was 26%, in the Northwestern Federal District – 16%.

Table 1. Indicators of natural and migration growth in the Vologda Oblast, people

Territory	1991	1994	1999	2003	2007	2010	2011	2012	2013
Net migration rate									
Regional balance	4657	7695	1574	339	441	-194	566	-1053	-1321
Municipal districts	3052	1363	639	793	-865	-3762	-3538	-3671	-3269
Large cities	1605	6332	935	-454	1306	3568	4104	2618	1948
Net rate of natural increase									
Regional balance	-109	-9337	-10098	-11770	-5331	-5072	-3210	-1297	-1504
Municipal districts	-991	-7492	-7006	-8354	-4115	-4180	-3235	-2291	-2251
Large cities	882	-1845	-3091	-3416	-1216	-892	25	994	747

Note. Net rate of increase is calculated as the difference between the number of incomers and leavers during a specific period.
Sources: compiled by the author; Demographic Yearbook of the Vologda Oblast for the years indicated; Munitsipal'nye obrazovaniya Vologodskoi oblasti, 1991–2000: stat. sbornik [Municipal Formations of the Vologda Oblast, 1991–2000: Statistics Collection]. *Vologodskii oblkomstat* [Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast]. Vologda, 2001. Pp. 129-148.

from districts to major cities of the region[3], the problem is practically not reflected in the statistics on the region as a whole.

Young people are traditionally considered to be the most active migrants [7]. This is also confirmed by the data on the Vologda Oblast: in 2013, the group aged 15–34 accounted for 52.2% of migrants. Out of them the urban population consists of 58.4% of incomers (11,187 people) and 53.9% of leavers (9,944 people), rural population consists of 39.9% of incomers and 59.9% of leavers. The most active migrants are girls aged 15–29; they are leaders in the number of outflows from rural areas (24.5% of the total number of leavers) and arrivals from the city (25.8% of the total number of newcomers). The destination of migration is another significant difference in migration of rural and urban population. Thus, the outflow of urban residents (primarily, residents of large cities) in other regions is almost as large as and the outflow in the communities of their own region (46.3 and 53.7% respectively), while the rural population moves primarily to the cities located within the Oblast (46.3% of the total migration outflow; *tab. 2)*.

The annual account of migration allows us to analyze the dynamics of this process. Since the collapse of the Soviet Union we can highlight three periods of migration in the districts of the Vologda Oblast; they are inextricably linked to socio-economic processes in the country as a whole. In the early and mid 1990s, as in most regions of the country, in the Vologda Oblast there was a significant in-migration of residents from the former Soviet states. This is the so-called "stress migration", when people who had been separated by new borders as a result of radical geopolitical transformations, tried to return home or to move to a country with

[3] Hereinafter, major cities are defined as cities with the population of 250–500 thousand people (Vologda, Cherepovets), which corresponds to the classification of the set of rules "Urban development. The planning and development of urban and rural settlements" (the Ministry of Regional Development of the Russian Federation).

Table 2. Migration in urban and rural areas of the Vologda Oblast in 2013

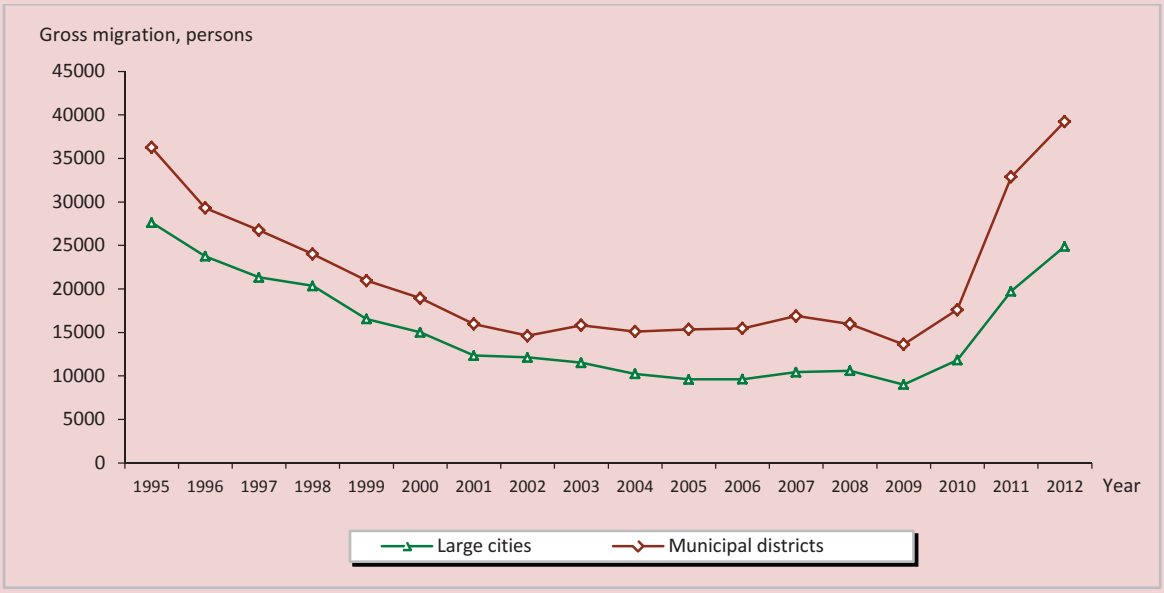
Type of migration	Number of incomers			Number of leavers			Migration increase (decline)		
	Total	From urban areas	From rural areas	Total	To urban areas	To rural areas	Total	At the expense of urban areas	At the expense of rural areas
Interregional urban	6599	4953	1646	8110	6786	1324	-1511	-1833	322
Intra-oblast urban	11111	3526	7585	9389	3519	5870	1722	7	1715
Interregional rural	3380	2561	819	3872	3002	870	-492	-441	-51
Intra-oblast rural	10824	5877	4947	12546	7602	4944	-1722	-1725	3

Note. Total migration balance in the Vologda Oblast in 2013 was 1,321 people.
Source: Demographic Yearbook of the Vologda Oblast, 2014.

supposedly better prospects [8]. The highest value of the indicator is marked in 1995, in which the region's population increased by 6,145 former foreigners (16.7% of the total inflow of the population). Since the late 1990s and up to the late 2000s, during a period of economic growth, most regions of the Center and North-West of the country were characterized by a decrease in the intensity of migration exchange. For instance, in the Vologda Oblast in 2009 the total number of migrants was only 11,359 incomers and 11,296 leavers, which is three times less than in 1995. Intraregional and interregional migration were approximately equal and together they accounted for more than 95% of the total migration flows in the region; consequently, the influx from abroad decreased significantly. In the post-crisis years (beginning in 2010) and at present there is a significant increase in the intensity of migration flows. During this period, intraregional migration accounted for approximately two-thirds (65.2%) of registered migration activity in the region: 21,935 out of 33,622 people in 2013. Another third (34.3%) of migrants leave the Vologda Oblast for other subjects of the Russian Federation, and the share of incomers is somewhat smaller (29.7%).

The Vologda Oblast can hardly be called an object of migration attractiveness for residents of other countries (northern climate, low wages and high prices, etc.); the intensity of international migration in the region is low: as of 2013, there are 1,708 incomers and 1,026 leavers; in both cases the share of arrivals from the CIS countries is over 90%. In general, the change in the intensity of migration flows can be examined by using the indicator of gross migration. Gross migration is calculated as the sum of the number of incomers and the number of leavers. This indicator indirectly indicates the spatial mobility of the population and helps to identify migration triggers. *Figure 1* presents trends in the intensity of migration in the municipal districts and major cities of the Oblast (Vologda and Cherepovets) in 1995–2012 (data for earlier years is limited or absent). The leap of migration, which was caused by the collapse of the USSR, and the peak of which was in the first half of the 1990s, changed to a relative decline in the period of economic growth in the 2000s; however, after the crisis of 2008–

Figure 1. Intensity of migration in large cities and municipal districts of the Vologda Oblast in 1995–2012



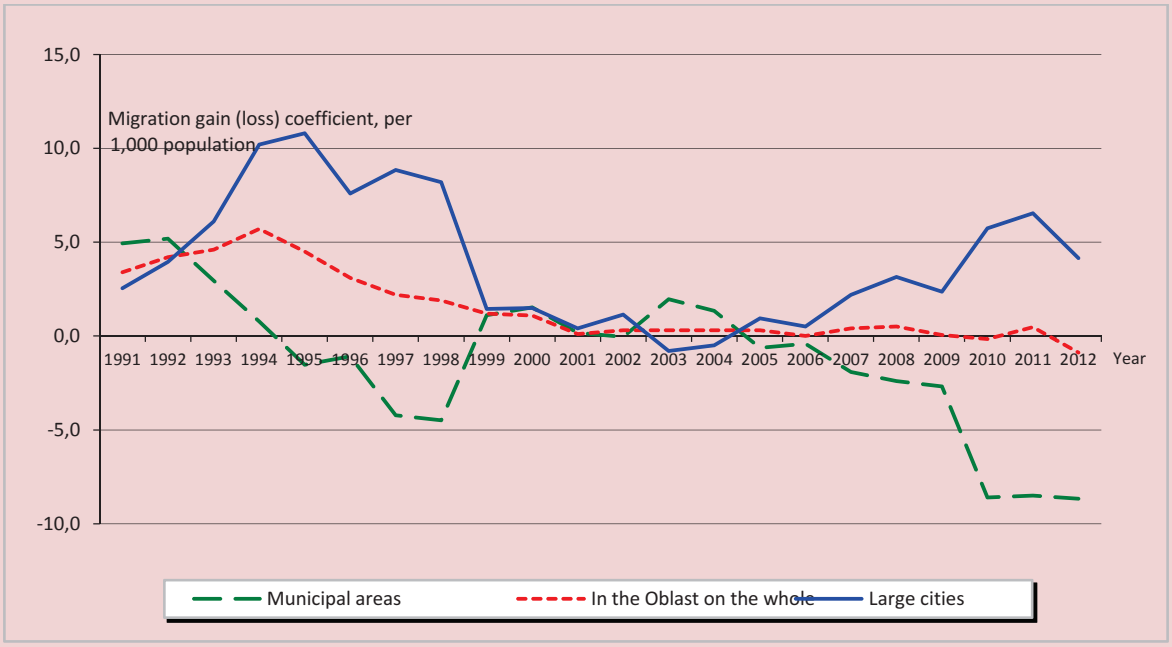
Note. Gross migration is calculated as the sum of migrants, who arrived and left in the specific period.
Sources: compiled by the author; Demographic Yearbook of the Vologda Oblast for the years indicated.

2009, migration increased sharply again. Moreover, the major part of migration was observed in municipal districts each year, despite their smaller total population compared to major cities (in 2012 – 565, 519 and 630,677 people, respectively).

It should be noted that given the greater intensity of migration exchange in municipal districts, there is a predominance of outflow over inflow. Unfortunately, on the basis of official statements it is impossible to find out clearly the direction of migration. However, one can reveal general patterns even with the data available, by comparing their graphical representations. For instance, by analyzing the lines of migration trends, one can observe an inverse relationship between the changes in the rate of net migration in the districts and major cities of the Oblast. If in 1993–1995 the inflow in major cities increased, then in municipal districts in the same period the index value decreased *(fig. 2)*. Towards the end of the 1990s, when international migration could not compensate for the outflow of the population in major cities, the district average migration inflow dropped below the zero mark. The figure shows how migration growth in major cities is accompanied by a migration decrease in municipal districts.

Although migration trends in major cities and in municipal districts are similar in their dynamics, there are considerable differences in migratory activity and the rate of migration gain between them. This may be due to different prerequisites for migration (territorial remoteness, conditions of work and

Figure 2. Average migration rate in the districts of the Vologda Oblast in 1991–2012



Note. The rate of migration gain (loss) is calculated as the difference between the number of arrivals and departures of migrants relative to the number of population.
Sources: compiled by the author; Demographic Yearbook of the Vologda Oblast for the years indicated; Munitsipal'nye obrazovaniya Vologodskoi oblasti, 1991–2000: stat. sbornik [Municipal Formations of the Vologda Oblast, 1991–2000: Statistics Collection]. *Vologodskii oblkomstat* [Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast]. Vologda, 2001. Pp. 129-148.

life, etc.) and different perception of changes in various factors of migration due to specifics of district economy and its organization [18]. In addition, within the Oblast there is migration not only from municipal districts to major cities, but also between municipal districts, because they are not equal in terms of economic development (income, labor productivity, living conditions, etc.) [2]. There can be several reasons for this. On the one hand, the inability or unwillingness to move to a major city given the inability or unwillingness to continue living at the place of residence registration. On the other hand, a potential migrant, on the contrary, can get an opportunity to settle in another, more attractive, municipal district (where he/she can get a job, and where the price of housing is lower, etc.). We add that the total costs when moving to another municipal district can be lower than when moving to a large city. As a result, if there is a significant difference (enough to completely cover the named costs in the medium term) between the actual and potential (in the case of moving) income, more cost effective to move to another municipal area than in a large city [19]. Such neoclassical interpretation is relevant to the previously mentioned cases of transition from commuting to permanent migraiton, since the

difference in income will be supplemented by savings on transport costs, which will increase the economic attractiveness of changing the place of residence. Anyway, in all three cases, the differences between districts in migration gain are determined by the differences in their socio-economic development.

Taking into consideration these findings, let us take the period of 2009–2012, which is characterized by an increase in the intensity of migration exchange (see fig. 1) and at the same time covers the period of significant changes in intraregional migration exchange *(tab. 3)*.

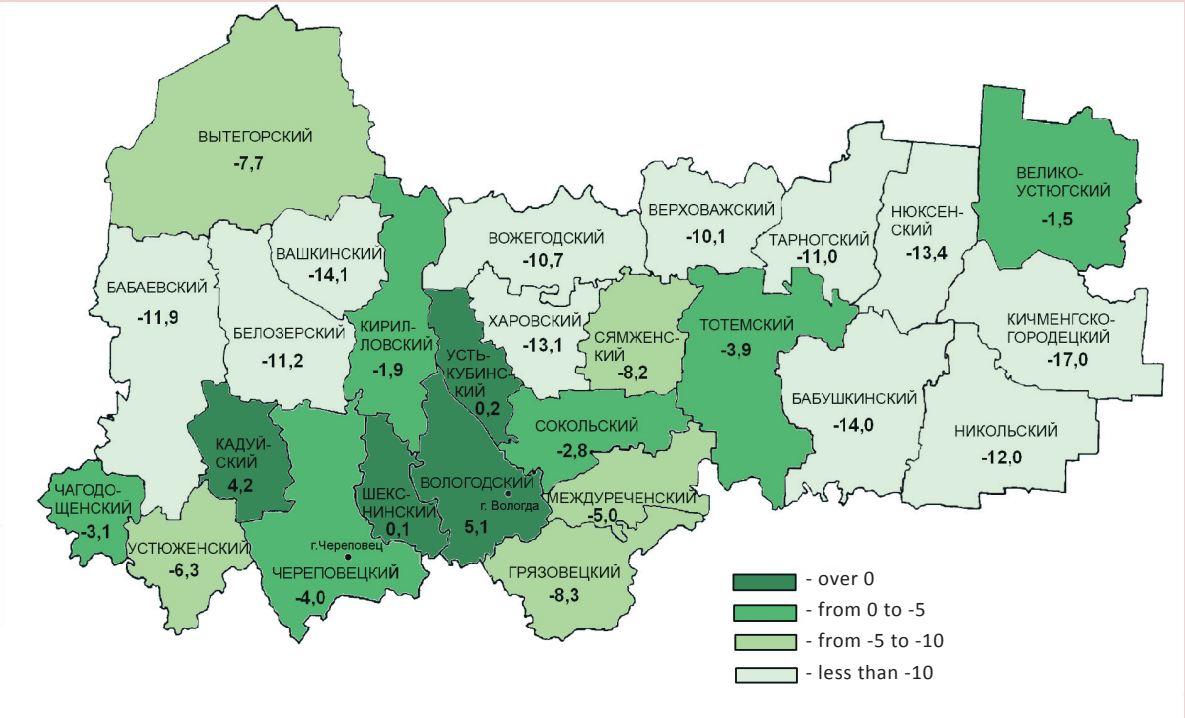
As can be seen from the data in 2009–2012 only four districts in the Vologda Oblast had the positive balance of migration gain: Vologodsky (5.1 per 1,000 population),

Table 3. Main indicators of migration in of the Vologda Oblast municipal districts in 2009–2012

Municipal district	Arrived, per 1,000 population	Left, per 1,000 population	Net rate of migration increase, per 1,000 population	Gross rate of migration increase, per 1,000 population
Vologodsky	28.2	23.2	5.1	51.4
Kaduisky	31.1	26.9	4.2	58.0
Ust-Kubinsky	26.4	26.1	0.2	52.5
Sheksninsky	26.0	25.9	0.1	51.9
Velikoustyugsky	20.4	21.8	-1.5	42.2
Kirillovsky	27.9	29.8	-1.9	57.7
Sokolsky	11.9	14.7	-2.8	26.6
Chagodoshchensky	19.5	22.6	-3.1	42.1
Totemsky	26.6	30.4	-3.9	57.0
Cherepovetsky	22.5	26.4	-4.0	48.9
Mezhdurechensky	26.2	31.3	-5.0	57.5
Ustyuzhensky	19.0	25.3	-6.3	44.3
Vytegorsky	14.4	22.1	-7.7	36.5
Syamzhensky	19.2	27.3	-8.2	46.5
Gryazovetsky	14.9	23.2	-8.3	38.1
Verkhovazhsky	16.3	26.4	-10.1	42.7
Vozhegodsky	19.3	30.0	-10.7	49.3
Tarnogsky	15.0	26.0	-11.0	41.0
Belozersky	20.4	31.7	-11.2	52.1
Babaevsky	13.2	25.1	-11.9	38.3
Nikolsky	21.8	33.8	-12.0	55.7
Kharovsky	12.5	25.6	-13.1	38.1
Nyuksensky	16.0	29.4	-13.4	45.4
Babushkinsky	10.0	23.9	-14.0	33.9
Vashskinsky	13.6	27.7	-14.1	41.3
Kichmengsko-Gorodetsky	9.2	26.2	-17.0	35.4

Sources: compiled by the author; Demographic Yearbook of the Vologda Oblast for the years indicated.

Figure 3. Value of the coefficient of migration gain (loss) in the Vologda Oblast districts in 2009–2012, persons per 1,000 population



Sources: compiled by the author; Demographic Yearbook of the Vologda Oblast for the years indicated.

Kaduysky (4.2), Ust-Kubinsky (0.2), Sheksninsky (0.1; *fig. 3)*. However, differences in the rate of migration gain (loss) are quite substantial even between the districts with the negative balance of migration, especially central and peripheral districts. For instance, municipal districts with moderate migration outflow (Velikoustyugsky, Kirillovsky, Sokolsky, etc.) according to the relative rate of migration are closer to Vologodsky and Kaduysky districts than to the districts that lag behind by this indicator: Babushkinsky, Vashkinsky, Kichmengsko-Gorodetsky districts. During the period under consideration, 11 out of 26 districts annually lost an average of more than 1% of the population, which in the future can have a negative impact on the demographic situation, and also lead to degradation of the labor market due to lack of human resources.

It is important to note that in the case of the Vologda Oblast districts the role of inflow and outflow of the population in determining the value of migration gain is uneven. If we look at the statistics for the recent years (see tab. 3), we observe only a slight differentiation of the municipal districts by population decline. This means that the actual migration outflow

in them is about the same – the difference in the value of the index does not exceed 10 persons per 1,000 population. The exception is Sokolsky District, in which the population outflow is much lower than in other districts due to a low intensity of migration. At the same time, districts vary widely by migration inflow: the variation of the index is threefold (from 9.2 people per 1,000 population in Kichmengsko-Gorodetsky District to 31.1 in Kaduysky District). We can also note the relatively high value of migration gain coefficient in the districts with a relatively high inflow of population. At the same time, the districts less attractive for migrants, for the most part are the lowest in the region the values of the coefficient of net migration.

A similar trend in relation to the intensity of migration flows is observed in the districts. The districts with positive values of migration gain are characterized by the high migration intensity, while in the districts with significant migration decrease the intensity is low in most cases. For a better explanation, we can take the top group of 5 districts by value of migration gain coefficient (Vologodsky, Kaduysky, Ust-Kubinsky, Sheksninsky, Velikoustyugsky; see tab. 3) and compare it with the corresponding lower group (Kharovsky, Nyuksensky, Babushkinsky, Vashkinsky, Kichmengsko-Gorodetsky). In the first group the average value of gross migration for the analyzed period is 49.1 per 1,000 population; the value is higher than 50 in four out of five districts. In the second group gross migration per 1,000 population is 38.0 on average. The low intensity of migration is also observed in Sokolsky District (26.0 per 1,000 population), which is geographically close to Vologda, which makes it possible to do more profitable work without changing the place of residence. In addition, many people in Sokolsky District are employed in the processing industry – 32% of workers, which is significantly greater than in other districts of the Oblast [15]. The developed industry retains residents due to the fact that it provides them with stable jobs that have existed for many decades, including the jobs that support the industry. At the same time, due to industry-relates specifics, wages in the district are low: 16,338 rubles in 2012, which is by 29% below the district average for the same year. As a result, the low potential income reduces migration attractiveness of the district.

Based on the above, we can draw a number of conclusions and assumptions. First, the statistical indicator of migration gain (loss) in the Vologda Oblast districts depends primarily on their migration attractiveness. It is determined by a number of diverse economic, geographic and socio-economic factors, which include territorial accessibility (remoteness), the difference in the level of income, living conditions, development of services sphere, etc. Second, municipal districts of the Vologda Oblast are characterized by a compensating role of migration inflow relative to outflow, the differentiation of which is insignificant. Only four districts of the Oblast (Vologodsky, Kaduysky, Ust-Kubinsky, Sheksninsky) are quite attractive for migrants; they help maintain a positive

migration balance, despite the annual outflow of 2–3% of the population. This is followed by another pattern, which consists in the direct correlation between migration inflow and intensity of migration exchange in the districts: the higher migration activity in the district, the higher the value of migration gain coefficient. Thirdly, the main directions of migration flows in the region are nonlinear. The significant part of the rural population (especially girls aged 15–29) move either to rural areas of other districts or to nearby urban settlements. These migrants, in a sense, replace the residents of small towns, which, in turn, choose other cities (especially big cities) within and outside the Oblast as their final destination of migration. The central part of the region, which is most densely populated (see fig. 3), has the greatest migration attraction; while peripheral districts, especially with a predominant share of rural population, experience the significant outflow of population. Migration outflow in Velikoustyugsky and Chagodoshchensky districts, where the proportion of urban population amounts to 69.9 and 77.3%, respectively, is moderate, despite their location at the periphery. Such districts serve as "gravitational centers" of migration, i.e., they are more attractive for migrants from neighboring districts because of their remoteness from large cities [1]. Kaduysky and Ust-Kubinsky districts play the similar role; among other things, their location is favorable: on the one hand, they are located relatively close to major cities; on the other hand, they are located near districts with high migration outflow.

Accounting of migration flows can improve the effectiveness of regional policy. Currently, the focus on regional administration involves a desire to achieve even development in the Oblast districts. The results of the analysis of inter-district migration will help identify the most problematic districts, which need state support, and will indicate errors in administrative decisions that lead to a sudden increase in the population outflow. In addition, the relatively high migration attractiveness helps reveal potential "growth points", i.e. areas with more favorable conditions for public investment, the fact, which is in no small measure connected with the inflow of human resources. The development of social and engineering infrastructure, promotion of housing construction and creation of jobs in these areas will help create a basis for economic growth in the region. First of all, it will help slow down population outflow in those districts that suit their requirements and expectations of migrants when they change their place of residence. The fact that people prefer to move to these districts indicates that the districts have necessary conditions for individual self-realization, and prospects for their public support. Promotion of development of districts such as Velikoustyugsky, Kaduysky, Chagodoshchensky and Ust-Kubinsky will make it possible to form a polycentric model of the region, it is an important element of the spatial organization of the population in the conditions of transition to innovation economy. Thus, the Transport Strategy of Russia for the period up to 2030 points

out that the innovative scenario involving a polycentric model of development of countries and regions, will provide an opportunity to raise the quality of life, to improve the transport network, to increase spatial mobility of people, to create conditions for the development of high-tech production [14, p. 17]. The creation of these "economic pillars" contributes to the growth of regional economy through the compliance with the principle of maximizing economic efficiency, which in the future will have a positive impact on the development of the most important districts and also those that are currently in comparative decline. It is connected with the development of transport and engineering infrastructure, and with the expansion of opportunities for migratory exchange between rural settlements and small towns in the framework of commuting and seasonal employment, which is important, in particular, for the region's peripheral districts.

Thus, the analysis of state statistics on inter-district migration helps identify its main directions, identify territories of risk and centers of migration attraction. Despite the significant limitations of official statistical reporting, it is possible to conclude that the Vologda Oblast has very intensive intraregional migration, predominantly, from rural areas to small towns and then – to cities. The study of factors that determine migration flows in the Oblast, and the timely adoption of appropriate management decisions will contribute to the development of economic growth points in the region. In addition, identifying and addressing the causes of migration will help curb depopulation of villages and, in the long term, to stabilize the demographic situation in rural areas.

References

1. Vasilenko P.V. Gravitatsionnye sily i migratsionnaya podvizhnost' naseleniya regiona [Gravitational Forces and Migration Mobility of the Population of the Region]. *Vestnik Baltiiskogo federal'nogo universiteta im. I. Kanta* [Immanuel Kant Baltic Federal University Bulletin], 2013, no. 7, pp. 155-159.
2. Voroshilov N.V. Differentsiatsiya sotsial'no-ekonomicheskogo razvitiya munitsipal'nykh obrazovanii Vologodskoi oblasti za 1991–2011 gg. [Differentiation of Socio-Economic Development in the Vologda Oblast Municipal Entities in 1991 – 2011]. *Problemy razvitiya territorii* [Problems of Territory's Development], 2013, no. 3 (65), pp. 31-41.
3. Demograficheskii ezhegodnik Vologodskoi oblasti, 1996: stat. sbornik [Demographic Yearbook of the Vologda Oblast, 1996: Statistics Collection]. *Vologodskii oblkomstat* [Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast].Vologda, 1997. 57 p.
4. Demograficheskii ezhegodnik Vologodskoi oblasti, 2012: stat. sbornik [Demographic Yearbook of the Vologda Oblast, 2012: Statistics Collection]. *Vologdastat* [Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast]. Vologda, 2013. 80 p.
5. Demograficheskii ezhegodnik Rossii, 2013: stat. sb. [Demographic Yearbook of Russia, 2013: Statistics Collection]. *Rosstat* [Federal State Statistics Service]. Moscow: Rosstat, 2013. 543 p.
6. *Demograficheskii ponyatiinyi slovar'* [Dictionary of Demographic Terms]. Ed. by L.L. Rybakovskii. Moscow: Tsentr sotsial'nogo prognozirovaniya, 2003. 352 p.

7. Karachurina L., Mkrtchyan N.M. Migratsionnaya podvizhnost' molodezhi i sdvigi v vozrastnoi strukture naseleniya gorodov i raionov Rossii (1989–2002) [Migration Mobility of Young People and the Changes in the Age Structure of the Population of Russia's Cities and Districts (1989–2002)]. *Geograficheskoe polozhenie i territorial'nye struktury: pamyati I.M. Maergoiza* [Geographical Position and Territorial Structures: in Memory of I. M. Maergoiz]. Moscow: Novyi Khronograf, 2012. Pp. 688-707.
8. Kresova N.S. Osnovnye kharakteristiki migratsii sovremennoi Rossii [Key Features of Labor Migration in Modern Russia]. *Teoriya i praktika obshchestvennogo razvitiya* [Theory and Practice of Social Development], 2007, no. 1, pp. 22-30.
9. Mkrtchyan N.V., Karachurina L.B. Migratsiya v Permskom krae: opyt analiza na regional'nom i munitsipal'nom urovnyakh [Migration in Perm Krai: the Experience of Analysis at the Regional and Municipal Levels]. *Nauchnye trudy IPN RAN* [Scientific Papers of the Institute of Economic Forecasting, RAS]. Ed. by A.G. Korovkin. Moscow: MAKS press, 2009. Pp. 688-712.
10. Mkrtchyan N.V. Migratsiya molodezhi v regional'nye tsentry Rossii v kontse XX – nachale XXI veka [Migration of Young People in Regional Centers of Russia in the Late 20th – Early 21st Century]. *Izvestiya RAN. Seriya geograficheskaya* [Bulletin of the Russian Academy of Sciences. Series: Geography], 2013, no. 6, pp. 19-32.
11. Mkrtchyan N.V. Migratsionnaya mobil'nost' v Rossii: otsenki i problemy analiza [Migration Mobility in Russia: Valuation and Analysis]. *SPERO*, 2009, no. 11, pp. 149-164.
12. Munitsipal'nye obrazovaniya Vologodskoi oblasti, 1991–2000: stat. sbornik [Municipal Formations of the Vologda Oblast, 1991–2000: Statistics Collection]. *Vologodskii oblkomstat* [Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast]. Vologda, 2001. 410 p.
13. Patsiorkovskii V.V. *Sel'sko-gorodskaya Rossiya* [Rural and Urban Russia]. Moscow: ISEPN RAN, 2010. 390 p.
14. Transportnaya strategiya Rossii na period do 2030 [Transport Strategy of Russia for the Period up to 2030]. *Ministerstvo transporta Rossiiskoi Federatsii* [Ministry of Transport of the Russian Federation]. 2008. Available at: http://www.mintrans.ru/upload/iblock/3cc/ts_proekt_16102008.pdf.
15. Trud i zanyatost' v razreze raionov Vologodskoi oblasti, 2012: stat. byull. [Labor and Employment in the Districts of the Vologda Oblast, 2012: Statistics Bulletin]. *Vologdastat* [Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast]. Vologda, 2013. 90 p.
16. Shabanova M.A. *Sezonnaya i postoyannaya migratsiya v sel'skom raione* [Seasonal and Permanent Migration in Rural District]. Novosibirsk: Nauka, 1991. 232 p.
17. Shik O., Tikhonova T. *Al'ternativnaya nesel'skokhozyaistvennaya zanyatost' v sel'skoi mestnosti Rossii: nauchnyi otchet* [Alternative Non-Agricultural Employment in Rural Areas of Russia: Scientific Report]. Moscow: Institut ekonomiki perekhodnogo perioda, 2007. P. 206.
18. Crow H. *Factors Influencing Rural Migration Decisions in Scotland: an Analysis of the Evidence. 2010.* Available at: www.scotland.gov.uk/socialresearch.
19. Stark O., Yitzhaki S. Labor Migration as a Response to Relative Deprivation. *Journal of Population Economics,* 1988, no. 1, pp. 57-70.
20. Taylor J.E., Martin P.L. Human Capital: Migration and Rural Population Change. *Handbook of Agricultural Economics.* Ed. by B.L. Gardner, G.C. Rausser. Vol. 1. Pp. 457-511. Available at: http://econpapers.repec.org/bookchap/eeehageco/1.html.

Cited Works

1. Vasilenko P.V. Gravitational Forces and Migration Mobility of the Population of the Region. *Immanuel Kant Baltic Federal University Bulletin*, 2013, no. 7, pp. 155-159.
2. Voroshilov N.V. Differentiation of Socio-Economic Development in the Vologda Oblast Municipal Entities in 1991 – 2011. *Problems of Territory's Development*, 2013, no. 3 (65), pp. 31-41.

3. Demographic Yearbook of the Vologda Oblast, 1996: Statistics Collection. *Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast.*Vologda, 1997. 57 p.
4. Demographic Yearbook of the Vologda Oblast, 2012: Statistics Collection. *Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast.* Vologda, 2013. 80 p.
5. Demographic Yearbook of Russia, 2013: Statistics Collection. *Federal State Statistics Service*. Moscow: Rosstat, 2013. 543 p.
6. *Dictionary of Demographic Terms.* Ed. by L.L. Rybakovskii. Moscow: Tsentr sotsial'nogo prognozirovaniya, 2003. 352 p.
7. Karachurina L., Mkrtchyan N.M. Migration Mobility of Young People and the Changes in the Age Structure of the Population of Russia's Cities and Districts (1989–2002). *Geographical Position and Territorial Structures: in Memory of I. M. Maergoiz.* Moscow: Novyi Khronograf, 2012. Pp. 688-707.
8. Kresova N.S. Key Features of Labor Migration in Modern Russia. *Theory and Practice of Social Development*, 2007, no. 1, pp. 22-30.
9. Mkrtchyan N.V., Karachurina L.B. Migration in Perm Krai: the Experience of Analysis at the Regional and Municipal Levels. *Scientific Papers of the Institute of Economic Forecasting, RAS*. Ed. by A.G. Korovkin. Moscow: MAKS press, 2009. Pp. 688-712.
10. Mkrtchyan N.V. Migration of Young People in Regional Centers of Russia in the Late 20th – Early 21st Century. *Bulletin of the Russian Academy of Sciences. Series: Geography*, 2013, no. 6, pp. 19-32.
11. Mkrtchyan N.V. Migration Mobility in Russia: Valuation and Analysis. *SPERO*, 2009, no. 11, pp. 149-164.
12. Municipal Formations of the Vologda Oblast, 1991–2000: Statistics Collection. *Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast.* Vologda, 2001. 410 p.
13. Patsiorkovskii V.V. *Rural and Urban Russia*. Moscow: ISEPN RAN, 2010. 390 p.
14. Transport Strategy of Russia for the Period up to 2030. *Ministry of Transport of the Russian Federation*. 2008. Available at: http://www.mintrans.ru/upload/iblock/3cc/ts_proekt_16102008.pdf.
15. Labor and Employment in the Districts of the Vologda Oblast, 2012: Statistics Bulletin. *Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast.* Vologda, 2013. 90 p.
16. Shabanova M.A. *Seasonal and Permanent Migration in Rural District.* Novosibirsk: Nauka, 1991. 232 p.
17. Shik O., Tikhonova T. *Alternative Non-Agricultural Employment in Rural Areas of Russia: Scientific Report.* Moscow: Institut ekonomiki perekhodnogo perioda, 2007. P. 206.
18. Crow H. *Factors Influencing Rural Migration Decisions in Scotland: an Analysis of the Evidence. 2010.* Available at: www.scotland.gov.uk/socialresearch.
19. Stark O., Yitzhaki S. Labor Migration as a Response to Relative Deprivation. *Journal of Population Economics,* 1988, no. 1, pp. 57-70.
20. Taylor J.E., Martin P.L. Human Capital: Migration and Rural Population Change. *Handbook of Agricultural Economics.* Ed. by B.L. Gardner, G.C. Rausser. Vol. 1. Pp. 457-511. Available at: http://econpapers.repec.org/bookchap/eeehageco/1.html.

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Reserves of Dairy Cattle Breeding Growth in the Vologda Oblast in the Context of Solving State Strategic Tasks to Develop the Arctic

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Abstract. The article substantiates the expediency of conducting research to assess the state of the agro-food system in the regions of the European North of Russia due to the increased geopolitical risks and the need to achieve strategic objectives of the Arctic territories development. Based on the analysis of statistical information, materials of the Department of Agriculture and Food Resources of the Vologda Oblast the author analyzes the change in the value of milk production, identifies municipal regions where agricultural producers boost agricultural economics, describes trends in the structure of livestock in 2000–2014. The work shows that the major resource potential for the dairy cattle breeding development in the region is concentrated in Vologdsky District, Gryazovetsky District and Cherepovetsky District. The analytical grouping helps determine that given current market conditions, state of material and technical base of the industry and level of state support it is economically feasible to increase the productivity of cows to 7083 kg, as it allows to reduce unit costs and enhance profitability. However, for agricultural producers to raise the productivity of dairy cattle, it is necessary to implement systematic measures for their promotion on the part of public authorities. The article draws special attention to the scale of modern technological means used by agricultural enterprises for keeping, milking and feeding cows, as well as to the measures undertaken to improve breeding and productive qualities of cattle. The conclusion of the article proves that the dramatic changes in agrarian policy of the Vologda Oblast can make the region an "outpost" providing the population of Arctic areas with quality agricultural products.

Key words: dairy cattle, cows, reserves of milk production growth.

The 21st century witnessed significant intensification of globalization and the role of transnational corporations, increased competition between countries for influence and control over certain territories. This statement is justified by many examples when companies in developed countries, particularly, spreading "fast food", purposefully impose consumption of food harmful to human body. It leads to an increase in the number of diabetes and obesity. It is known that some governments used technologies of "artificial hunger" (poisoning of water, resettlement of population to the land unsuitable for agriculture). It involves not only reduction in the population on the dependent territories, but also transfers of the land in property of foreign persons, which means loss of sovereignty[1]. Transnational companies have a significant impact on national agro-food systems. Being largest producers of seeds, plant protection products and controlling food prices they, in fact, determine agricultural policy of some countries[2].

Russia is also the country influenced by geopolitical competitors[3]. The external threats occur at any state border, including in the Arctic. The development of this region is a very important strategic task, since, according to the domestic scientists, there are 80 billion tons of conditional fuel in oil equivalent, about 19% of world reserves of platinum group metals, 10% of nickel and titanium, 3% of zinc, cobalt, gold and silver [2]. The field development in the Arctic in the near future is associated with the implementation of large-scale investment projects in infrastructure, transport, mining and engineering industries[4]. Consequently, it will involve the increase in food production to meet needs of the population in the European North of Russia[5].

Specialization of most economic entities in the region in the extraction of minerals forms a special structure of the economy. Therefore, it is advisable to consider Arctic territories in terms of neighboring areas development – as a

[1] See more: Luk'yanovich N. Geopoliticheskie aspekty prodovol'stvennoi bezopasnosti [Geopolitical Aspects of Food Security]. *Ekonomist* [The Economist], 2015, no. 3, pp. 14-23.

[2] In 2000–2014 food prices increased by 2.2 times. The highest peak in the growth of prices was observed after 2008 (calculated according to FAO. Available at: http://www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/).

[3] It is enough to notice that the share of foreign varieties in the general sowing of vegetable crops and sugar beet amounts to 65%, potatoes – 53%. About half of the breeding stock is supplied from abroad. According to the Ministry of Agriculture of the Russian Federation, foreign corporations own almost 60% of the milk processing market, 70% of the juice products market, more than 80% of the market of frozen vegetables, fruits and brewing, about 90% of the market of fruit and vegetable canned food [8]. The transnational corporations, such as PepsiCo, Carlsberg, Coca-Cola, Danone, etc. are actively buying Russian brands, thereby increasing their monopoly in the food industry and undermining the country's food security.

[4] According to the State program of the Russian Federation "Socio-economic development of the Arctic zone of the Russian Federation for the period up to 2020" [5], this region is to complete construction of the "Zapolyarye–Purpe" pipeline, reconstruct the "Talagi" airport complex and the Northern Dvina gating system, establish the main center of service support for maritime activity in the RF Arctic zone in the Murmansk Oblast and create the machine-building cluster, that involves enterprises producing technological equipment required in the Russian economy.

[5] The structure of the Russian European North regions includes the Republic of Karelia, the Komi Republic, the Arkhangelsk Oblast, the Vologda Oblast and the Murmansk Oblast.

Table 1. Distribution of the number of rural settlements by population (according to the results of the 2010 Russian census)

Region	Number of rural settlements														
	Total	Unpopulated	%	Less than 25 people	%	26–50 people.	%	51–100 people	%	101–200 people	%	201–500 people	%	More than 500 people	%
Republic of Karelia	776	109	14.0	300	38.7	75	9.7	76	9.8	54	7.0	76	9.8	86	11.1
Komi Republic	720	36	5.0	177	24.6	73	10.1	91	12.6	91	12.6	153	21.3	99	13.8
Arkhangelsk Oblast	3970	848	21.4	1986	50.0	330	8.3	288	7.3	198	5.0	199	5.0	121	3.0
Vologda Oblast	8006	2131	26.6	4366	54.5	546	6.8	369	4.6	247	3.1	229	2.9	118	1.5
Murmansk Oblast	112	14	12.5	28	25.0	10	8.9	13	11.6	7	6.3	12	10.7	28	25.0
Total	13584	**3138**	**23.1**	**6857**	**50.5**	1034	7.6	837	6.2	597	4.4	669	4.9	452	3.3

Sources hereinafter: data of the Federal State Statistics Service of the Russian Federation; calculations of the author.

single socio-economic system. Interaction between regions can form the basis of food security in the European North and provide the population with quality food of local production.

The increasing attention to the state of the agricultural system in the region is caused not only by foreign policy issues and strategic objectives, but also by the fact that its sustainable development influences the demographic situation, the possibility to preserve historical and cultural potential of the Russian village and control the territory. Nowadays, this problem becomes very relevant. Thus, according to the 2010 Russian census, in the studied territories 23% of the rural settlements are unpopulated and less than 25 people live in half of them (*tab. 1*).

Despite the measures of state support of agriculture[6], implemented in the framework of the national priority project "Development of agriculture" and then State program, the agricultural crisis in the European North was not alleviated. This, in particular, is evidenced by the fact that in 2014, compared to 2000, the volume of agricultural production increased by 1.5 times in the country, while in the Komi Republic it amounted to 88%, the Republic of Karelia – 81%, the Vologda Oblast – 73%, the Arkhangelsk Oblast – 61%, the Murmansk Oblast – 59% (*tab. 2*).

[6] See more: Chekavinskii A.N. Razvitie sel'skogo khozyaistva Rossii – sostavnaya chast' resheniya prodovol'stvennoi problemy v mire [Development of Russia's Agriculture as a Factor Promoting the Solution of the World Food Problem]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2012, no. 6 (24), pp. 197-204.

Table 2. Production of agricultural products in all categories of households
(at constant 2014 prices, million rubles)

Region	2000	2005	2010	2011	2012	2013	2014	2014 to 2000, %
Komi Republic	11052	9238	9456	10298	10442	9899	9701	87.8
Republic of Karelia	6759	5811	5706	5694	5375	5601	5472	81.0
Vologda Oblast	35446	29956	25538	28245	26833	25035	25736	72.6
Arkhangelsk Oblast	20197	13857	12099	13054	13172	11986	12310	60.9
Murmansk Oblast	4515	3252	3923	3993	3989	3251	2682	59.4
Total	**77969**	**62113**	**56720**	**61284**	**59811**	**55772**	**55901**	**71.7**
National average, billion rubles	**2767.0**	**3102.0**	**3289.1**	**4045.6**	**3851.4**	**4074.8**	**4225.6**	**152.7**

Table 3. Self-sufficiency of the Russian European North regions in staple food in 2014
(based on the rational norms of consumption)

Products	Consumption rates*, kg (units) / person	Demand**, thousand tons (million units)	Production in 2014., thousand tons (million units)	Self-sufficiency, %
Potatoes	100	463.7	578.2	**124.7**
Meat and meat products	75	347.7	142.9	**41.1**
Milk	340	1576.5	706.5	**44.8**
Eggs	260	1205.5	777.7	**64.5**

* Approved by the Ministry of Health and Social Development of the Russian Federation of August 2, 2010 No. 593 n.
** Defined as the product of per capita food consumption and population.

As a result, the regions of the European North provide the minimum requirements for meat by 41%, milk –45%, eggs –65% at the expense of own resources (*tab. 3*). Only the region's self-sufficiency in potato amounts to 125%[7]. Consequently, the regions should boost production of staple food.

Taking into account the strategic objectives for development of the Arctic and the adequate response to geopolitical risks, we can stress that the European North regions should become a powerful "rear base" of food security of the population in the Arctic territories. This is particularly true of the Vologda Oblast, where by the end of 2014 46% of the total volume of agricultural products had been produced in all categories of households. Thus, the region's share in sown area of crops amounts to 69%, cattle – 59%, swine – 53%, milk production – 63%, livestock and poultry – 36% and gross grain harvest – 97% (*figure*). Thus, the study of the modern state, factors and reserves of agricultural production growth in the Oblast is of great scientific interest.

[7] The calculation of food requirements does not include the agricultural products costs for industrial needs (forage, seeds and losses), so the real self-sufficiency level can be even lower.

Share of the Vologda Oblast in the production base and agricultural production of the European North regions, %

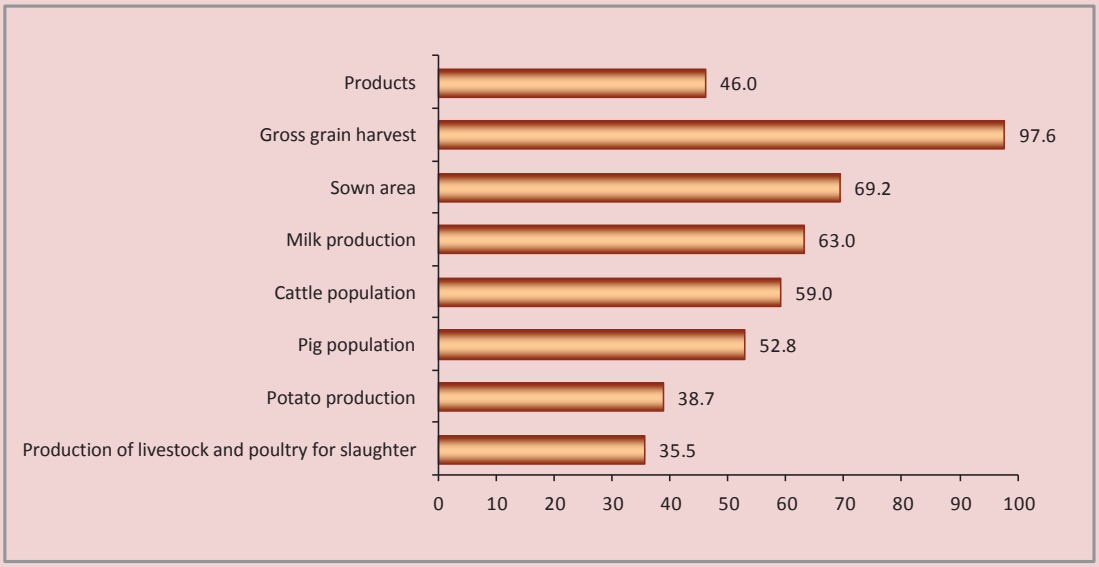

Table 4. Milk production in the Vologda Oblast by category of households

Category of households	1990		2000		2005		2014		2014 to 2000	
	Thousand tons	In % to total	Thousand tons	In % to total	Thousand tons	In % to total	Thousand tons	In % to total	%	p.p.
Households of all categories	755.3	100.0	494.9	100.0	470.1	100.0	444.8	100.0	89.9	x
Peasant (farming) households	0.0	0.0	3.9	0.8	6.5	1.4	13.4	3.0	In 3.4 times	+2.2
Agriculture organizations	583.8	77.3	338.8	68.5	382.1	81.3	408.3	91.8	120.5	+23.3
Households of the population	171.5	22.7	152.2	30.8	81.5	17.3	23.2	5.2	15.2	-25.5

Sources: data of the Federal State Statistics Service of the Russian Federation; calculations of the author.

The Vologda Oblast due to climatic and historical conditions specializes in dairy-beef cattle. Are there opportunities for boosting the industry? The statistics show that in 2000–2014 the volume of milk production in the region decreased from 495 to 445 thousand tons, or by 10% (*tab. 4*). At the same time, this indicator increased by 3.4 times in peasant (farming) households, 20.5% – in agricultural ones and decreased by 6.6 times in private households. Corresponding to the trends the proportion of collective farms in milk production increased from 69 to 95%.

Table 5. Milk production in the Vologda Oblast districts in all categories of households

District	2000		2005		2013		2013 to 2000	
	Thousand tones	In % to total	Thousand tones	In % to total	Thousand tones	In % to total	%	p.p.
In the region	494.9	100	470.1	100	430.2	100.0	86.9	x
Vologodsky	**104.1**	**21**	**108.7**	**23.1**	**112.5**	**26.2**	**108.1**	**5.2**
Gryazovetsky	**59.3**	**12**	**61.7**	**13.1**	**80.4**	**18.7**	**135.5**	**6.7**
Cherepovetsky	**38.4**	**7.8**	**36.2**	**7.7**	**33.2**	**7.7**	***86.5***	**-0.1**
Totemsky	25.2	5.1	26.2	5.6	23.4	5.4	93.0	0.3
Sheksninsky	25.4	5.1	22.2	4.7	21.7	5.1	***85.6***	0.0
Velikoustyugsky	18.6	3.8	17.0	3.6	17.8	4.1	95.8	0.3
Ustyuzhensky	16.2	3.3	17.0	3.6	15.9	3.7	98.1	0.4
Kirillovsky	17.8	3.6	15.6	3.3	15.2	3.5	***85.5***	-0.1
Verkhovazhsky	14.7	3	13.5	2.9	12.9	3.0	87.9	0.0
Sokolsky	13.3	2.7	16.2	3.4	11.8	2.7	88.5	0.0
Nikolsky	17.5	3.5	14.4	3.1	11.3	2.6	***64.5***	-0.9
Tarnogsky	14.9	3.0	12.0	2.5	10.4	2.4	70.0	-0.6
Kichmengsko-Gorodetsky	16.9	3.4	11.7	2.5	9.8	2.3	***57.7***	-1.1
Ust-Kubinsky	10.9	2.2	13.5	2.9	7.3	1.7	***66.7***	-0.5
Mezhdurechensky	6.6	1.3	8.8	1.9	6.7	1.5	**101.0**	0.2
Chagodoshchensky	8.6	1.7	8.5	1.8	6.3	1.5	73.3	-0.2
Babaevsky	13.3	2.7	9.7	2.1	6.0	1.4	***44.8***	-1.3
Kharovsky	10.4	2.1	7.5	1.6	4.9	1.1	***47.2***	-1.0
Kaduysky	6.0	1.2	5.5	1.2	4.5	1.0	***74.9***	-0.2
Belozersky	7.3	1.5	6.6	1.4	3.8	0.9	***52.2***	-0.6
Vozhegodsky	10.4	2.1	9.2	2.0	3.7	0.9	***35.9***	-1.2
Babushkinsky	10.7	2.2	8.4	1.8	3.1	0.7	***29.3***	-1.5
Vashkinsky	6.2	1.3	4.4	0.9	2.7	0.6	***44.3***	-0.7
Nyuksensky	5.8	1.2	6.2	1.3	2.6	0.6	***44.8***	-0.6
Vytegorsky	9.6	1.9	4.0	0.8	1.5	0.4	***15.7***	-1.5
Syamzhensky	6.8	1.4	5.4	1.2	0.7	0.2	***10.6***	-1.2

Sources: data of the Territorial Board of the Federal State Statistics Service in the Vologda Oblast; calculations of the author.

In the region in 2013 half of the milk produced was registered in Vologodsky District, Gryazovetsky District and Cherepovetsky District. Their share in gross production increased by 11.8 p.p., compared to the 2000 level (*tab. 5*). It is economic entities in the agricultural sector of these municipalities that promote growth, introduce modern resource-efficient equipment and technologies[8]. At the same time, the contribution of the

[8] According to the Department of Agriculture and Food Resources of the Vologda Oblast in 2014 Gryazovetsky District began constructing the complex with the voluntary milking system (8 robots) for 500 cows in the stud farm "Aurora", farms for 380 animals (4 robots) in LLC "Pokrovskoe"; in Vologodsky District in the village Harachevo the IAPC of the collective farm "Rodina" is reconstructing the farm for 200 animals with the voluntary milking system (Public report on the results of activity of the Department of Agriculture and Food Resources of the Vologda Oblast for 2014).

Table 6. Structure of cow population by productivity level in the Vologda Oblast agricultural enterprises [1]

Milk yield per cow, kg	2000		2009		2013		2013 to 2000	
	Thousand animals	In % to total	Thousand animals	In % to total	Thousand animals	In % to total	Thousand animals	p.p.
Total	**106.38**	**100.0**	**80.10**	**100.0**	**71.159**	**100.0**	**-35.2**	x
Up to 2000	23.30	21.9	0.80	1.0	0.69	0.96	***-22.6***	***-20.9***
2001–3000	32.66	30.7	6.33	7.9	4.41	6.19	***-28.3***	***-24.5***
3001–4000	22.55	21.2	13.86	17.3	11.32	15.91	-11.2	-5.3
4001–5000	13.62	12.8	17.38	21.7	9.18	12.90	-4.4	0.1
5001–7000	10.74	10.1	27.39	34.2	25.61	35.99	***14.9***	***25.9***
Above 7001	3.51	3.3	14.34	17.9	19.96	28.05	***16.5***	***24.8***

Sources: Analytical materials of the Department of Agriculture and Food Resources of the Vologda Oblast; calculations of the author.

regions located far from major markets and centers of material and technical resources supply declined. During the study period total milk production decreased by more than 2 times in 8 districts and it is unlikely to be restored even due to favorable economic conditions.

The growth in milk production can be ensured due to the use of both extensive (increased livestock) and intensive (improved productivity) factors. During the analyzed period the cow population in the region decreased from 150 to 76 thousand animals, or by 2 times (including agricultural companies – by 31%), due to the bankruptcy of unprofitable enterprises and the decline in the production base in subsidiary individual holdings. The negative trend was overcome only in 2014 when the subsidies for livestock growth as measures to support the industry were allocated from the regional budget for the first time. As a result, the cow population in the collective sector increased by 2300 animals.

The structure of dairy cattle has experienced significant positive changes for the last 13 years. Livestock of low-yield cattle (with milk yield less than 4,000 kg) decreased by 62 thousand animals (by 4.8 times). In the result, the proportion of cows that yield more than 5,000 kg of milk annually increased from 13.4 to 64% (*tab. 6*).

Special attention is paid to the enhancement of breeding and productive qualities of animals in some farms of the region. There is an indicative example of the integrated agricultural production center: collective farm "Rodina" in the Vologda Oblast. In 2006 the farm got the author's certificate for selection achievements "Vologda type of black-motley cattle". Cows of class "Elite" and "Elite-record" constitute 99% of the total flock.

In general, in the Vologda Oblast (according to the State Breeding Register), as of April, 14 2015, 39 households (of 189), including 15 breeding plants and 24 breeding reproducers, has the status of breeding organizations. They keep 57% (39.9 thousand) of cows of all breeding stock and produce 65% (271 thousand tons) of milk. Most organizations are located in

Table 7. Distribution of organizations for breeding cattle in the Vologda Oblast by districts and breeding stock

Breeding plants				
District	Breeding stock, animals	In % to total	Number of households, units	In % to total
Vologodsky	**10,113**	**57.6**	**9**	**60.0**
Gryazovetsky	**6,100**	**34.8**	**4**	**26.6**
Totemsksy	825	5.0	1	6.7
Ustyuzhensky	520	2.6	1	6.7
Total	**17,558**	**100.0**	**15**	**100.0**
Breeding reproductors				
Velikoustyugsky	**3,366**	**15.0**	**4**	**16.7**
Vologodsky	**4,315**	**19.2**	**4**	**16.7**
Gryazovetsky	**5,670**	**25.5**	**4**	**16.7**
Cherepovetsky	**3,410**	**15.2**	**3**	**12.5**
Totemsky	1,280	5.8	2	8.3
Ustyuzhensky	991	4.4	2	8.3
Kirillovsky	1,300	5.8	1	4.1
Mezhdurechensky	681	3.0	1	4.1
Kaduysky	630	2.8	1	4.1
Sokolsky	465	2.0	1	4.1
Nikolsky	312	1.4	1	4.1
Total	**22,420**	**100**	**24**	**100**

Source: *Gosudarstvennyy plemennoy registr* [State Breeding Register.]. Available at: http://www.mcx.ru/documents/section/show/3831.85.htm

Vologodsky District, Gryazovetsky District, Velikoustyugsky District and Cherepovets District (*tab. 7*).

In the villages Dorozhnyy of Vologodsky District and Solmanskoe of Cherepovetsky District 2 breeding organizations for artificial insemination operate successfully. The State Breeding Register also includes service organizations of the region: 4 milk and 2 immunology laboratories, 1 regional information and selection center.

Due to the systematic selection and breeding work, the reduction of unproductive cattle and the improvement of forage reserve quality the milk yield per cow increased from 2,975 kg in 2000 to 5,930 kg in 2014, or by 2 times. However, there is potential for this indicator growth: for example, in breeding plants it amounts to 7,589 kg. Therefore, it is possible to increase milk production by reducing the level of macroeconomic, technological and foreign trade risks, conducting effective, consistent and predictable agricultural policy and having favorable conditions in the food market and skilled personnel in the industry.

Obviously, the intensification of dairy farming carried out on the new technical and technological base involves additional

Table 8. Productivity of cows depending on breed

Indicator	Breed		
	Black-and-white	Dutch	Holstein
Length of productive use, lactations	3.8 ± 0.27	2.3 ± 0.34	2.4 ± 0.31
Milk yield per lactation, kg	3,824	6,548	6,850
Lifetime milk yield, kg	14,543	15,039	16,428
Milk yield per 1 day of lactation, kg	11.3	16.5	16.5

Source: Karamaev S.V. Produktivnost' dolgoletiya korov v zavisimosti ot porodnoy prinadlezhnosti [Productive Longevity of Cows Depending on Breed]. *Zootekhniya* [Husbandry], 2009, no.5, pp. 16-17.

Table 9. Impact of cow productivity on economic indicators of the agricultural enterprises' activity in the Vologda Oblast

Milk yield per cow, kg	Number of households in the group	Milk yield per cow, kg	Production cost of 1 ton of milk, rubles	Profitability of realized milk (without subsidies), %	Per 100 ha of arable land	
					Number of cows, animals	Revenue from milk sale, thousand rubles
Up to 3,723	2	3,722.9	15,190.0	-20.9	15.8	622.5
3,724–5,307	5	4,949.2	9,778.8	7.5	18.2	772.5
5,308–6,442	9	6,031.1	10,225.0	22.2	26.8	1,919.3
6,443–7,468	5	7,082.6	9,950.6	31.2	28.0	2,480.8
7,469 and above	2	7,677.8	10,607.5	3.3	53.9	4,460.5
Total, in average	23	6,303.9	10,289.2	19.1	26.4	1,918.1

Sources: Data of the Department of Socio-Economic Development of the Village of the Vologda Municipal District; calculations of the author.

costs, increased capital intensity of production, reduced duration of the productive use of animals. Thus, according to V.S. Karamaev, high-yielding breeds of cows (Holstein and Dutch) have the shortest use period – 2.4–2.3 lactations (*tab. 8*).

The grouping of the Vologda Oblast agricultural enterprises suggests that the growth in milk yield per cow from 3,723 to 7,083 kg leads to the rise in cost effectiveness of realized milk, but then to the dramatic decline due to the increased production costs (*tab. 9*). Thus, we can conclude that it is necessary to take systematic measures of state stimulation and breeding work organization to increase dairy cattle productivity in the region.

It is crucial for the enterprises to have the opportunity to use modern equipment for maintenance and milking cows, providing a high level of productivity and competitiveness. Nowadays their scale is negligible. So, only 18% of the cow population in the region is characterized by loose housing and milking in milking parlors or by robot. Despite annual reconstruction and modernization of cattle-breeding premises, many of them are poorly mechanized (for example, the

integrated agricultural production center "Iskra" in Vozhegodsky District has no milk delivery line).

According to the Department of Agriculture and Food Resources of the Vologda Oblast, about half of the cattle-breeding premises in the regional agricultural organizations have been operating for more than 20 years, and 38% – for more than 35 years. Due to severe environment and long operation the quarter of livestock facilities is in a terrible condition. However, according to RAS Academician N.M. Morozov, only through the establishment and maintenance of optimal temperature, humidity, speed of air masses movement in livestock premises it is possible to increase the productivity of cows (by 13–15%), accelerate the growth and development of young stock, lower the feed intake (by 10–15%), the loss of livestock, as well as the costs for animals treatment (7–10%) [3].

It is important for the households to pay special attention to the creation of conditions for strengthening the technical base of forage production. In 2013 the regional agricultural enterprises had 190 units of modern feeders and mobile mixers, which provided 79% of the dairy cattle livestock with homogenized feed mixtures. At the same time, high-quality grinding, blending, enrichment of protein-mineral supplements and heating up of the forage help increase the productivity of livestock by 12–15%, reduce the prime cost of milk by 4–6% and the consumption of food resources by 10–12% and completely eliminate their losses [4]. Hence, there is an objective need for significant technical re-equipment of enterprises, specializing in the maintenance of dairy cattle. Without the upgrade it would be very difficult to raise the level of milk sales profitability, which amounted to 15.3% in the region in 2013, and, consequently, transfer the industry to the expanded reproduction mode[9].

Thus, the Vologda Oblast has reserves for higher production of milk and dairy products, including for meeting the needs of Arctic communities. However, this requires substantial transformation of agrarian policy of the state (primarily, the federal center). Without going into detail, we note that we share the view of some respected agricultural economists [7, 9], insisting on the necessity to change the economic mechanism of agriculture support and limit the growth of prices for material and technical resources, the development of cooperatives and leasing, the stability in agricultural prices during the year, the guarantees of state support funds for at least 3–5 years, the provision of tax incentives (subsidies) for investment. In our view, if the system of state management of agriculture is not changed significantly, it will be extremely difficult to address geopolitical risks and comply with the provisions of the Russian Federation Food Security Doctrine, the Strategy and the State Program for Development of the Arctic in the near future.

[9] According to Doctor of Economics D.B. Epstein, only companies with 30–35% profitability can expand reproduction steadily [10].

References

1. Analiz proizvodstvenno-finansovoi deyatel'nosti sel'skokhozyaistvennykh organizatsii Vologodskoi oblasti za 2013 god [Analysis of Production and Financial Activity of Agricultural Organizations in the Vologda Oblast for 2013]. *Departament sel'skogo khozyaistva, prodovol'stvennykh resursov i torgovli Vologodskoi oblasti* [Department of Agriculture, Food Resources and Trade of the Vologda Oblast]. Vologda, 2014. 153 p.
2. Gubarev V. *Osvoenie Arktiki: plany i real'nost'* [Arctic Development: Plans and Reality]. Available at: http://www.pravda.ru/science/academy/16-02-2015/1248650-arctik-0.
3. Morozov N.M. Novaya tekhnika i progressivnye tekhnologii – vazhneishie faktory povysheniya proizvoditel'nosti truda v zhivotnovodstve [New Techniques and Advanced Technologies are Key Factors in Increasing Productivity in Livestock Production]. *Ekonomika sel'skokhozyaistvennykh i pererabatyvayushchikh predpriyatii* [Economics of Agricultural and Processing Enterprises], 2008, no. 9, pp. 5-8.
4. Morozov N.M. Strategiya mekhanizatsii i avtomatizatsii proizvodstva – ekologicheskie i sotsial'nye voprosy [Strategy of Mechanization and Automation of Production – Environmental and Social Issues]. *Ekologiya i sel'skokhozyaistvennaya tekhnika: materialy 6-i Mezhdunarodnoi nauchno-prakticheskoi konferentsii* [Ecology and Agricultural Technology: Proceedings of the 6th International Research-to-Practice Conference]. Saint-Petersburg : GNU SZNIIMESKh Rossel'khozakademii, 2009, vol. 3, pp. 8-15.
5. Ob utverzhdenii gosudarstvennoi programmy Rossiiskoi Federatsii "Sotsial'no-ekonomicheskoe razvitie Arkticheskoi zony Rossiiskoi Federatsii na period do 2020 goda": postanovlenie Pravitel'stva RF ot 21.04.2014 № 366 [On Approval of the State Program of the Russian Federation "Socio-Economic Development of the Arctic Zone of the Russian Federation for the Period up to 2020": Regulation of the Government of the Russian Federation of April 21, 2014 No. 366]. *Konsul'tantPlyus: spravochno-pravovaya Sistema* [ConsultantPlus: Reference-Legal System].
6. *Publichnyi doklad o rezul'tatakh deyatel'nosti Departamenta sel'skogo khozyaistva i prodovol'stvennykh resursov Vologodskoi oblasti za 2014 god* [Public Report on the Results of activity of the Department of Agriculture and Food Resources of the Vologda Oblast for 2014]. Available at: http://okuvshinnikov.ru/proekty/komanda_gubernatora_vasha_ocenka_2015.
7. Uzun V.Ya. Printsipy formirovaniya i raskhodovaniya agrarnogo byudzheta v Rossii, SShA, Kanade i ES [Principles of Formation and Spending of the Agricultural Budget in Russia, USA, Canada and the EU]. *Ekonomika sel'skokhozyaistvennykh i pererabatyvayushchikh predpriyatii* [Economics of Agricultural and Processing Enterprises], 2015, no. 2, pp. 32-41.
8. Uchastie inostrannogo kapitala v pishchevoi promyshlennosti Rossii [Participation of Foreign Capital in the Russian Food Industry]. *Ministerstvo sel'skogo khozyaistva Rossiiskoi Federatsii* [Ministry of Agriculture of the Russian Federation]. Available at: http://mcx-consult.ru
9. Ushachev I.G. Strategicheskie podkhody k razvitiyu APK Rossii v kontekste mezhgosudarstvennoi integratsii [Strategic Approaches to the Development of Agriculture in Russia in the Context of Interstate Integration]. *Ekonomika sel'skokhozyaistvennykh i pererabatyvayushchikh predpriya*tii [Economics of Agricultural and Processing Enterprises], 2015, no. 2, pp. 8-15.
10. Epstein D.B. Neobkhodima dorabotka Gosprogrammy [It is Necessary to Revise the State Program]. *Ekonomika sel'skogo khozyaistva Rossii* [Economics of Agriculture of Russia], 2012, no. 2, pp. 16-21.
11. *The State of Food Insecurity in the World 2014. Strengthening the Enabling Environment for Food Security and Nutrition*. Rome: FAO, IFAD and WFP, 2014, 55 p.

Cited Works

1. Analysis of Production and Financial Activity of Agricultural Organizations in the Vologda Oblast for 2013. *Department of Agriculture, Food Resources and Trade of the Vologda Oblast*. Vologda, 2014. 153 p.
2. Gubarev V. *Arctic Development: Plans and Reality*. Available at: http://www.pravda.ru/science/academy/16-02-2015/1248650-arctik-0.
3. Morozov N.M. New Techniques and Advanced Technologies are Key Factors in Increasing Productivity in Livestock Production. *Economics of Agricultural and Processing Enterprises*, 2008, no. 9, pp. 5-8.
4. Morozov N.M. Strategy of Mechanization and Automation of Production – Environmental and Social Issues. *Ecology and Agricultural Technology: Proceedings of the 6th International Research-to-Practice Conference*. Saint-Petersburg : GNU SZNIIMESKh Rossel'khozakademii, 2009, vol. 3, pp. 8-15.
5. On Approval of the State Program of the Russian Federation "Socio-Economic Development of the Arctic Zone of the Russian Federation for the Period up to 2020": Regulation of the Government of the Russian Federation of April 21, 2014 No. 366. *ConsultantPlus: Reference-Legal System*.
6. *Public Report on the Results of activity of the Department of Agriculture and Food Resources of the Vologda Oblast for 2014*. Available at: http://okuvshinnikov.ru/proekty/komanda_gubernatora_vasha_ocenka_2015.
7. Uzun V.Ya. Principles of Formation and Spending of the Agricultural Budget in Russia, USA, Canada and the EU. *Economics of Agricultural and Processing Enterprises*, 2015, no. 2, pp. 32-41.
8. Participation of Foreign Capital in the Russian Food Industry. *Ministry of Agriculture of the Russian Federation*. Available at: http://mcx-consult.ru
9. Ushachev I.G. Strategic Approaches to the Development of Agriculture in Russia in the Context of Interstate Integration. *Economics of Agricultural and Processing Enterprises*, 2015, no. 2, pp. 8-15.
10. Epstein D.B. It is Necessary to Revise the State Program. *Economics of Agriculture of Russia*, 2012, no. 2, pp. 16-21.
11. *The State of Food Insecurity in the World 2014. Strengthening the Enabling Environment for Food Security and Nutrition*. Rome: FAO, IFAD and WFP, 2014, 55 p.

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ENVIRONMENTAL ECONOMICS

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Social Assessment of Specially Protected Natural Areas

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Abstract. Approaches to the consideration of functions of specially protected natural areas (SPNA) in the development of society seek to determine the size of the territory withdrawn from agricultural use for the purposes of nature conservation; these approaches also aim to evaluate money revenue gained from these territories. However, the influence of SPNA on public life is not reduced to the "monetization" of the territory. People who live near conservation areas and experience the advantages (disadvantages) of such neighbourhood should be the focus of the study of the social role of protected areas. The social role of SPNA in the life of local communities in the Arkhangelsk Oblast and the Karelia Republic was identified with the help of public opinion survey. In total 575 people participated in the survey. The research was carried out in the settlements located within the boundaries of Kenozersky and Vodlozersky national parks, and near Shilovsky Nature Reserve. When measuring the impact of conservation areas on the society of the neighbouring settlements, the authors define the axiological, emotional-and-psychological, activity-and-regulatory, economic, forecasting and integrated components. The research findings show that the residents acknowledge the conservation value of protected areas; many of the inhabitants of adjacent territories do not experience inconveniences in connection with the special environmental regime, they earn income connected to the operation of SPNA; there is a positive attitude towards the activity of SPNA.

If these areas cease functioning, then one third of the respondents expect negative changes in their life. Specially protected natural areas contribute to the socio-cultural and spiritual development of the local community to a greater extent in comparison with its socio-economic development. The presence of SPNA on the territory of the municipality opens up opportunities for new types of economic activities, provides employment in the field of recreation and tourism.

Key words: specially protected natural areas, social function of nature conservation areas, sociological surveys, environmental management, remote rural settlements.

Specially protected natural areas (SPNA) are established in order to preserve natural diversity, ensure environmental security and sustainable development of society. However, the establishment and functioning of protected areas for the benefit of nature and man can conflict with the need for economic development of the natural environment to satisfy economic and other needs of society and its individual groups.

The International Union for Conservation of Nature (IUCN), which comprises 82 countries including the Russian Federation represented by the Ministry of Natural Resources and Environment (Minprirody) indicates that the aim of specially protected natural areas is to conserve nature and the services it provides to man: food, clean drinking water, protection from natural disasters, mitigation of climate change. In contrast, biodiversity reduction and climate change can affect human well-being and the availability of means of livelihood, because natural capital is being destroyed and global and local sustainability is being undermined [9]. However, the need to demonstrate evidence of significant contribution of SPNA to the economy and society remains an urgent issue to be solved.

The ratio of the area of SPNA and the area of the region is used as one of the key indicators of sustainable development of the territory. According to the international convention, a strategic plan for preserving biodiversity for 2011–2020 assumes that 17% of land and 10% of water areas will be allocated as protected natural areas [9]. The share of the territory occupied by the SPNA of federal, regional and local importance in Russia in 2014 amounted to 12% of the total area of the country. As a result of implementing the RF state program "Environmental protection" for 2012–2020, this figure is expected to reach 13.5% [2]. Russian experts argue that the share of protected areas cannot be universal or similar for different regions of the country. Quite obviously, the less attractive areas for resources, the fewer obstacles for their inclusion in protected areas and vice versa [3]. However, such a directive instruction from the international organization concerning the expansion of protected areas in Russia's regions in practice becomes an incentive for managerial decision-making on the creation of new protected areas.

The contribution of SPNA to the revenue part of the budget of the territory (country) is another indicator of functioning of SPNA

that concerns the social and economic sphere. When more than half of federal budget revenues in Russia comes from mineral extraction industries, the development of a system of SPNA appears to contradict the economic development objectives of the country and its regions. There are examples of initiatives put forward by representatives of the Committee on Natural Resources and Environmental Protection of the Federation Council on improvement of legislation concerning the creation, change of the boundaries and mode of protection of SPNA, and cases of their abolition for the needs of subsoil users. In this case, "part of the profits from mineral extraction can be allocated to the development of SPNA, expansion of biodiversity, and replenishment of the budget" [4]. Here we are speaking mainly about the Siberian, Far Eastern and Northwestern federal districts, where the number of SPNA is the greatest (47, 25 and 13% of the territories, respectively) and strategic mineral reserves are concentrated.

The income from tourism in SPNA is often correlated with real money contribution of these areas to the revenue part of the budget. Northern regions consider the recreation potential as a socio-economic development factor. Here we should note the positive experience of the Republic of Karelia, where in 2010 the gross income from tourism amounted to 3.8 billion rubles a year, and one of the main tasks of the Government of the Republic of Karelia is to make the tourism industry one of the region's three major industries along with the timber and mining industries [12].

At the same time, the application of the targeted commercial approach to the functioning and development of SPNA undermines the foundations of this fragile branch of natural resources management, contributes to the loss of the idea of nature protection. As the analysis of world experience in building a network of SPNA, the focus on the rendering of recreational services to the population, while important to the economy, often does not contribute to effective environment protection and biodiversity conservation [7]. In Russia Protected areas such as national and nature parks are intended for regulated tourism. The goal of nature conservation in nature reserves and parks can not always be successfully combined with tourist activity in these areas. According to A. M. Khomyakova, an expert at Russia's Minprirody, the modern system of SPNA combines "nature conservation" and "rational nature management", and shifts the emphasis more and more toward the latter. The dominance of the socio-economic component in the concept for development of the system of SPNA leads to erosion and further devaluation of the original idea of establishment of protected areas [14].

The recovery from the violators of the sums charged under the claims for the compensation of damage caused to natural objects is a rather controversial indicator used by Rosprirodnadzor for assessing the effectiveness of national parks. Organization of protection of nature reserves and objects is considered one of the main issues of SPNA; the website of the Ministry

of Natural Resources provides a list of national parks that recovered the maximum amounts claimed from the violators. Thus, in 2006 there were six national parks, each of which recovered from 230 thousand rubles up to 1 million 800 thousand rubles, which amounted to 82% of all the amounts claimed by the parks system. These national parks are located in the Kabardino-Balkar Republic, the Yaroslavl Oblast, Krasnodar Krai, Krasnoyarsk Krai, in Moscow and the Moscow Oblast, and in the Vladimir Oblast [10].

In the social context the assessment of activities of national parks by the amount of money claimed from violators may characterize the existence of conflicts in the relationship between the nature park and the population. Typically, a potential conflict of nature management is present in all SPNA due to the existence of contradictions between the priorities of nature conservation and economic development of territories [6]. In the conditions, when the mode of nature protection does not meet the requirements and needs of the population, there arises a misunderstanding, rejection and even opposition from the local residents, who are engaged in nature management in the protected areas. A protected area that is densely populated and actively visited has high probability of conflicts caused by the negative impact of anthropogenic transformation on the environment. However, the reasons for potential and actual conflicts are often rooted in the lack of consideration of the interests of the residents at the pre-design stage of creating SPNA, and arise in the process of formal participation in the environmental protection.

When discussing the strategy of territorial development and demonstrating the influence of SPNA on the implementation of socio-economic objectives, a key indicator is the *standard of living in the settlements adjacent to SPNA*. However, the impact of SPNA on the life of local communities cannot be estimated without assessing the overall socio-economic situation in a given territory and without taking into account the orientation and dynamics of social process. Thus, the period of formation of national parks in the northern regions in the 1990s coincided with the widespread bankruptcy and collapse of agricultural and forestry enterprises, the reduction of incomes of residents in remote northern settlements. The state of degradation and decline was observed in the forest settlements of Karelia [11], the majority of the population living below the poverty line in the Arkhangelsk region were rural residents. In other words, a low standard of living in the settlement adjacent to SPNA may not be an adequate indicator of the influence of conservation areas on the development of a society; moreover, this figure does not take into account the opportunities for self-sustainment implemented by the population: money revenue from collecting berries and mushrooms in SPNA.

An important objective of activities in SPNA is to integrate non-economic environmental values in the management of territorial development. Environmental-economic assessment of natural sites and

ecosystem services is implemented with the use of a standardized set of evaluation principles and methods developed in the framework of environmental and economic accounting (Integrated Environmental and Economic Accounting, 1993, 2003) and successfully applied in most countries of the world. There are three basic *approaches to the money evaluation of natural sites and ecosystem services*: market valuation, non-market direct (subjective) valuation, and non-market indirect valuation. The objects of economic valuation of natural resources and ecosystem services provided on the territory of SPNA are forest resources (including timber resources, non-timber resources, hay (mowing), rare plants, carbon sequestration by forests), recreational resources, hunting resources, fish resources, land resources, mineral resources, etc. Resource assessment of SPNA is based on the net economic income that local residents obtain from gathering the resources for personal consumption and for sale. The use of natural resources and ecosystem services of Bystrinsky Nature Park (Kamchatka Krai, Russian Federation), according to the results of economic valuation, was 1,046,095.4 thousand rubles a year (data for 2007) [15].

The subjective component of assessing the effectiveness of protected areas is also important. The results of sociological surveys are used in addition to money evaluation of natural sites and ecosystem services of SPNA. Thus, the analysis of the efficiency of SPNA in the Komi Republic took into consideration the opinion of its residents about the contribution of protected areas to the region's socio-economic development (maintenance of the quality of life, development of local economy, provision of residents with jobs, creation of constraints for the region's development) and the nature of interaction between local population and SPNA (restriction of traditional activities and attendance of the areas) [13].

The World Wildlife Fund uses a methodology for assessing the effectiveness and prioritization of protected areas management; the methodology was developed in 2000 and tested in Algeria, Cameroon, France and Gabon, and after that – in China, Russia and South Africa [16]. The methodology is based on an expert survey and evaluates different aspects of SPNA, including its social significance. In particular, experts evaluate the ability of SPNA to provide economic opportunities for people residing in these areas or near them, to create conditions for improving the standard of living and/or maintain the traditional nature management of local residents, to perform religious or spiritual purpose, etc. [8].

Thus, the necessary data on the effectiveness of SPNA are obtained by using sociological methods, surveys of experts or the public in general, i.e. the consumers of ecosystem services. We think that the opinion of the residents who live near the protected areas and who directly experience the advantages and/or disadvantages of this neighborhood is an important object of the research on identifying the social significance of protected areas.

The social role of protected areas in the life of local communities in the Arkhangelsk Oblast and the Republic of Karelia was identified through the study of public opinion using the method of survey. A special questionnaire included questions relating to various spheres of life and nature management; besides, the issue of functioning of SPNA was discussed with the residents who were interested in it. The research was conducted by the staff of the Institute of Ecological Problems of the North, the Ural Branch of RAS in the settlements located within the boundaries of Kenozersky and Vodlozersky national parks, and near Shilovsky Nature Reserve. Vodlozersky National Park is located on the territory of the Republic of Karelia and the Arkhangelsk Oblast, occupies an area of 0.5 million hectares and is a UNESCO biosphere reserve. In the western part of the Park the rural settlement of Kuganavalokskoye is located, in which 470 people were registered at the time when the survey was conducted. Kenozersky National Park occupies 141.4 thousand hectares in the south-western part of the Arkhangelsk Oblast at the border of Plesetsky and Kargopolsky administrative districts. Here about 2.5 million people live in the villages of Morshchikhinskaya, Orlovo, Vershinino, rural settlements of Pocha, Ust-Pocha and others. Shilovsky State Nature Reserve of regional significance occupies the area of 23.9 hectares in Krasnoborsky district of the Arkhangelsk Oblast. The Reserve was established for preserving rare and valuable game animals. The municipalities of Permogorskoye (3.2 thousand inhabitants) and Cherevkovskoye (0.7 thousand inhabitants) are adjacent to the territory of Shilovsky Reserve.

We define the axiological, emotional-and-psychological, activity-and-regulatory, economic, forecasting and integrated components of the sociological assessment of the impact of specially protected natural areas on the residents of the neighboring settlements. *Table 1* presents the data obtained in the course of the research conducted in Kenozersky National Park (2007, sample of 349 persons, including 152 respondents from Kargopolsky sector, 197 respondents from Plesetsky sector), in Vodlozersky National Park (2008, 127 respondents) and Shilovsky Nature Reserve (2007, 99 respondents). The survey was conducted with the use of availability sampling; 575 people participated in it. In addition, the prospects of creating a national park were discussed with the local population of the village of Soyana during an international environmental expedition to Soyansky Nature Reserve (1998).

Table 1 presents average values for specified territories. The surveys were conducted in different time periods, in different socio-economic situations caused by a change in the legislation, which, of course, affected the relationship between the residents and SPNA as agents of change in the sphere of nature management. Therefore, in our opinion, the trends identified in the assessments given in the table represent the most valuable research findings.

Table 1. Assessment of the impact of SPNA on the residents of the settlements (represented as a percentage of the number of all the residents interviewed)

Answer options	Kenozersky and Voslozersky national parks, Shilovsky Nature Reserve
Axiological component of the assessment How would you assess the role of SPNA in nature conservation in your region and Russia in general?	
Very important	19
Important	53
Of little importance	26
Other *(what exactly, please, specify)*	2
Activity-and-regulatory component of the assessment How often do you have problems in connection with nature conservation regime in SPNA?	
Very often	4
Often	11
Occasionally	29
Very seldom	12
I don't have any problems/ it's difficult to answer	44
Emotional-and-psychological component of the assessment* What is your attitude toward the activities of SPNA?	
Positive	41
I don't care about it	16
Negative	18
It's difficult to answer	25
Economic component of the assessment* Do you receive income related to the existence of a national park?	
Yes, I have a regular income	13
Yes, I obtain income sometimes	20
Other / I don't receive any income / it's difficult to answer	67
Forecasting component of the assessment How will your life change if the activities of SPNA sease?	
My life will be better	6
My life will not change	46
My life will be worse	36
Other (including those who found it difficult to answer)	12
Integrated assessment* Does the activity of SPNA promote *socio-economic* development of the local community?	
It does	43
It doesn't	48
Other / it's difficult to answer	9
Does the activity of SPNA promote *cultural and spiritual* development of the local community?	
It does	63
It doesn't	31
Other / it's difficult to answer	6

* The results of the surveys concerning Kenozersky and Vodlozersky national parks; the data on Shilovsky Nature Reserve is not available.

The *axiological* component of the assessment relates to the value, subjectively defined importance, and utility of protected areas for nature conservation. The degree of importance of SPNA can show that the residents agree or disagree with the necessity of nature conservation and the importance of SPNA. In this regard it should also be noted that it is common practice to underestimate the uniqueness and value of nature by those who live near a conservation area, because for them this environment is ordinary and customary. "Why create a national park? We are doing well in preserving our nature on our own", the residents of a remote northern village of Soyana wondered. The nature conservation status of the territory, the interest of researchers, representatives of culture and tourists in protected areas helps to understand the specifics of such places, to realize their significance "for themselves" and "for others". In the territories under consideration the respondents recognized the value of protected areas: about 70% of the respondents chose the answer "important" or "very important". The survey results may indicate that the recognized and legitimized value of natural areas corresponds to the value and significance that the respondents who live in the settlements near SPNA attach to these territories.

The *activity-and-regulatory component* of the assessment shows the impact of nature conservation regime of protected areas on the life of local communities. In general, from 40 to 30% of the residents surveyed do not feel any inconvenience in connection with nature conservation regime. From 30 to 25% of the residents have occasional problems in this respect; from 20% to 10% of the respondents often have problems in connection with the established rules and constraints to environmental management. As a rule, national parks have the necessary conditions for nature management, and provide incentives for the local population. At the same time, natural resources are not only a means to sustain life, but also a certain intrinsic value, when people say: "I can't live without the forest, without the lake", "I love fishing, hunting" (Kenozersky National Park), "Forest is health, livelihood, it's our life!" (Shilovsky Nature Reserve). The inhabitants of the settlements adjacent to protected areas perceive any restrictions as a violation of that value, and they are frustrated by the need to comply with the terms (to fish under the permit, etc.). According to some respondents, what they have been doing for centuries is now prohibited, controlled and must be paid for.

The residents who live near Shilovsky Nature Reserve are interested in strengthening the conservation regime for non-resident visitors of the protected areas; about half of the respondents agreed to the necessity of limiting the number of outsiders who can gather mushrooms and berries in the nature reserve. This is due to the fact that the increased demand for these non-timber products causes excitement and barbarian attitude to nature. Opportunistic people hire anyone, including random people and cardboard dwellers to collect mushrooms and berries. Mushrooms

and berries of any quality are collected. Mushroom waste and other traces of human presence remain in the forest.

The emotional-and-psychological component of the assessment focuses on the nature of the relationship of respondents toward the functioning of SPNA. The obtained results show that the general attitude of the local residents toward the activities of national parks is sooner positive (41%) than negative (18%). A quarter of the respondents found it difficult to answer or was unable to define their attitude towards the park, this may indicate the ambiguity in the attitude of the population toward the park. The respondents have difficulties because they do not have enough information and knowledge about the ongoing objectives of the park; they assess the activities of the park through the prism of personal attitude toward the park staff, etc.

The economic component of the assessment reflects the impact of the park on the living standards of the population. In our studies, from 30 to 40% of the respondents obtain income in connection with the activities of the park. These respondents include permanent and temporary employees of the park, and those who earn income through self-employment. The population of the settlements adjacent to SPNA also earns income from the resources of these areas: they sell fish, gather wild plants, etc. For example, Shilovsky State Nature Biological Reserve of regional significance formed for the purpose of preservation and restoration of game animals, is the so-called "homeland of boletus edulis". According to local residents, mushroom pickers earn up to five thousand rubles per day during the mushroom growth season (data for 2007). Not only many mushroom pickers, but also many buyers arrive in the area at this time of year. The price of mushrooms can reach 200 rubles per kilogram. Some people who gather mushrooms and berries (blueberries, cranberries) earn up to 100 thousand rubles per season. For comparison we note that a survey about the average monthly income of the respondents when calculating per person was 4.2 thousand rubles.

The forecasting component of the assessment refers to the forecast that shows the change in people's life in the case of termination of activities of the park. According to this scenario, one third of the respondents (36%) can expect deterioration of their life. Nearly half (46%) of the respondents think that their life will not change. There are those who hope for a favorable change if the activities of SPNA are terminated (6%). The basis of these opinions can be understood if we analyze the responses to the open question: "How would your life change if the SPNA ceased to function?". Some believe if it were not for SPNA, everything would be as it had been before; state farms would flourish, and enterprises would be functioning. Indeed, the creation of national parks coincided with the period of bankruptcy of agricultural enterprises and the ordinary consciousness perceives these two processes as interdependent. There is also an opinion according to which the park is seen as a competitor in rendering the tourist services,

which means that if the activities of the park were terminated, life would improve, some respondents believe. At that the residents have groundless expectations that with the disappearance of the SPNA the functional use of this territory will not change, it will also be withdrawn from economic development. They do not realize that thanks to the creation of a national park the area is preserved, it is not transformed and remains attractive to tourists. At the same time, the current desolation of remote rural settlements did not remain unnoticed. Therefore, it is no coincidence that the majority of respondents predict that their settlement would be abandoned without SPNA, just as many other settlements in the neighborhood are desolated today.

The integrated assessment of the impact of specially protected natural areas on the residents of the settlement shows that SPNA (national parks) promote socio-cultural and spiritual development of the local community to a greater extent than socio-economic development. Indeed, the preservation, study and revival of historical and cultural heritage is one of the main objectives of national parks; they systematically implement the measures to restore shrines, to return the lost historical memory. A starting point of the revival of spiritual life in the neighborhood of Vodlozersky Park was the restoration of Ilyinsky Pogost (a monument of architecture of the 18th century), memorial crosses and chapels, where regular church services are held. The 18th – 19th century chapels, old peasant houses (monuments of civil architecture), and hydraulic engineering structures (dams and mills) are currently being restored in Kenozersky National Park. In 2014 Kenozersky Park completed emergency prevention and conservation work on the objects of cultural heritage, architectural monuments of the late 19th century – the Church of the Presentation of the Lord in the village of Ryapusovsky Pogost, and the Church of Saint George the Victorious in the village of Kazarnovskaya. The national parks host bell-ringing festivals and traditional holidays, which are attended by local residents and pilgrims from different cities of Russia [1, 5].

The presence of SPNA in the territory of a municipality opens up opportunities for new economic activities, provides employment in the field of recreation and tourism. The respondents' attitude toward the development of tourism in protected areas is presented in *table 2*.

From 38 to 74% of the respondents express their positive attitude toward the possibility of tourism development. It should be noted that the residents who have the experience of working in the tourism sector, have a more positive attitude toward this type of activity. On the contrary, 72% of the respondents do not wish to participate in the sphere of recreation and tourism under any circumstances in the nature reserve, in which the organized tourism is not developed.

In conclusion, we note the following. In modern conditions the improvement of the system of SPNA is a necessary measure for the preservation of biological diversity of natural systems, maintenance of a favorable environment, preservation of

Table 2. Distribution of answers to the questions about the development of tourism in specially protected natural areas, in %

Answer options	Kargopolsky sector of Kenozersky National Park	Plesetsky sector of Kenozersky National Park	Vodlozersky National Park	Shilovsky Nature Reserve
What is your attitude toward the possibility of development of tourism in SPNA?				
Positive	74	57	49	38
I don't care	22	32	25	5
Negative	3	10	19	49
Other	1	1	7	8
In what way would you like to participate in the activities of SPNA, and in the development of tourism in SPNA? (respondents could choose more than one answer, so the total does not equal 100%)				
To be a full-time employee: a game-keeper, guard, guide, etc.	30	17	32	15
To provide accommodation for tourists	11	10	18	4
Provide with foodstuffs	9	15	8	1
To make handicrafts, souvenirs	5	10	4	5
To organize trade in handicrafts, souvenirs	2	3	4	5
To show tourists the elements of the traditional way of life, rituals, crafts	3	3	8	3
Other participation	7	14	4	3
I don't want to participate in the organization of tourism under any circumstances	23	30	35	72

cultural values. One of the main tasks of the environmental management of territories and objects is to integrate them in the socio-economic development of regions.

The results of the present study show that protected areas (national parks) contribute to the social and socio-cultural development of the territories. The presence of SPNA in the territory of the municipality opens up opportunities for new types of economic activities, and provides employment in the field of recreation and tourism. This is especially important for remote territories of the European North, where the industrial activity is not developed.

The proposed approach to assessing the social function of specially protected natural areas on the basis of the study of public opinion reveals the attitude of the population toward SPNA, its socio-economic importance, and can be used to study the role of protected areas in the territory's development. The results of the research on the social importance of protected areas with the allocation of the axiological, emotional-and-psychological, activity-and-regulatory, economic, and forecasting components of the assessment reflect the diverse nature of the impact of protected areas on the people living near them, show the relationship between environmental activities and various

aspects of social life. The latter is important for understanding the mechanism of realization of the idea of harmonious coexistence of man and nature based on the ways of rational nature management typical for the territory.

Along with the development of socio-economic trends in the activity of protected areas it is important to maintain a balance between nature conservation and the possibilities of economic use of the territory, including the use of biological resources. When the resources of a SPNA are constantly renewed (fish, mushrooms, berries, animals, etc.) it is possible to allow their industrial use by methods that do not destroy ecosystems and natural complexes. When planning the establishment of protected areas, especially when developing the regulations, it is necessary to implement real powers of the public and local communities in the adoption of environmentally and socially significant decisions that will take into account residents' interests, minimize contradictions and conflicts in the stages of operation and development of protected areas.

References

1. *Vodlozerskii natsional'nyi park: ofitsial'nyi sait* [Vodlozersky National Park: Official Website]. Available at: http://vodlozero.ru/ru/cultura/
2. *Gosudarstvennaya programma Rossiiskoi Federatsii "Okhrana okruzhayushchei sredy" na 2012–2020 gody: utv. post. Pravitel'stva RF ot 15 aprelya 2014 g. № 326)* [State Program of the Russian Federation "Environmental Protection" for 2012–2020: Approved by the Resolution of the Government of the Russian Federation of April 15, 2014 No. 326]. Available at: http://base.garant.ru/70643488/#ixzz3cZDjhUv6
3. Gromtsev A.N., Sazonov S.V. Obshchie zadachi, kriterii i printsipy formirovaniya regional'noi sistemy prirodookhrannykh ob"ektov [General Objectives, Criteria and Principles of Formation of the Regional System of Environmental Facilities]. *Nauchnoe obosnovanie razvitiya seti osobo okhranyaemykh prirodnykh territorii v Respublike Kareliya* [Scientific Substantiation of Development of a Network of Specially Protected Natural Areas in the Republic of Karelia]. Petrozavodsk: Karel'skii nauchnyi tsentr RAN, 2009. Pp. 14-15.
4. Davydova M.V., Golubinskaya T.E. Problemy nedropol'zovaniya na zemlyakh osobo okhranyaemykh prirodnykh territorii [Problems of Subsoil Use on the Territory of Specially Protected Natural Areas]. *Mineral'nye resursy Rossii. Ekonomika i upravlenie* [Mineral Resources of Russia. Economics and Management], 2010, no. 5, pp. 41-45.
5. *Kenozerskii natsional'nyi park: ofitsial'nyi sait* [Kenozersky National Park: Official Website]. Available at: http://www.kenozero.ru/sokhranenie-naslediya/restavratsiya-pamyatnikov-arkhitektury.html
6. Kostovska S.K., Chervyakova O.G., Stulyshapku V.O. Konflikty prirodopol'zovaniya na osobo okhranyaemykh prirodnykh territoriyakh [Conflicts of Nature Management in Specially Protected Natural Areas]. *Problemy regional'noi ekologii* [Issues of Regional Ecology], 2010, no. 2, pp. 208-214.
7. Kuksova M.A. Analiz zarubezhnogo i rossiiskogo opyta finansirovaniya osobo okhranyaemykh prirodnykh territorii (OOPT) [Analysis of the Russian and Foreign Experience of Financing of Specially Protected Natural Areas]. *Teoriya ekonomiki i upravleniya narodnym khozyaistvom: Vestnik. Institut druzhby narodov Kavkaza* [Theory of Economics and Management of National Economy: Bulletin of the Institute of Friendship of Peoples of the Caucasus], 2008, no. 8, pp. 170-176.
8. Metodika bystroi otsenki effektivnosti i opredeleniya prioritetov upravleniya sistemami okhranyaemykh territorii [Methodology for Rapid Assessment and Prioritization of Protected Area Management]. *WWF-Russia*, 2002. Available at: http://pandia.ru/text/77/150/7600.php

9. *Ofitsial'nyi sait Mezhdunarodnogo soyuza okhrany prirody* [Official Website of the International Union for Conservation of Nature]. Available at: http://www.iucn.org/about/work/programmes/gpap_home/gpap_biodiversity/
10. *Ofitsial'nyi sait Ministerstva prirodnykh resursov i ekologii RF. Novosti. 04.10.2007* [Official Website of the Ministry of Natural Resources and Environment of the Russian Federation. News. October 04, 2007]. Available at: http://www.mnr.gov.ru/news/detail.php?ID=16308&sphrase_id=478363
11. Kozyreva G.B. *Problemy formirovaniya sotsial'nykh institutov ustoichivogo lesoupravleniya* [Problems of Formation of Social Institutions for Sustainable Forest Management]. Petrozavodsk: Karel'skii nauchnyi tsentr RAN, 2006. 254 p.
12. *Respublika Komi: ofitsial'nyi portal. Novosti* [Komi Republic: Official Portal. News]. Available at: http://rkomi.ru/news/7120/
13. Tikhonova T.V. Otsenka effektivnosti napravlenii razvitiya osobo okhranyaemykh prirodnykh territorii Respubliki Komi [Evaluation of the Efficiency of Development of Specially Protected Natural Areas in the Republic of Komi]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2015, no. 1 (37), pp. 182-195.
14. Khomyakova A.N. Okhranyaemye prirodnye territorii kak predposylki ustoichivogo razvitiya [Protected Natural Areas as a Prerequisite for Sustainable Development]. *Sotsiologiya vlasti* [Sociology of Power], 2010, no. 2, pp. 86-94.
15. Fomenko G.A., Fomenko M.A., Mikhailova A.V., Mikhailova T.R. *Ekonomicheskaya otsenka osobo okhranyaemykh prirodnykh territorii Kamchatki: prakticheskie rezul'taty i ikh znachenie dlya sokhraneniya bioraznoobraziya (na primere prirodnogo parka Bystrinskii)* [Economic Assessment of Specially Protected Natural Areas of Kamchatka: Practical Results and Their Importance for Biodiversity Conservation (Case Study of Bystrinsky Nature Park)]. Scientific Editor G.A. Fomenko. Yaroslavl: ANO NIPI "Kadastr", 2010. 156 p. Available at: http://www.kad.yaroslavl.ru/docs/kamchatka_2011.pdf
16. Ervin J. *WWF: Rapid Assessment and Prioritization of Protected Area Management (RAPPAM) Methodology*. Available at: http://wwf.panda.org/what_we_do/how_we_work/conservation/forests/tools/rappam/

Cited Works

1. *Vodlozersky National Park: Official Website*. Available at: http://vodlozero.ru/ru/cultura/
2. *State Program of the Russian Federation "Environmental Protection" for 2012–2020: Approved by the Resolution of the Government of the Russian Federation of April 15, 2014 No. 326*. Available at: http://base.garant.ru/70643488/#ixzz3cZDjhUv6
3. Gromtsev A.N., Sazonov S.V. General Objectives, Criteria and Principles of Formation of the Regional System of Environmental Facilities. *Scientific Substantiation of Development of a Network of Specially Protected Natural Areas in the Republic of Karelia*. Petrozavodsk: Karel'skii nauchnyi tsentr RAN, 2009. Pp. 14-15.
4. Davydova M.V., Golubinskaya T.E. Problems of Subsoil Use on the Territory of Specially Protected Natural Areas. *Mineral Resources of Russia. Economics and Management*, 2010, no. 5, pp. 41-45.
5. *Kenozersky National Park: Official Website*. Available at: http://www.kenozero.ru/sokhranenie-naslediya/restavratsiya-pamyatnikov-arkhitektury.html
6. Kostovska S.K., Chervyakova O.G., Stulyshapku V.O. Conflicts of Nature Management in Specially Protected Natural Areas. *Issues of Regional Ecology*, 2010, no. 2, pp. 208-214.
7. Kuksova M.A. Analysis of the Russian and Foreign Experience of Financing of Specially Protected Natural Areas. *Theory of Economics and Management of National Economy: Bulletin of the Institute of Friendship of Peoples of the Caucasus*, 2008, no. 8, pp. 170-176.
8. Methodology for Rapid Assessment and Prioritization of Protected Area Management. *WWF-Russia*, 2002. Available at: http://pandia.ru/text/77/150/7600.php
9. *Official Website of the International Union for Conservation of Nature*. Available at: http://www.iucn.org/about/work/programmes/gpap_home/gpap_biodiversity/

10. *Official Website of the Ministry of Natural Resources and Environment of the Russian Federation. News. October 04, 2007.* Available at: http://www.mnr.gov.ru/news/detail.php?ID=16308&sphrase_id=478363
11. Kozyreva G.B. *Problems of Formation of Social Institutions for Sustainable Forest Management*. Petrozavodsk: Karel'skii nauchnyi tsentr RAN, 2006. 254 p.
12. *Komi Republic: Official Portal. News.* Available at: http://rkomi.ru/news/7120/
13. Tikhonova T.V. Evaluation of the Efficiency of Development of Specially Protected Natural Areas in the Republic of Komi. *Economic and Social Changes: Facts, Trends, Forecast*, 2015, no. 1 (37), pp. 182-195.
14. Khomyakova A.N. Protected Natural Areas as a Prerequisite for Sustainable Development. *Sociology of Power*, 2010, no. 2, pp. 86-94.
15. Fomenko G.A., Fomenko M.A., Mikhailova A.V., Mikhailova T.R. *Economic Assessment of Specially Protected Natural Areas of Kamchatka: Practical Results and Their Importance for Biodiversity Conservation (Case Study of Bystrinsky Nature Park)*. Scientific Editor G.A. Fomenko. Yaroslavl: ANO NIPI "Kadastr", 2010. 156 p. Available at: http://www.kad.yaroslavl.ru/docs/kamchatka_2011.pdf
16. Ervin J. *WWF: Rapid Assessment and Prioritization of Protected Area Management (RAPPAM) Methodology*. Available at: http://wwf.panda.org/what_we_do/how_we_work/conservation/forests/tools/rappam/

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FOREIGN EXPERIENCE

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Research on the Sustainable Development of China's Urbanization

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Industrialization and urbanization are two main directions of China's modernization since the reform and opening up for more than 30 years; however, China's performance in these two main directions are quite different. The industrialization has promoted the increase of GDP which surpassed Japan in 2010, making China the world's second largest economy; in 2013, the GDP in the Chinese mainland was RMB 56.8845 trillion Yuan, not far from "ten trillion U.S. dollars"; on the contrary, although the urbanization of the Chinese mainland has improved to some extent, unable to match with the degree of industrialization and far behind that of the developed capitalist countries. From 1978 to 2013, the permanent resident population in cities and towns in the Chinese mainland had increased from 170 million people to 730 million people, with the urbanization rate of permanent resident population increased from 17.9% to 53.7%, an average increase of 1.02 percentage points. The metropolitan areas of Beijing-Tianjin-Hebei Region, the Yangtze River Delta and the Pearl River Delta have 18 percent of population gathered in only 2.8 percent of national territorial areas, creating 36 percent of gross domestic product, so such metropolitan areas have been the main platforms driving the rapid economic growth of China and allowing enterprises to participate in international economic cooperation and competition. It's safe to say, focusing on the development of urbanization is the main task for China to achieve basic modernization in 2050.

In the future, the development of Chinese urbanization will face enormous challenges of population, resources and environment, so only the sustainable development will be feasible.

First, population pressure. In 2013, the urbanization rate of permanent resident population was only 53.73% in the Chinese mainland, and the urbanization rate of registered

population was only 35%, with a gap of 18%, indicating that more than 200 million migrant workers were unable to enjoy the urban basic public services, such as income, employment, housing, social security, children's education and so on, let alone family tragedies and psychological barriers, such as marital separation, stay-at-home children, stay-at-home elderly, sexual desire and so on. By 2050, there will be 1.6 billion people in the Chinese mainland with 70% urbanization rate, and 1.1 billion urban population in cities, which will exceed the sum of all urban population in developed countries. Are they able to live and work in peace and contentment?

Second, resource pressure. At present, among 118 resource-based cities in China, 44 cities are resource-exhausted. China's basic national condition is a large population with relatively a little (arable) land. With the progress of urbanization, more than 40 thousand hectares of arable land will be disappeared annually on average, increasingly approaching the red line of arable land of 120 million hectares. During 2000–2011, the urban built-up area increased by 76.4%, much higher than the urban population growth rate of 50.5%; the rural depopulation decreased by 133 million people, but the land for rural residential area increased by more than 2 million hectares. We can say that in the past 30 years, the urbanization development model with relatively extensive use of land has been a threat to food security. China is a country with serious water shortage, among 660 cities across China, more than 400 cities have suffered from water shortage to different extents, and 136 cities among these cities face to severe water shortages. Meanwhile, the groundwater of 50% cities has been subjected to the pollution to different degrees; the water crisis has emerged in some cities. The shortage of healthy drinking water directly affects the public's health, and the excessive extraction of groundwater is likely to lead to the irreversible desertification of arable land and other disasters.

Finally, environment pressure. The World Health Organization released the latest urban air quality database on May 7, 2014, among 112 Chinese cities listed in the database, Lanzhou, Urumqi, Xi'an, Xining, and Beijing have the most serious degree of contamination, Beijing's PM 2.5 index is 56, ranked No. 77 in the world. WHO pointed out that the levels of air pollution in about half of the urban living areas are at least more than 2.5 times the level prescribed by the WHO, only 12% of the urban living areas are in line with the WHO standards. From the database, many cities are suffering from deteriorating air quality with the reasons of reliance on fossil energy, more vehicles, low energy efficiency of urban buildings and excessive use of bio-energy for heating and cooking.

With the development of urbanization and the expansion of cities, the chemical companies around many cities have encircled cities, and such chemical companies have brought tremendous risks to the urban safety. Furthermore, the garbage problem has been the urban environment problem with much concern in recent years, the national and local governments have issued corresponding policies in recent years with a wish to raise the ratio of waste sorting; however, there are still many problems.

The sustainable development of urbanization in China has to follow the law of development of urbanization, that is, people-oriented, driven by institutional innovation, and reali-zing intensive development, low carbon development and intellectual development.

I. Following the law of development of urbanization

The urbanization is a natural historical process, a process of economic development that is bound to be encountered by China's social development; therefore, the urbanization has to follow the law, make the best use of the circumstances and keep the urbanization be a natural process.

Urbanization is the process of transfer of population from rural areas to urban areas, so it is necessary to promote the integration of urban and rural development, to narrow the gap between urban and rural areas, to realize the equal participation of the majority of farmers in the process of modernization, and to share the results of modernization. Furthermore, it is necessary to arrange the layout of urban and rural productive forces, promote modern agricultural development, and lead more urban funds, technologies, human resources, management, information and other factors of production to the countryside to support rural development. It is necessary to arrange the construction of urban and rural infrastructure, accelerate the infrastructure construction in rural areas, and strengthen the integration between urban infrastructure and rural infrastructure. It is necessary to arrange the urban and rural ecological environment construction and protection, and vigorously carry out comprehensive rural environment control to build beautiful countries. It is necessary to arrange the urban and rural public service supply, accelerate the extension of public goods to rural areas, and achieve the equalization of basic public services.

Advancing urbanization is huge and complex system engineering, requiring scientific planning, careful operation, strengthened co-ordination and orderly development. The main functional area planning of China has arranged the overall layout of urbanization, proposing the strategic pattern of Two Horizontal and Three Vertical Urbanization Plan. In China, three metropolitan areas of Beijing-Tianjin-Hebei Region, the Yangtze River Delta and the Pearl River Delta has been formed, and then the Chinese government plans to gradually develop a number of metropolitan areas in the qualified Midwest and Northeast regions, so as to form the important growth pole driving the development of Midwest and Northeast regions, and to achieve the balanced development of space of national lands.

II. Being people-oriented

The people is the key to advance the sustainable development of urbanization. Based on the development requirements of China's urbanization, the main task is to resolve the settlement of rural population transferred to towns and cities, and to improve the quality and ability of migrant workers into towns and cities.

Industrial development is the source and power of urban development and industrial agglomeration is the premise and basis of population agglomeration, so it needs to define the positioning of urban industrial functions, reasonably determine the keys to industrial development, optimize the industrial layout and develop the urban industrial systems with unique characteristics. Furthermore, it needs to strengthen the professional coordination and distribution between cities, enhance the abilities of small and medium urban industries to undertake tasks, in particular to increase the ratio of the service industry and to improve the innovation capability of cities.

Moreover, it needs to focus on improving the quality and ability of migrant workers into cities and towns, to give the equal opportunity to migrant workers for promotion in the soci-

ety; it also needs to strengthen the vocational training efforts, to increase financial input, to integrate the vocational education and skill training resources of relevant departments, and to implement the plans of enhancing the professional skills of migrant workers; it also needs to establish and improve the human resource market monitoring system, scientifically and orderly lead to migrant workers to select the occupational direction according to the demands of industrial development and changes in labor market, and provide basic vocational skills training for migrant workers free of charge; it also needs to perfect the rights protection mechanisms for migrant workers, safeguard the legitimate rights and interests of migrant workers, increase the social participation of migrant workers, and encourage and guide migrant workers to participate in party organizations, trade unions and community organizations to take part in community activities, community building and management, and cultivate the public awareness of the migrant workers, lead them to work and live with dignity and prospects.

Promoting the farmers' transformation into urban inhabitants has to adhere to the principles of free willing, defined classification and reasonable arrangement, fully respecting the wishes of farmers, developing the specific measures according to local conditions, giving priority to the stocks and orderly guiding the volume increase. The fact is that the migrant workers care only about the education of children rather than changing their registered permanent residences, the reasons are that: the first, the migrant workers in cities haven't permanent jobs; and the other, the rural census register is attached to the land contract right, the right to the use of cartilage, a variety of agricultural subsidies, relatively loose fertility policy, so the rural census register is relatively valuable. This mentality of farmers indicate that the wish of attracting farmers to change domiciles and settling down in cities by the reform of the household registration system and by lowering the threshold into cities is the one-sided wish, the small cities or towns with great expectations are less attractive. The most popular citizenization form with the highest public consensus of reform is to allow the migrant workers holding their rural census registers and issue the residence permits to migrant workers for enjoying the basic public services of cities or towns. The reform of the census register system will focus on social justice, remove various interests attached to the census register, restore the population registration function of the census register and gradually create a fair environment allowing free migration of residents.

III. Driven by institutional innovation

Urbanization is the natural development process based on economic development but also a complex process of social development; therefore, we must emancipate the mind and deepen the reform. At present, there are a number of reforms closely related to the advancing of new urbanization available, requiring careful research for stable advancing: the first is the reform of rural land management system, its key is to well implement the rural land ownership identification, registration and certification, reform and improve the rural homestead system, and to allow the rural collective land for construction to enter the market with the state-owned land coequally with the same rights and the same prices under the premise of consistent with the planning and use control; the second is the reform of land expropriation system, its key is to narrow the scope of land acquisition, standardize the land acquisition procedure and protect the interests of farmers whose

lands are acquired; the third is to improve the fiscal transfer payment system, specifically, establishing the link between the fiscal transfer payment and the citizenization; the fourth is to deepen the reform of the administration to further streamline and delegate real powers to lower levels. The development zones and high-tech zones playing an important role in the urbanization process are not government agencies, how to better play their roles and how to give them authorities corresponding their responsibilities are to be resolved by reforming and innovative thoughts and approaches.

Advancing sustainable urbanization not only is the construction of cities, but also should continuously improve urban governance, build the spirit of cities, improve urban civilization, and show good images of cities. Urban governance has to achieve five changes: **Governance object,** changing from the simple management of urban economic growth and spatial scale expansion to the management of the coordinated development of economy, society, culture and ecological environment in cities and to the unity between the pursuit of maximum urban welfares and the sustainable development; **Governance body,** changing from the centralized administrative management to the diversified social governance of government, enterprise and society; **Governance concept**, changing from the concept of focusing on construction rather than management to the concept of laying equal stress on construction and management, deepening the reform of urban management system, with public services oriented, transforming the functions of urban governments, cultivating a group of experts as urban management cadres, constructing and managing the cities with scientific attitudes, advanced concepts and expertise, and increasing the comprehensive operational benefits of cities; **Governance approach,** promoting the public participation, and achieving the transformation from inefficient and extensive management to scientific, efficient and refined management and the transformation from domestic and inconsistent management to sustained and normal management; **performance objective of governance,** promoting the transformation from object-oriented performance goal to people-oriented performance goal, enhancing the fairness, inclusiveness and degree of civilization of cities, and improving their sense of belonging and happiness of the people.

Urbanization development requires a lot of capitals, the cost of citizenization per person is about RMB 100,000 Yuan, requiring more than 20 trillion Yuan for resolving the citizenization of only migrant workers; therefore, it is necessary to establish the cost-sharing mechanism composed of governments, enterprises and individuals, and properly connect the citizenization of rural migrant workers with the reform of rural property right system. The citizenization of rural migrant workers should not be based on the precondition that the rights of their original rural assets be abandoned, on the contrary, should be based on the rights identified, the approaches must be developed to help the farmers convert their various resources dominated and possessed in rural areas into assets voluntarily through market-based instruments, in this way, the rural migrant workers will move to cities with assets, breaking down the cost threshold of citizenization.

IV. Realizing intensive development, low-carbon development and intellectual development

Such a development requires increasing the utilization efficiency of urban construction

lands, so it needs to strictly control the increments, revitalize the stock, optimize the structure, improve the efficiency, and effectively improve the intensification of urban construction lands by following the idea of strictly observing the bottom line, adjusting the structure and deepening the reform. The development must be limited within the arable land red line, where in the red line refers to not only the quantity, but also the quality.

Such development must be based on local conditions and scientific layout to effectively improve the level of intensification of land use; first, it needs to establish the space control system of land use, strictly define the urban development boundaries, and resolutely control the unlimited expansion of cities; second, it needs to strengthen the economic and intensive use of industrial lands, increase the unit GDP productivity of land for construction, and decrease the land for fixed assets. Third, it needs to study and promote the mode and technology of land saving and intensify the land development of urban built-up area. Fourth, it needs to achieve the rational development and utilization of underground spaces of cities and develop the special development and utilization planning of such underground spaces. Fifth, it needs to reinforce the renovation of shanty towns and urban villages, and strive to achieve the targets of improving the living conditions of the masses, improving the appearance or environment and strengthening the rational use of lands.

In addition, it needs to focus on urban ecological environment protection, strictly define the basic ecological control lines and urban development boundaries. It needs to integrate cities with the nature to create the environment that residents could see mountains and rivers and be free from nostalgia, to achieve the intensive and efficient production space, livable and moderate living space, and beautiful ecological space, and to form the rational structure composed of production space, living space and ecological space.

Smart city is the new ideas and new models of intelligent urban planning, construction, management and service by using Internet of Things, cloud computing, big data, geospatial information integration and other next-generation IT. The construction of a smart city is important to accelerate the integration of industrialization, informatization, urbanization and agricultural modernization, and to improve the sustainable development of cities. In addition, it needs to play a decisive role of the market in allocation of resources, strengthen and improve the government's guidance, co-ordinate materials, information and intellectual resources, and strive to provide convenient public services, refined urban management, livable environment, intelligent infrastructure, effective and long-lasting network security, effectively improving the overall carrying capacity of cities and happy feelings of residents, and promoting the overall upgrade of quality and level of the development of urbanization.

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Industrial Low-Carbon: Dilemma and Path Selection (Case Study of Jiangxi Province)

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Since the Industrial Revolution, the mode of economic development characterized in high energy consumption, high pollution and high emission based on fossil fuels has not only driven the rapid development of economy and society, but also leads to a series of ecological and environmental problems such as global warming, energy shortage, and environmental degradation, resulting in sharp contradictions between ecological environment and economic development, which have been the bottleneck and constraints increasingly restricting the economic and social development. Under such circumstances, the low-carbon economy has emerged and been gradually accepted by the world, forming the industrial low-carbon, which has been a major trend for the world economy.

I. Development of China's carbon emission and industrial low-carbon

According to the data from climate analysis tool of the World Resources Institute (WRI) 2009, China, the United States, European Union, Russia and India and the remaining five nations are the top ten countries with carbon emissions. See *table 1*.

From table 1, although China's carbon emission has ranked the first in the world, its per capita carbon emission has ranked 72nd; American carbon emission has ranked the second in the world, but the per capita carbon emission has ranked 7th; and Russia's carbon emission has ranked 4th, but the per capita carbon emission has ranked 18th.

To address the climate change, in the General Climate Assembly in Copenhagen

Table 1. Top ten nations with carbon emissions

Rank	Nation	Emission load (a)	Percentage of the world	Quantity per capita (b)
1	China	7219.2	19.12%	5.5 tons (72)
2	U.S.	6963.8	18.44%	23.5 (7)
3	EU	5047.7	13.37%	10.3 (39)
4	Russia	1960.0	5.19%	13.7 (18)
5	India	1852.9	4.91%	1.7 (120)
6	Japan	1342.7	3.56%	10.5 (37)
7	Brazil	1014.1	2.69%	5.4 (74)
8	Germany	977.4	2.59%	11.9 (25)
9	Canada	731.6	1.94%	22.6 (8)
10	British	639.8	1.69%	10.6 (36)

Notes:
(a) In one million tons, including the emission loads of six kinds of greenhouse gases, expressed by carbon dioxide equivalent (CO_{2e}).
(b) Ranked by the amount per capita.
Source: Climate analysis tool of World Resources Institute (WRI) 2009, data of 2005.

convened in December 2009, China's government with highly-developed sense of responsibility, gave the solemn promise to the world: the carbon emissions per GDP in 2020 would be 40-45% lower than those in 2005, and the proportion of the non-fossil fuels consumed would be around 15% to the primary energy consumed. To achieve this goal, Chinese government has set up the climate change leading group, National Energy Bureau, China Energy Conservation Center and other specialized agencies to address climate change, to safeguard the energy security and to promote the development of industrial low-carbon. Furthermore, Chinese government has formulated a series of policies and measures on low-carbon development, including *Circular Economy Promotion Law of the People's Republic of China*, *Renewable Energy Law of the People's Republic of China* (amendment), *Outline of China's Policies concerning the Comprehensive Utilization Technology of Resources*, *Opinions on Accelerating the Development of Energy Conservation and Environment Protection Industries* and others, specifying the path to the development of industrial low-carbon: vigorously developing the strategic and emerging industries characterized in low energy and resource consumption, good economic returns, and broad market prospects, promoting the transformation of traditional industries to low-carbon, and increasing the proportion of modern service industry in the economy. Furthermore, Chinese government has implemented the specific enterprise-oriented projects specifically for the low-carbon industries, such as Top 1000 Energy-Consuming Enterprises Program, Top 10000 Enterprises Energy Efficiency Program and Eliminating Backward Production Capacity Program; moreover, Chinese government has launched

the specific engineering for the low-carbon industries such as Energy-saving Products Benefiting People Program, Golden-sun Demonstration Project and others.

II. Practice and dilemma of industrial low-carbon in Jiangxi

In recent years, Jiangxi government has carried out useful explorations and practices on industrial low-carbon: a) promoting the technological innovation of energy-intensive industries, expanding and modernizing main equipment in high energy-consuming industries such as cement, steel and thermal power, promoting the energy conservation and emission reduction technology and reducing the energy consumption in these industries, for example, installing the residual heat and pressure utilization devices to major steel companies such as power generation device of differential pressure for blast furnace, power generation device of coke dry quenching and others, providing low-temperature residual heat power generation device to cement clinker production line of new rotary kilns and installing desulphurization equipment in the thermal power industry; b) eliminating the backward production capacity, decommissioning a number of production lines characterized in high energy consumption and high pollution in thermal power, steel, cement and other industries; c) implementing a number of key projects on energy efficiency in buildings, transportation and other areas, for example, the promotion of green building materials, the implementation of contract energy management, the implementation of Golden Sun works and the promotion of new energy vehicles in the public transport sector and others; d) striving to develop ten strategic and emerging industries such as new energy, new materials, biology and new medicine, new generation of information technology, aviation industries, advanced equipment manufacturing, lithium and electric cars and to develop eco-tourism, e-commerce, software and service outsourcing and other modern services.

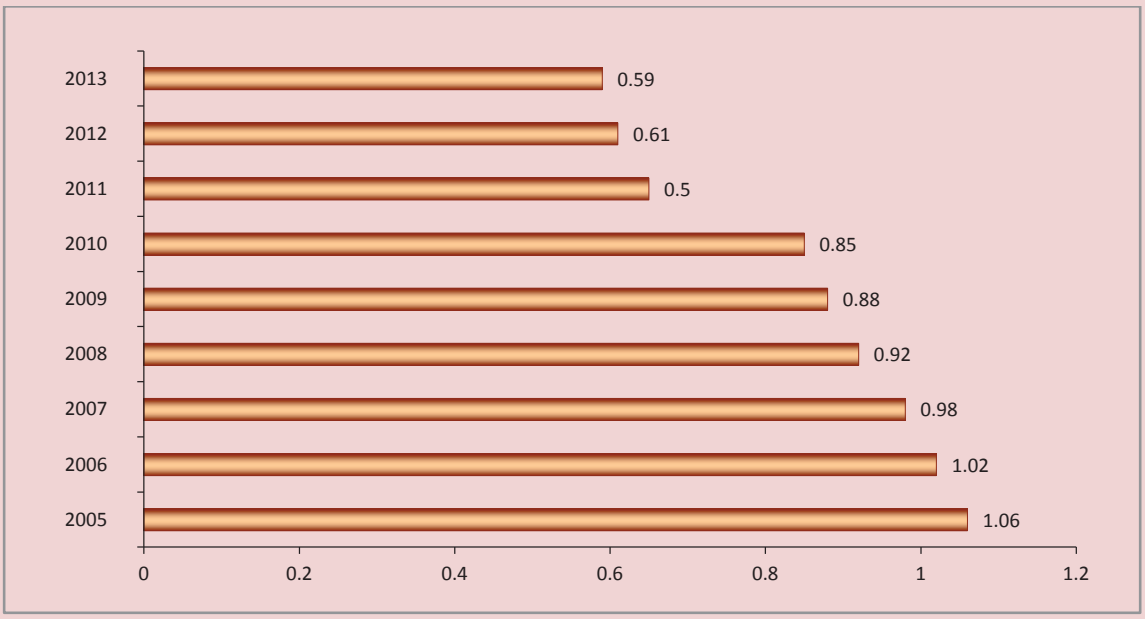
Through above actions and measures, the industrial low-carbon strategy in Jiangxi has achieved remarkable results: the proportion of new strategic industries and high-tech industries is increased in overall economy and the overall energy consumption per unit of GDP has continued to decrease. In 2013, overall energy consumption of GDP of RMB 10,000 Yuan was 0.59 tons of standard coal, decreased by 30.6% compared with that in 2010 *(figure 1)*. And the emission level of output value of RMB 10,000 Yuan has also been decreased.

However, the industrial low-carbon in Jiangxi has achieved positive progresses, but also faced with a number of difficulties.

1. Constraints of the mid-industrialization

Being in the early stage of the mid-industrialization, Jiangxi has not completed the task of industrialization; and for a long period of time in the future, Jiangxi's government will have to adhere to the industrialization-led development strategy, accelerate the industrialization, speed up the transfer of industries both at home and

Figure 1. Energy intensity of Jiangxi
(unit: ton of standard coal / GDP of RMB 10,000 Yuan)



abroad. As we all know, the advance of industrialization requires a lot of energy for support, proved by the fact that the advance of industrialization in Jiangxi has been accompanied with a substantial increase in energy consumption since the new century *(figure 2)*. Therefore, theoretically speaking, the carbon emission load in Jiangxi Province will continue in inverted-U upward trend in the coming period, indicating that Jiangxi government has still a long way from the development of industrial low-carbon.

2. Constraints of the energy consumption structure

The coal-dominated energy structure has seriously affected the carbon emissions of Jiangxi. *Table 2* shows the information on carbon dioxide emissions of primary energies. From the table, the carbon dioxide emission is the highest whether the primary energies are used for power generation or for heating.

The proportion of coal consumption of Jiangxi to total energy consumption is maintained at 67.8% ~ 74.5% since the new century *(see figure 3)*.

Based on the characteristics of energy resources in China of being rich in coal resources and inadequate in oil and gas resources, the coal-dominated energy consumption structure characterized by high carbon emission will be difficult to be changed in Jiangxi in the future for a long period of time, which will be a constraint for the transformation of Jiangxi to low-carbon industry in a long term.

Figure 2. Change of total energy consumption in Jiangxi Province in 2000–2012
(unit: 10,000 tons of standard coal)

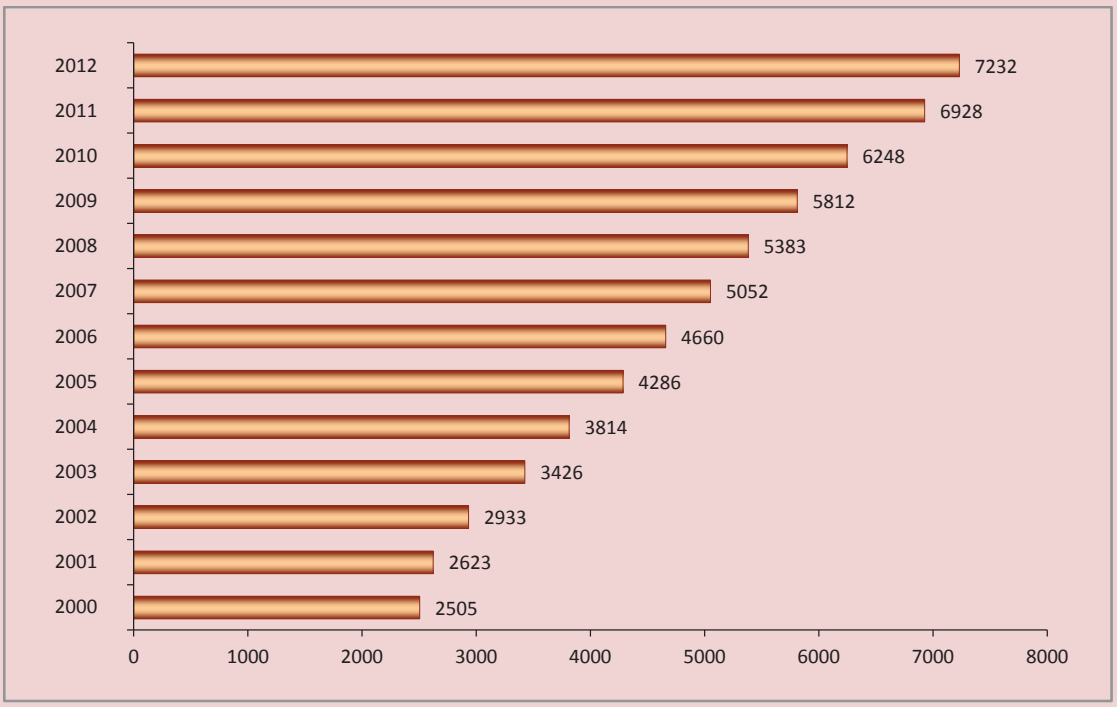


Table 2. Comparison of carbon emissions of different energies for power generation unit: g / kWh

Energy type	CO_2 emission load
Biomass gas	409
Wind power for electricity generation	24
solar power for electricity generation	27
Nuclear power for electricity generation	32
Natural gas (heating)	49
Solar power cell	101
Natural gas (steam for electricity generation + heating)	148
Natural gas (steam for electricity generation)	428
Stone Coal (heating)	622
Lignite (heating)	729
Stone coal (for electricity generation)	949
Lignite power for electricity generation	1153
Source: German Oeko-institut FR-infografik, information from World's Wind Power Network.	

Figure 3. Proportion of coal consumption of Jiangxi to total energy consumption (%)

Table 3. Energy consumption and carbon emission of three industries of Jiangxi

Three Industries	Primary industry	Secondary industry	Tertiary industry
Average energy intensity (tons /10,000Yuan)	0.11	0.85	0.43
Carbon emissions	Low	High	Medium

3. Constraints of the industrial structure

From the carbon emission loads of three industries, the carbon emission of the secondary industry is much higher than that of the tertiary industry and the primary industry *(see table 3)*.

Due to the rapid progress of industrialization in Jiangxi Province, the industry has been dominated in the national economy, ranked in Secondary Industry, Tertiary Industry, and Primary Industry.

Also, in the secondary industry, the heavy chemical industry characterized in large energy intensity has occupied a particularly large proportion, which makes the industrial low-carbon development in Jiangxi extremely hard.

4. Slow development of low-carbon technology

Low-carbon technology has been the important support to the development of industrial low-carbon. As a less developed region, Jiangxi possesses underdeveloped overall technologies and limited R&D capabilities; furthermore, the clean and efficient use of renewable energy, new energy, and coal, carbon dioxide capture and storage and other low-carbon

technology research and development is at a starting stage.

5. Imperfect relevant laws and rules and market system

Although in recent years, the Chinese government and local government in Jiangxi has issued a series of legal documents directly related to low-carbon development, generally speaking, the policies and legal systems for the promotion of low-carbon economic development have been still in a weak state, and the production activities of governments at all levels, enterprises and individuals have not been strictly limited and the market-based incentive and restrictive mechanism has been unavailable. Jiangxi government has not established the carbon emission trading market of provincial level, and the energy conservation and emission reduction standards on a variety of industries and products are incomplete.

III. Path Selection for industrial low-carbon of Jiangxi

1. Increasing the proportion of tertiary industry in economic aggregate

From the structure of three industries, the emission level of the tertiary industry has been significantly lower than that of the second industry; based on such realities, when conducting the path selection of industrial low-carbon development, Jiangxi government must vigorously develop the tertiary industry, gradually increase the proportion of tertiary industry, namely service industry in economic aggregate, and adjust the proportion of three industries as well as promote the transformation of industrial low-carbon.

2. Achieving the low-carbon development within three industries

Vigorously developing the low-carbon agriculture: first, significantly reducing the amount of fertilizers and pesticides used, lowering the dependency of agricultural production process on fossil fuels, and taking the road of organic ecological agriculture; second, making full use of the remaining energy from agriculture. Furthermore, it needs to actively explore the new ways for the utilization of crop straw resources, promote solar energy and biogas technologies and make use of livestock manure from large-scale livestock farming for developing biogas, so as to obtain biomass.

Energetically developing the low-carbon industry: focusing on adjusting the internal industrial structure within the industry, raising the threshold of market access of some energy-intensive industries, eliminating the backward production capacities, giving priority to the development of energy-saving and environmental protection industry, new energy and new material, biology and new medicine, new generation of information technology, aviation industries, advanced equipment manufacturing, lithium and electric vehicles and other strategic and emerging industries; while realizing the expansion of gross scale, continuing to reduce the energy consumption per unit of industrial added value, and controlling the growth of total industrial energy consumption; with the promotion of advanced and practical technologies, R&D of extended technologies, achieving

the comprehensive modification and improvement of traditional industries, extending the industrial chain, increasing the efficiency of energy use of industries, and lowering the polluting emission level of traditional iron and steel, nonferrous metals, building materials, chemicals and other industries characterized in high energy consumption and high pollution.

Energetically developing the low-carbon service industry: focusing on the construction of tourist attractions, green hotels, low-carbon tourist cities and green enterprises, promoting the transformation of tourism development, actively integrating with low-carbon industry development strategies of Jiangxi; expanding the cultural industries for press and publications, cultural performances, animation games, advertisement and exhibitions; and accelerating the transformation of low-carbon of the transportation industry, substantially saving energy, carbon dioxide emission and water.

3. Upgrading the technological innovation of the low-carbon industry

Starting from the development of core technologies for industrial low-carbon, it needs to highlight the dominant position of enterprises in technological innovation, scientifically give play to the macro-control functions of governments, and adjust the behaviors of relevant subjects through institutional innovation, so as to protect the effective flow of low-carbon industrial technologies and knowledge during the dynamic innovation, and to promote the low-carbon innovation process of all dimensions and all value chains. Through original innovation and integrated innovation, it needs to focus on the low-carbon technologies that allow larger benefits in short and medium periods of time, and independently develop the unique low-carbon industrial technology innovation system.

4. Building the low-carbon energy structure system

By increasing the level of energy technology and widely promoting clean coal and other advanced energy technologies, it can reduce the emissions of pollutants, vigorously develop clean energy sources, including renewable energy, gradually change the energy situation of over-reliance on coal, promote the diversification of energy supply, and gradually increase the proportion of new energy and renewable energy in the energy mix. In addition, it needs to orderly develop the hydropower, accelerate the development of wind energy and solar energy; furthermore, it needs to reasonably and orderly develop the nuclear energy, and promote the development of biomass energy without security loss.

5. Adhering to the industrial transfer at home and abroad with the precondition of low-carbon development

It is necessary to focus on the market access, strictly limit the transfer of high-carbon industries, well restrict the incremental low carbon from the industrial transfer at home and abroad; to focus on the guidance and control of the production

process, strengthen the institutional innovation, promote the low-carbon transformation of stocks of domestic and foreign-funded companies in the high-carbon industry in Jiangxi and pay close attention to the transfer of international low-carbon technologies, and promote the industrial low-carbon innovation and the development of new and strategic industries of Jiangxi.

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Improvement of the Mechanism for the Management of Innovation Activity in the Manufacturing Industry

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Abstract. The transition of Russia's economy from raw materials exporting model of development to the innovation model is a national priority, since it contributes to intensive and sustainable economic growth and reduces economic dependence on external markets. GDP growth rate of 75–90% in the developed countries such as the USA, Japan, Germany, the UK, France, and also in the newly industrialized countries of Southeast Asia and China, is achieved due to the "progress of knowledge" – the intellectualization of the main production factors. Due to this fact, the increase in the standard of living in Russia, as well as overcoming its technological and economic lagging behind the more developed countries is possible only on the basis of the increase in productivity, enhancement of Russia's competitiveness in international markets of innovative products, modernization and sustainable development of industrial enterprises through the creation of new innovation capabilities and the extensive utilization of that which have already been accumulated. The manufacturing industry is a powerful driving force of innovation economic development, since this sector concentrates the main production of the most technologically sophisticated and knowledge-intensive products with high added value. However, in the process of market transformations the products of domestic manufacturing enterprises have become much less competitive on international markets. There is a steady tendency toward the growth of imports and decrease of exports of enterprises of this sector. In this regard, the article identifies the factors that have the greatest influence on the development of innovation activities in the manufacturing industry. The author builds a multivariate regression model that determines the degree of influence of various socio-economic factors on the level of development of innovation activity in manufacturing. The paper proposes an organizational-economic mechanism for enhancing innovation in the manufacturing industry and increasing the competitiveness of the products of enterprises in this sector.

Key words: management mechanism, manufacturing industry, innovations, innovation activity, factor analysis, modeling.

The manufacturing industry is one of the drivers of innovative development of the economy; this sector concentrates the main production of most technologically sophisticated and knowledge-intensive products with high added value. A variety of technological conversions, focused on manufacturing industry enterprises, on the one hand, makes this sector a major source of innovative products, goods and services and, on the other hand, is a major consumer of a wide range of innovative developments.

The manufacturing industry (MI) contributes to the country's economic development greatly. In 2013 the enterprises of this branch provided almost 40% of GDP. The social significance is proved by the fact that it accounts for around 15% of the total employment in the economy (*tab. 1*).

In the period of market transformations Russia witnessed a process of development of the innovative activity management mechanism, particularly in the manufacturing industry. This mechanism is a system with the following components: procedures for determining priority research directions, a list of critical technologies, a method to develop and implement scientific, research and production programs of various levels and resource supply, technologies to use of obtained results, including problems to commercialize innovation and introduce intellectual property into economic circulation [4].

Nowadays the Russian Federation has a certain legal framework, aimed at promoting innovative activity in the manufacturing industry. The government has developed and adopted the laws "On Science and State Scientific and Technological Policy" and "On Industrial policy in the Russian Federation", approved the "Strategy for Innovative Development of the Russian Federation for the Period up to 2020" and the state programs "Development of Industry and Improvement of its competitiveness", "Economic Development and Innovative Economy". Similar legal acts, strategies, programs and roadmaps are adopted at the regional level.

Table 1. Share of manufacturing in the economy of Russia, %

Indicator	Year					2013 to 2005, p.p.
	2005	2010	2011	2012	2013	
MI share in GDP	41.1	40.8	40.7	40.4	39.3	-1.8
Value of fixed assets	8.8	8.6	8.2	8.1	8.3	-0.5
Volume of export	17.3	16.4	16.3	16.4	16.6	-0.7
Number of employees	17.2	15.2	15.2	15.0	14.7	-2.5
Tax revenues to the budgets of all levels	13.8	17.5	17.4	18.0	н\д	4.2*
Investment	16.4	13.2	12.9	13.4	14.1	-2.3

* 2012 to 2005, in %.
Source: data of the Federal State Statistics Service of the Russian Federation. Available at: http://www.gks.ru.

The priority directions and key objectives of the state support for innovative activity are defined in the "Strategy for Innovative Development of Russia up to 2020", approved by the RF Government decree of December 8, 2011 no. 2227-p. The key indicators stipulated by this document are the following:

– increase in the share of industrial enterprises engaged in technological innovation, from 10–15% to 40–50% in the total number of enterprises in industrial production;

– increase in the share of export of Russian high technology products in the total world export of high-tech goods from 0.3 to 2%;

– increase in the share of innovative products in the total volume of industrial products, from 5–7% to 20–35%.

However, despite the efforts the pace of innovative activity development in the manufacturing sector remains very insufficient for achieving the Strategy indicators and turning this sector into an engine of innovation development of the country's economy. First of all, this is confirmed by the extremely low growth rate of innovative activity of the manufacturing enterprises.

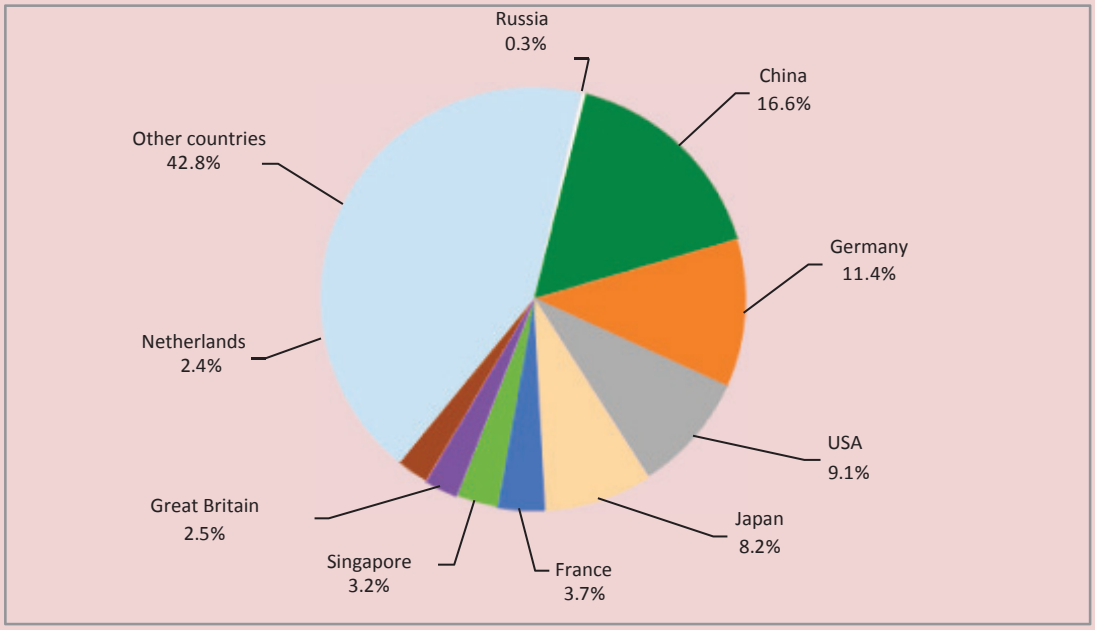
Although these enterprises made a significant contribution (in 2013 – nearly 72%) to the formation of the total volume of innovative products, the level of innovation activity did not exceed 13% in 2005–2013 and the share of innovative products in the total volume of shipped products amounted to 12% (for comparison, in the European countries the level of innovative activity of industrial enterprises was much higher, for example in Finland – 52.5%, Germany – 71.8%, France – 40.1%). This indicates a low interest of domestic manufacturing enterprises in innovation (*tab. 2*).

The low competitiveness of goods produced by the domestic processing complex, caused by the insufficient development of innovative activity, led to the fact that in 2012 Russia accounted only for 0.3% of the world market of engineering products (*fig. 1*).

Table 2. Indicators reflecting the innovative activity development level in the manufacturing industry of Russia

Indicator	Year					2013 to 2005, p.p.
	2005	2010	2011	2012	2013	
Level of innovation activity of MI enterprises, %	10.9	11.3	11.6	12.0	11.9	1.0
MI contribution to the total production of innovative products, %	84.8	79.7	62.1	68.7	71.8	-13.0
Share of innovative products shipped by MI in the total volume of shipped goods, performed works and services, %	7.0	6.7	6.8	9.6	11.6	4.6
Source: data of the Federal State Statistics Service of the Russian Federation. Available at: http://www.gks.ru						

Figure 1. Share of the countries in the world export of machinery and equipment in 2012



Sources: *International Merchandise Trade Statistics*. Available at: http://comtrade.un.org/pb/CountryPagesNew.aspx?y=2012; *Eurostat*. Available at: http://epp.eurostat.ec.europa.eu.

This situation necessitates the improvement of the existing mechanism to manage innovative activity in the manufacturing sector given the main factors influencing the development of innovation creation and implementation.

The identification of the factors having a great impact on the innovative activity development level in the sector under consideration is carried out on the basis of factor and correlation and regression analyses for the 2006–2013 period in all RF subjects (640 observation points).

The index reflecting the innovative activity development level in the manufacturing sector is chosen as an effective index. It is calculated by aggregating 4 indicators into the integral one:

1. Share of innovative products shipped by manufacturing enterprises, in the total volume of shipped products (this figure reflects the volume of innovative products, manufactured by the enterprises. High values of this ratio indicate that the enterprises of the manufacturing sector stimulate innovative activity and the diffusion of innovation is rather the faster).

2. Share of innovative products shipped by processing complex enterprises in the total volume of innovative products in the region (this figure also reflects the volume of innovative products, but it allows us to determine these enterprises' contribution to the formation of the total volume of innovative products manufactured in the region).

3. Level of innovative activity of manufacturing enterprises (this figure allows us to estimate the degree of manufacturing industry's involvement in innovation).

4. Volume of innovative products shipped by manufacturing enterprises, calculated per an employee (this indicator helps measure labor productivity in the production of innovative goods).

We have a sufficient statistical data base for 17 socio-economic indicators and can conduct quantitative and qualitative assessments. They are singled out as dependent variables.

The correlation analysis reveals that 8 of the 17 selected indicators have a fairly close relationship with the innovative activity development level in the manu-facturing industry. The statistical factor analysis helps group these 8 indicators into 3 components: financial (F), personnel (P) and manufacture (M). The financial component includes factors, such as a share of manufacturing enterprises' expenditure on technological innovation in the total expenses on technological innovation; a share of investment in fixed capital of manufacturing enterprises in GRP; a ratio of average wages at manufacturing industries to average wages in the region's economy. The personnel component includes factors, such as a proportion of employees engaged in research and development in the total number of economically active population; a number of protected titles for inventions and utility models per 10 thousand population; a share of population with higher education in the total employment in the economy; a number of organizations involved in research and development per 10 thousand population. The manufacture component includes only one indicator reflecting the degree of wear of fixed assets in the manufacturing industry.

We have a regression equation on the basis of the correlation-regression analysis of the resulting index (index, reflecting the innovative activity development in the manufacturing industry (IA_{MI}) and the selected components (*tab. 3*).

The quality of the obtained models is confirmed by the significant coefficients of multiple correlation and determination, as well as high values of F-tests. The regression equation coefficients prove that to the greatest extent the innovative activity development level in the manufacturing sector depends on the financial factors, which account for 27% of the variation (a share of personnel and manufacturing components accounted for 24% and 11%, respectively).

Table 3. Equation and its basic characteristic

Equation	Model characteristics
$IA_{MI} = 0.39 + 0.12 \times F + 0.04 \times P - 0.05 \times M$	$R_{correlation} = 0.72$; $R^2_{determination} = 0.52$; $F(3.636)_{F\text{-}test} = 227.5$; $p = 0.0000001$;
IA_{MI} – a index, reflecting the innovative activity development level in the manufacturing industry; F – a financial component; – P a personnel component; M – a manufacture component.	

According to the mathematical dependence, the increase in the innovative activity development level in the manufacturing industry can be achieved due to the growth of financial and personnel factors (the 1% increase in the financial and personnel components values involves the 0.12 and 0.04 increase in the index reflecting the innovative activity development level in the manufacturing sector, respectively), and the reduction of adverse production factors (the 1% decrease in the manufacture component value involves the 0.05 increase in the index reflecting the innovative activity development level in the manufacturing industry). Taking into account the identified factors, we can conclude that the functioning of the organizational-economic mechanism should be aimed at boosting innovation activity in the manufacturing industry by creating conditions for the improvement and development of financial, personnel and production capacities (*fig. 2*).

The main goals of the proposed mechanism are the following: enhancing innovative activity, improving the competitiveness of goods produced in the studied industry. The formation and implementation of this mechanism is carried out by the federal, regional and municipal authorities on the basis of the relevant normative-legal acts in the field of innovation.

The structure of the mechanism to manage innovative activity in the manufacturing industry includes 4 blocks.

The first block is devoted to the financial support of innovative activity. It presupposes the study of financial resources that can be involved in the innovation process, terms and conditions of their mobilization, as well as the analysis of possible ways of their use.

The second block – legal support – is designed to form a legal basis and a favorable institutional framework to conduct innovative activity.

The third block includes information support. It is directed to provide a management subject with relevant and reliable information that will facilitate reasonable and timely management of innovation creation and implementation in the manufacturing industry.

The fourth block – organizational support – is aimed at creating the institutional structures required for initiation, development and monitoring of innovation management in the manufacturing industry.

We propose to use economic methods of direct (concessional lending; budget funding; grants; interest-free loans; price compensation; provision with public orders) and indirect impact (preferential taxation; restructuring of debt and enterprises' payments; property support for innovators; regulation of prices and tariffs; financial support for the training and retraining of personnel; risk insurance, modernization loans), organizational (creation of specialized structures for the interaction between innovative activity participants), planning (development of strategies, programs and roadmaps for the development of innovative activities), legal (improvement of the regulatory framework), administrative (development of

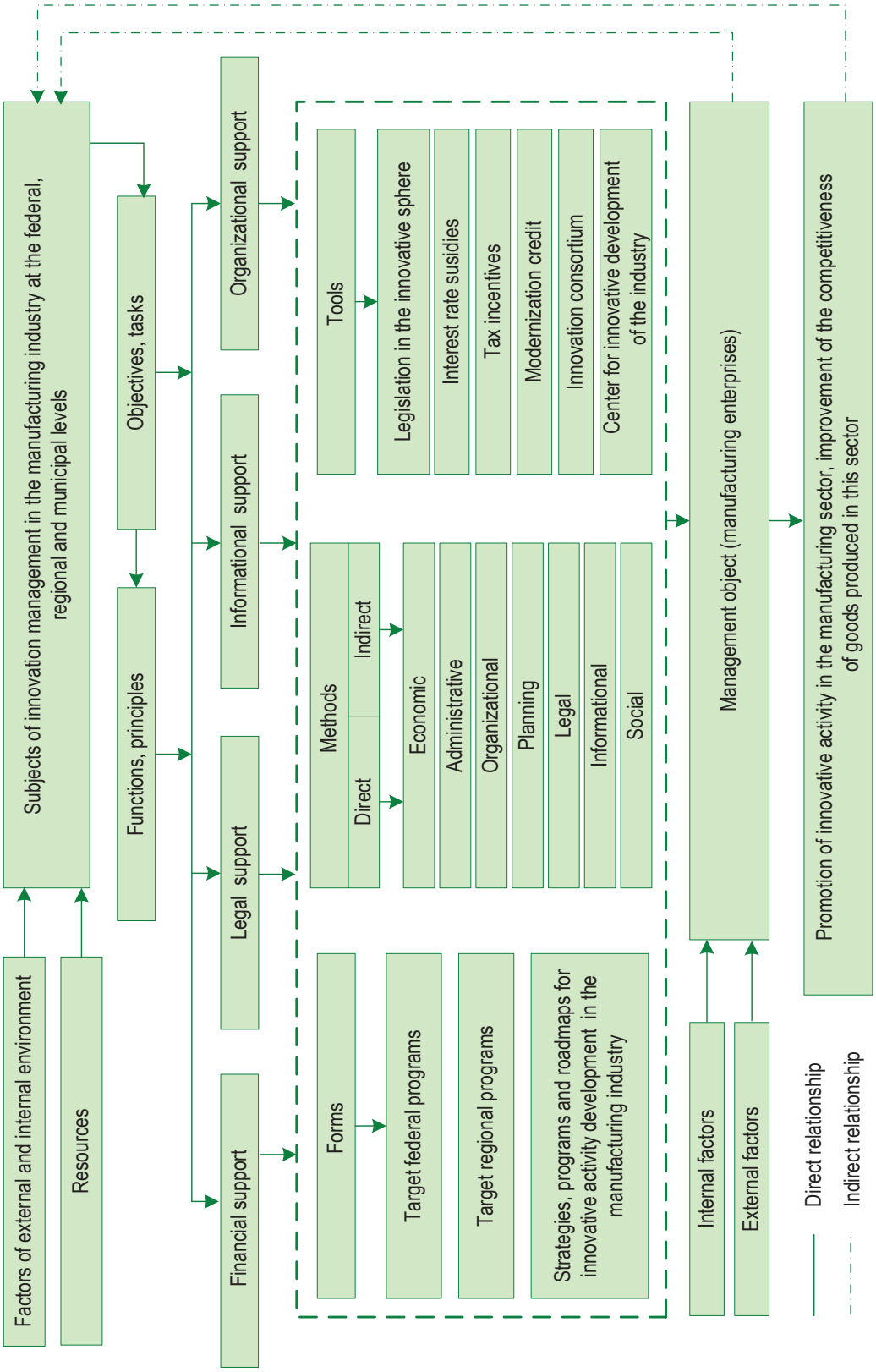


Figure 2. Conceptual scheme of the mechanism to manage innovative activity in the manufacturing industry

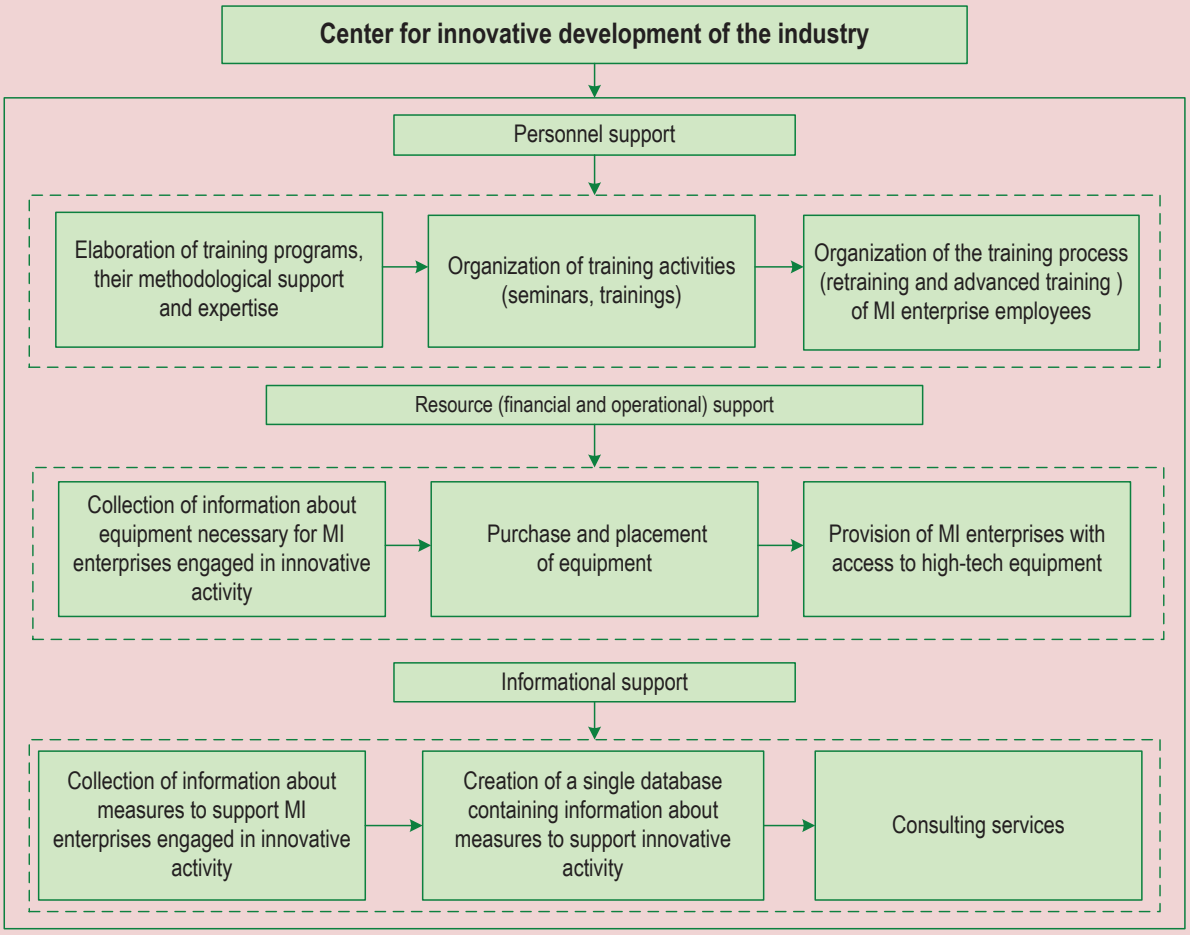
the implementation process, examination, licensing and innovative project monitoring) and informational methods and tools (formation of the system of consulting services provision and the database of innovative projects).

The use of targeted support is the key direction to improve the methods and tools of the organizational-economic mechanism of innovative activity management in the manufacturing industry. It has regard to the degree of enterprises' involvement in the innovative activities. This approach will help guarantee the integrated (financial, personnel, production) support for development, implementation and promotion of innovative products at all stages of the innovation cycle (*tab. 4*).

Table 4. Proposals to improve methods and tools of innovative activity management in the manufacturing industry according to the degree of enterprises' involvement in the creation and implementation of innovation

Level of MI enterprises' involvement in IA*	Content of the methods and tools of innovative activity management
MI enterprises having a full innovation cycle	1. Assistance in certification of innovative products in order to promote them on the world market. 2. Provision of MI enterprises with a state order. 3. Guarantee of tax incentives for innovative products export. 4. Conduct of marketing research in potential markets for innovative goods produced by MI enterprises. 5. Creation and development of the information portal that will host information about commercialization and support for innovative products promotion to the world market. 6. Publication of catalogues containing information about major innovative goods produced by MI enterprises (in Russian and English).
MI enterprises having at least half of the innovation cycle	1. Provision of tax incentives (investment tax credit, modernization credit) and interest rate subsidies on loans to MI enterprises OP engaged in innovative developments. 2. Maintenance of a database containing the information on provision of MI enterprises engaged in innovation activities with loans 3. Organization of participation of MI enterprises employees in business missions abroad. 4. Assistance in the formation and development of innovation consortia. 5. Consultancy support for obtaining public and bank financial resources to implement innovative projects. 6. Consulting services in the field of commercialization and international patenting of innovative products. 7. Creation and development of the Centre for innovative development of the industry
MI enterprises having one stage of the innovation cycle or not involved in the process of creating and implementing innovation	1. Creation of centers for collective use of equipment necessary for the implementation of innovation. 2. Provision of tax incentives (investment tax credit, modernization credit) and interest rate subsidies on loans to MI enterprises OP engaged in innovative developments. 3. Establishment and development of the center for applied qualifications. 4. Creation of a single information portal that contains information about the state measures to support innovative activity in the manufacturing sector. 5. Assistance to MI enterprises in the interaction with innovation infrastructure objects. 6. Organization (on a regular basis) of cooperation with institutions promoting the process of innovation creation and implementation in MI enterprises: Foundation for Assistance to Small Innovative Enterprises in Science and Technology; Industry Development Foundation; Investment Fund of the Russian Federation.
* IA – innovative activity	

Figure 3. Model of the functioning of the center for innovative development of the industry



The center for innovative development of the industry is one of the priority tools aimed at enhancing innovative activity in the manufacturing industry (*fig. 3*). Unlike other innovation infrastructure structures (a center for applied qualifications, a center for collective use, an engineering center, a technology transfer center, etc.) it helps, first, provide the integrated (financial, personnel, operational) support to the manufacturing industry for the development, implementation and promotion of innovation products on the market at all the stages of the innovation cycle; second, ensure the interaction of all participants of innovative activity within a single organizational structure; third, consider the degree of the manufacturing industry's involvement in innovative activity.

The creation and development of the Centre should be financed from federal and regional budgets and enterprises' funds. According to the RF Government Decree of

April 15, 2014 No. 316 "On Approval of the State Program of the Russian Federation "Economic Development and Innovative Economy" (Subprogram 5 "Promotion of Innovation" and Subprogram 7 "Personnel for Innovative Economy"), the necessity to elaborate and develop complex mechanisms to support innovation at all stages is one of the priorities. The state program "Economic Development of the Vologda Oblast for 2014–2020" (subprograms "Development of Certain Sectors of the Economy and Enhancement of Competitiveness" and "Science and Innovation in the Vologda Oblast") stipulates the creation of conditions for modernization and innovative development of the region.

The effect from the Center's activities is calculated on the basis of indicators, such as: a number of innovation developments in partnership with the Center for innovative development; a number of innovation developments implemented in the region's manufacturing industry in partnership with the Center for innovative developments; a number of those undergone training in the total number of those who need training and reeducation; efficient use of borrowed and available resources; relevance of the Centre's methodological support for the learning process of innovative activity participants; a degree of wear of the basic production assets of the enterprises – members of the Centre; a number of protected titles for inventions and utility models, obtained by the Center members.

Thus, the problems of innovative activity development in the manufacturing industry are the following: shortage of financial resources, unattractiveness of the sector for investors, difficulty of obtaining borrowed funds, a high degree of wear of fixed assets, a lack of highly qualified specialists and a lack of consistency between innovative activity participants. Thus, the federal and regional authorities should focus on provision of comprehensive support to manufacturing enterprises and use economic, organizational and informational tools for it. It is necessary to guarantee targeted support for the manufacturing sector, taking into account the extent of their involvement in innovation and the socio-economic factors influencing the process of creation and introduction of innovation in the sector.

References

1. Borisov V.N., Pochukaeva O.V. Modernizatsiya obrabatyvayushchei promyshlennosti RF na osnove ustoichivogo razvitiya otechestvennogo mashinostroeniya [Modernization of the Manufacturing Industry of the Russian Federation on the Basis of Sustainable Development of Domestic Engineering]. *Problemy prognozirovaniya* [Studies on Russian Economic Development], 2011, no. 2, pp. 55-63.
2. Ilyin V.A., Gulin K.A., Uskova T.V. Intellektual'nye resursy kak faktor innovatsionnogo razvitiya [Intellectual Resources as Innovation Development Factor]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2010, no. 3, p. 14.
3. Ilyin V.A., Povarova A.I. *Problemy effektivnosti gosudarstvennogo upravleniya. Tendentsii rynochnykh transformatsii. Krizis byudzhetnoi sistemy. Rol' chastnogo kapitala. Strategiya-2020: problemy realizatsii:*

monografiya [Public Administration Efficiency. Market Transformation Trends. Crisis of the Budget System. Role of Private Capital. Strategy-2020: Implementation Issues]. Vologda: ISERT RAN, 2014. 188 p.

4. *Innovatsionnaya politika: Rossiya i Mir. 2002–2010* [Innovation Policy: Russia and the World. 2002–2010]. Ed. by N.I. Ivanov, V.V. Ivanov. Moscow: Nauka, 2011. 451 p.
5. Mazilov E.A. Osnovnye indikatory i faktory innovatsionnogo razvitiya promyshlennosti regiona [Key Indicators and Driving Forces of Innovation Development of Industry in the Region]. *Menedzhment i biznes-administrirovanie* [Management and Business Administration], 2013, no. 1, pp. 166-178.
6. Makoveev V.N. Innovatsionnye protsessy v otechestvennom mashinostroenii [Innovative Processes in Domestic Mechanical Engineering]. *Menedzhment i biznes administrirovanie* [Management and Business Administration], 2013, no. 4, pp. 96-106.
7. Aivazyan S.A., Mkhitaryan V.S. *Prikladnaya statistika. Osnovy ekonometriki. T. 1: Teoriya veroyatnostei i prikladnaya statistika: uchebnik dlya vuzov: v 2-kh t.* [Applied Statistics. The Fundamentals of Econometrics. Vol. 1: The Theory of Probability and Applied Statistics: Textbook for Universities: in 2 Volumes]. 2nd edition, revised. Moscow: YuNITI-DANA, 2001. 656 p.
8. *Statistika. Praktikum: ucheb. posobie dlya vuzov* [Statistics. Practical Course: Textbook for Universities]. Ed. by I.I. Eliseev. Moscow: Yurait, 2011. 483 p.
9. Terebova S.V. Promyshlennyi kompleks regiona: innovatsionnyi aspekt razvitiya [Industrial Complex of the Region: the Innovation Aspect of Development]. *Problemy ekonomiki i menedzhmenta* [Problems of Economics and Management], 2011, no. 4, pp. 54-59.
10. Terebova S.V., Vyacheslavov A.M. Innovatsionnyi klimat v regione: sostav i faktory razvitiya [Innovation Climate in the Region: Composition and Development Factors]. *Problemy razvitiya territorii* [Problems of Territory's Development], 2011, no. 3, p. 40.
11. *Federal'naya sluzhba gosudarstvennoi statistiki* [Federal State Statistics Service]. Available at: http://www.gks.ru.
12. *International Merchandise Trade Statistics*. Available at: http://comtrade.un.org/pb/CountryPagesNew.aspx?y=2012.
13. *Eurostat*. Available at: http://epp.eurostat.ec.europa.eu.

Cited Works

1. Borisov V.N., Pochukaeva O.V. Modernization of the Manufacturing Industry of the Russian Federation on the Basis of Sustainable Development of Domestic Engineering. *Studies on Russian Economic Development*, 2011, no. 2, pp. 55-63.
2. Ilyin V.A., Gulin K.A., Uskova T.V. Intellectual Resources as Innovation Development Factor. *Economic and Social Changes: Facts, Trends, Forecast*, 2010, no. 3, p. 14.
3. Ilyin V.A., Povarova A.I. *Public Administration Efficiency. Market Transformation Trends. Crisis of the Budget System. Role of Private Capital. Strategy-2020: Implementation Issues*. Vologda: ISERT RAN, 2014. 188 p.
4. *Innovation Policy: Russia and the World. 2002–2010*. Ed. by N.I. Ivanov, V.V. Ivanov. Moscow: Nauka, 2011. 451 p.
5. Mazilov E.A. Key Indicators and Driving Forces of Innovation Development of Industry in the Region. *Management and Business Administration*, 2013, no. 1, pp. 166-178.
6. Makoveev V.N. Innovative Processes in Domestic Mechanical Engineering. *Management and Business Administration,* 2013, no. 4, pp. 96-106.

7. Aivazyan S.A., Mkhitaryan V.S. Applied Statistics. *The Fundamentals of Econometrics. Vol. 1: The Theory of Probability and Applied Statistics: Textbook for Universities: in 2 Volumes*. 2nd edition, revised. Moscow: YuNITI-DANA, 2001. 656 p.
8. *Statistics. Practical Course: Textbook for Universities.* Ed. by I.I. Eliseev. Moscow: Yurait, 2011. 483 p.
9. Terebova S.V. Industrial Complex of the Region: the Innovation Aspect of Development. *Problems of Economics and Management,* 2011, no. 4, pp. 54-59.
10. Terebova S.V., Vyacheslavov A.M. Innovation Climate in the Region: Composition and Development Factors. *Problems of Territory's Development*, 2011, no. 3, p. 40.
11. *Federal State Statistics Service*. Available at: http://www.gks.ru.
12. *International Merchandise Trade Statistics*. Available at: http://comtrade.un.org/pb/CountryPagesNew.aspx?y=2012.
13. *Eurostat*. Available at: http://epp.eurostat.ec.europa.eu.

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Dynamics of Mortality in Russia in the Context of the Epidemiologic Transition Concept

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Abstract. The article briefly presents a modern view on the concept of epidemiologic transition, reflects features of its course in Russia: a lag of the main stages compared to the developed countries of the world and Europe, implementation of accelerated transition, layering of unresolved problems of previous phases. The author considers half-century dynamics of mortality of the Russian population in comparison with the world average and indicators of some developed countries, demonstrating its backlog, despite the overall positive trend. The work confirms persistence of high mortality of the Russian working-age population; presents calculations of demographic, socio-economic losses from premature deaths of citizens of this cohort. It states that external causes of death bring the largest demographic and socio-economic damage in the country and in the region: in Russia they account for 35% of all losses in PYLL and 2.45% of the total volume of GRP and 27 in the Vologda Oblast – 27% of all losses in PYLL and 2.7% of the total GRP. The highest population losses from external causes of death are observed in the youngest groups of the working-age population – more than 70% of the total losses in PYLL in Russia and 35–40% in the Vologda Oblast. In addition, the authors reveal significant gender differences in the size of losses in PYLL and GRP (on the example of the Vologda Oblast): the losses from all causes of death among men by 3 times higher than among women, from external causes of death – by 4 times. The study indicates significant regional differences in various indicators of mortality in the country. It makes a number of proposals to reduce mortality, particularly from external causes among the working-age population.

Key words: epidemiologic transition; mortality; mortality rates of the population; dynamics of mortality in the world, Russia and other countries; losses from premature deaths; regions of Russia; Vologda Oblast.

Mortality is a result of interaction of structural, medical (biological) and behavioral factors. The first includes the demographic and, primarily, the age structure of the population. The larger the share of elderly population, the higher the mortality. Man, having a bio-social essence, is characterized by defined anatomical and physiological properties that determine his/her development and functioning. Death is a natural end of life of any living organism due to natural wear of organs and systems. In 1971 the role of exogenous and endogenous factors of mortality was disclosed by A. Omran in the concept of epidemiological transition [9, pp. 57-91], representing a historically caused change of one type of pathology, defining the nature of morbidity and mortality, into another, one disease pattern and death cause into another. In the modern version of the theory there are 4 stages of epidemiological transition, consequently roles of causes of exogenous and endogenous of nature: period of epidemics and famine, period of declining pandemic of infectious diseases, period of degenerative and occupational diseases, period of delayed degenerative diseases [12, p. 5].

In the first stage (period of epidemics and famine) mortality was regulated mainly by eco-biological factors: level of adverse conditions in the environment, degree of organism's resistance, prevalence of various infectious diseases; life expectancy of the population was minimum (20–25 years). This stage in the developed world lasted until the mid-18th century. The second stage began in the late 18th century and was characterized by increased life expectancy and reduced mortality from common infectious diseases. Transformation of the social structure of society determined the change: transition from the agrarian to the industrial model of the economic system, formation of the middle class, decline in the share of the poor and, as a consequence, improvement of the living standard of the population. The third stage began in the 1930s and was caused by major success in medicine: discovery and widespread use of antibiotics and sulfonamides, which made it possible to take control of such diseases as tuberculosis and pneumonia. This involved the change in the mortality structure (cardiovascular diseases and neoplasms had a lead) and in its age-related component – reduction of mortality of young population (the life expectancy increased to 60 years) [12, p. 8]. Thus, the health determinant (healthcare system development) together with the improved socio-economic conditions of life made a significant impact.

In the 1960–1970s the mankind faced a new problem – emergence of the so-called quasi-endogenous causes of morbidity and mortality instead of exogenous: cancer, endocrine, mental diseases, diseases of digestive and respiratory systems, etc., due to scientific and technological progress, urbanization and industrialization processes. In this period the foreign hygienists stated the presence of "diseases of civilization" as payment for economical progress, industrial revolution and resulting environmental pollution and growth of high stress due to rapid changes in

lifestyle and nature of employment of a significant part of the population [1]. Nowadays the developed states are in the fourth stage of epidemiological transition (period of delayed degenerative diseases), characterized by priority of social and medical determinants in shaping patterns of mortality and morbidity.

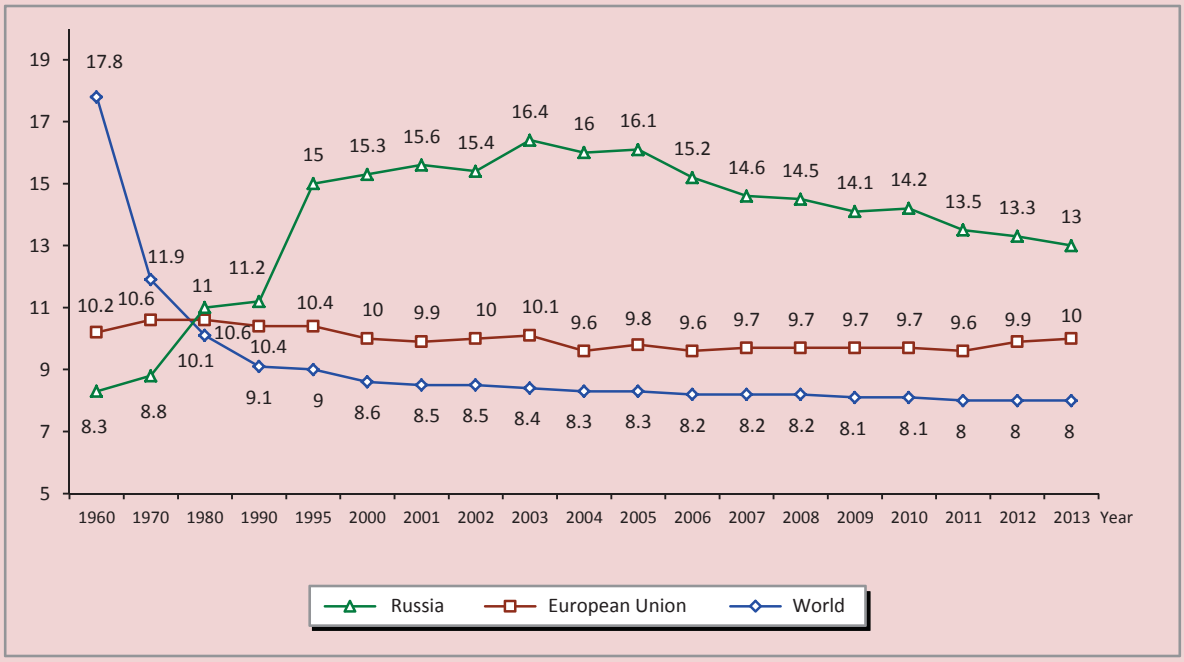
In Russia epidemiological transition started later than in most Western countries, as it was hampered by many historical upheavals, faced population's unreadiness for required changes [3, p. 258]. The second stage was observed in the country only in the late 19th – early 20th century and completed in the 1950s. The most successful and long period of declined mortality in Russian history was recorded during the "Khrushchev thaw", when the country rapidly passed initial periods of the third stage and in 1965 the life expectancy was close to 70 years [12, c. 11]. Since the second half of the 1960s in Russia there was an increase in mortality from poisonings and injuries, diseases of the circulatory system. However, due to the specifics of the Russian health care system, aimed at combating infectious diseases and child mortality, the problem of high mortality from behavioral causes (e.g., alcoholism) was not solved. And only in the late 1980s due to the anti-alcohol campaign (1985–1986), and mortality, particularly from external causes, declined, and life expectancy reached the mid-1960s level. But the positive effect of the conducted activities was not long-lasting. The end of 1987 was characterized by grown production and per capita consumption of alcohol and, as a consequence, increased mortality rate. Since 1991 the country entered a "black demographic lane": the population declined rapidly due to catastrophically grown mortality and decreased fertility, life expectancy went down, the transition to the last stage did not occur.

So, the development of epidemiological transition in Russia has the following distinctive features: delay of the main stages in comparison with developed countries of the world and Europe, implementation of an accelerated transition model, layering of unresolved problems of previous stages.

Let us consider the indicators of population's mortality. For the last 50 years the crude death rate (CDR) in Russia has fluctuated significantly, the maximum peak of mortality was observed in 2003. Since 2004 it had been decreasing gradually. In 2004–2013 CDR declined by 21%. However, despite positive trends in the dynamics of this indicator in the Russian Federation the value of total mortality is consistently higher than in the EU [19] (*fig. 1*). According to the latest data of the Central Intelligence Agency of the USA, as of 2014 [18] Russia ranges the 10th of 225 countries by mortality rate (of 13.8‰), near to African states, such as Somalia and Swaziland.

According to the WHO, in 2012 the standardized rates of mortality from the main classes of death causes in Russia are much higher than those of the leading world countries. So, the death rate from infectious diseases is 3–5-fold higher in our country, from non-communicable (chronic) diseases – 2–3-fold and from injury – 4–6-fold (*tab. 1*).

Figure 1. Dynamics of total mortality in the world, the EU and Russia in 1960–2013, per mille, deaths per 1 thousand population)



Sources: World Development Indicators. *The World Bank*. Available at: http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators#; DataFinder. Population Reference Bureau. Available at: http://www.prb.org/

Table 1. Age-standardized mortality rates by death causes in the developed countries of the world, 2012

Country	Standardized mortality rates, cases per 100 thousand population			
	All causes	Communicable diseases	Noncommunicable diseases	Injuries
World	790	178	539	73
USA	488	31	413	44
Denmark	458	29	406	23
Germany	410	22	365	23
England	409	29	359	21
Norway	387	25	336	26
Sweden	379	19	333	26
Canada	372	23	318	31
France	369	21	313	35
Italy	339	15	304	20
Japan	319	34	244	40
Russia	***967***	***74***	***790***	***103***

Source: World Health Statistic 201. *World Health Organization, 2014*, pp. 72–87.

Table 2. Structure of mortality from the main classes of death causes in Russia
(deaths per 100 thousand population)

Main classes of death causes	1990	2000	2005	2010	2011	2012	2013	2013 to …, %		
								1990	2000	2012
Deaths from all causes	1119.1	1529.0	1609.9	1419.2	1347.0	1331.2	1304.3	116.5	85.3	98.0
Diseases of the circulatory system	618.7	846.1	908.0	805.9	753.0	737.1	698.1	112.8	82.5	94.7
Neoplasms	194.4	204.7	201.2	205.1	204.6	203.1	203.3	104.6	99.3	100.1
External causes, of them:	134.0	219.0	220.7	151.7	139.4	135.3	129.2	96.4	59.0	95.5
- transport accidents	29.2	27.2	28.1	20.0	20.7	21.1	20.3	69.5	74.6	96.2
- suicide	26.5	39.1	32.2	23.4	21.8	20.8	20.1	75.8	51.4	96.6
- accidental poisoning by alcohol	10.9	25.6	28.6	13.4	11.4	10.6	10.1	92.7	39.5	95.3
- murder	14.3	28.2	24.9	13.3	11.7	10.8	10.1	70.6	35.8	93.5
Diseases of the digestive system	28.7	44.4	65.5	64.4	62.2	62.1	61.6	214.6	138.7	99.2
Diseases of the respiratory system	59.4	70.2	66.2	52.3	51.9	51.6	51.6	86.9	73.5	100.0

* Ranked by mortality from various causes in the Russian Federation in 2013.
Source: *Federal'naya sluzhba gosudarstvennoi statistiki* [Federal State Statistics Service of the Russian Federation]. Available at: http://www.gks.ru/

In the structure of mortality of the Russian population the first place is occupied by diseases of the circulatory system (53.5%), the second place – by neoplasms (15.6%) and the third – external causes (9.9%; see tab. 2). Among external causes of death the first place belongs to transport accidents, the second – to suicide, the third – accidental poisoning and murder (*tab. 2*). The number of deaths from these causes amounts to more than 50% of the total number of deaths from all external causes [11, p. 10].

The Russian model of mortality is characterized by an extremely high mortality rate of the working-age population, especially of men, in comparison with similar indicators in the developed countries: in Russia in 2012 the mortality rate of men of working age was 4 times higher than in the mentioned countries and by 2 times more than in the world. The mortality rate of women in our country is slightly below the world level, but exceeds the average for economically developed countries (*tab. 3*).

The excess of premature mortality of men over mortality of women is a trend observed in many countries, including developed ones, but in Russia this indicator has reached values that are unprecedentedly high and threaten the national security. Thus, according to the latest World Bank data, in our country as of 2013 the probability of survival until the age of 65 among men is by 30% lower than among women (49% vs. 79%), whereas in the EU countries and the world the gap is much lower – 8% [20].

The high mortality rate of the working-age population is a consequence and

Table 3. Dynamics of mortality of the working-age population (15–60 years) in the world leading countries, 1960–2012 (deaths per 100 thousand population)

Country	1960		1970		1980		1990		2000		2012		2012 to …, %			
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
World	383	298	283	225	254	184	232	161	220	152	194	138	83.6	85.7	88.2	90.8
USA	233	131	237	128	195	103	172	91	144	83	130	77	75.6	84.6	90.3	92.8
England	186	109	180	107	162	97	129	78	108	68	90	56	69.8	71.8	83.3	82.4
Sweden	141	95	140	84	142	76	114	66	87	56	68	44	59.6	66.7	78.2	78.6
Canada	193	110	187	103	164	86	127	70	101	61	68	52	53.5	74.3	67.3	85.2
Denmark	151	106	159	104	167	106	155	101	126	79	102	61	65.8	60.4	81.0	77.2
Norway	142	82	158	76	146	67	132	68	107	61	73	44	55.3	64.7	68.2	72.1
France	217	115	204	101	196	85	168	69	138	61	109	52	64.9	75.4	79.0	85.2
Italy	189	109	176	95	165	77	131	61	101	51	70	39	53.4	63.9	69.3	76.5
Germany	No data	No data	No data	No data	No data	No data	158	77	124	63	94	50	59.5	64.9	75.8	79.4
Japan	217	149	173	104	130	69	109	53	98	48	82	43	75.2	81.1	83.7	89.6
Russia	***277***	***127***	***313***	***123***	***362***	***135***	***316***	***116***	***443***	***159***	***339***	***127***	***107.3***	***109.5***	***76.5***	***79.9***

Source: World Development Indicators. *The World Bank*. Available at: http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators#

reflection of complex social problems in Russia at the present stage of development. These include: low level of living, alcoholism, non-compliance with the established norms of working conditions and high rates of occupational injury [16, p. 56]. In addition, excess mortality of working age citizens poses a direct and serious economic threat, as together with a lack of innovative-technological development of the country leads to lower productivity [8].

There is an integral characteristic of demographic losses from premature mortality of the population, such as PYLL (Potential Years of Life Lost), suggested by the World Health Organization. It describes the scale of premature mortality and is calculated as the sum of products of the deaths number in each age group and the number of years a person has not lived until the age of life expectancy:

$$\text{PYLL} = \sum D_i \times a_i ,$$

where D is a number of deaths in the i-th age group, a_i is a number of years of life lost, $a_i = T - x_i$, where T is an upper age limit, until which life lost is calculated (i.e. age, before reaching which all deaths are considered as premature), x_i is a midpoint of the i-th age interval [8].

To assess mortality of the working-age population we, according to the WHO recommendations, consider the age of 65 as the upper age limit. The PYLL calculation is carried out within the relevant five-year age groups from age 15. To express losses in terms of economic units each lost year is

multiplied by the average per capita GRP of the studied year, i.e. the value of PYLL is assessed through premature mortality of the working-age population:

$$P_t = PYLL_t \times C_t ,$$

where P_t is cost of PYLL resulting from mortality in t year, $PYLL_t$ is a number of man-years lost due to premature mortality in t year, C_t is cost of a year of statistical life in t year [8].

It is possible to carry out the most complete and in-depth analysis of demographic and socio-economic losses from different classes of death causes due to regional statistics, as it contains all the necessary information on mortality by gender and five-year age groups. In this regard, the assessment of losses due to mortality of the working population is conducted on the example of the Vologda Oblast in comparison with the national average.

The performed calculations show that external causes of mortality (*tab. 4*) make the greatest contribution to demographic losses of the country and the region, as they constitute 35 and 27% of the total PYLL, respectively. Diseases of the circulatory system comprise a significant share of losses – 25% in Russia and 18% in the Vologda Oblast. The greatest amount of lost social and economic benefits in the country and the region is identified for mortality from external causes – 2.45 and 2.7% of the total GRP, respectively.

When considering the demographic and socio-economic losses due to mortality of the working-age population from different classes of death causes, significant gender differences in its scale attract attention. So, among men total losses of PYLL and GRP from all death causes are by 3 times higher than among women, from external causes of death – 4 times. Suicide and transport accidents bring most losses (*tab. 5*).

Table 4. Demographic and socio-economic losses from the main classes of death causes of the able-bodied population in Russia and the Vologda Oblast in 2013

Classes of death causes	PYLL, persons-years		PYLL in % of total losses		Loss of profit in the production of GRP, rubles*		Loss in % of GRP**	
	RF	VO	RF	VO	RF	VO	RF	VO
All death causes	**10,003,450**	**122,157**	**100**	**100**	**3,765,128.5**	**34,878.6**	**6.97**	**10.22**
External causes	3,511,963	32,471	35.1	26.6	1,321,843.2	9,271.2	2.45	2.72
Diseases of the circulatory system	2,464,329	22,452	24.6	18.4	927,531.5	6,410.6	1.72	1.88
Neoplasms	1,186,930	10,908	11.9	8.9	446,740.3	3,114.5	0.83	0.91
Diseases of the digestive system	802,195	12 204	8.0	10.0	301,932.6	3,484.5	0.56	1.02
Infectious and parasitic diseases	668,001	2,068	6.7	1.7	251,424.2	590.5	0.47	0.17
Diseases of the respiratory system	454,377	3,970	4.5	3.2	171,019.8	1,133.5	0.32	0.33

* GRP per capita.
** GRP at basic prices.

Table 5. Losses of PYLL and GRP among men and women of working age in the Vologda Oblast in 2013

Classes of death causes	Men			Women		
	PYLL, persons-years	Loss (million rubles)*	Loss in % of GRP**	PYLL, persons-years	Loss (million rubles)*	Loss in % of GRP**
All death causes	**93,503**	**26,697.2**	**7.82**	**28,654**	**8,181.4**	**2.40**
External causes,	26,395	7,536.4	2.21	6,076	1,734.8	0.51
including:	3,634	1,037.6	0.30	1,061	302.9	0.09
- transport accidents	4,166	1,189.5	0.35	1,122	320.3	0.09
- suicide	2,457	701.5	0.21	571	163.0	0.05
- accidental poisoning by alcohol	1,727	493.1	0.14	449	128.2	0.04
- murder	17,302	4,940.1	1.45	5,150	1,470.4	0.43
Diseases of the circulatory system	7,062	2,016.4	0.59	3,679	1,050.4	0.31
Diseases of the digestive system	5,805	1,657.5	0.49	5,103	1,457.0	0.43
Neoplasms	3,206	915.4	0.27	764	218.1	0.06
Diseases of the respiratory system	1,663	474.8	0.14	405	115.6	0.03

* GRP per capita.
** GRP at basic prices.

The highest losses of PYLL from external causes of death are observed in the youngest age groups (under working age) – 15–19 and 20–24 years: in Russia – more than 70% of the total losses of PYLL, in the Vologda Oblast – 35–40%, respectively. In the older age groups the maximum losses are caused by mortality from diseases of the circulatory system: in the country PYLL from this class of death causes reach 38% of the casualties in the age of 50–54 and 43% – in the age of 55–59. In the Vologda Oblast these losses account for 31 and 41%, respectively (*tab. 6*).

To assess the overall picture of mortality it is significant to consider the indicator, such as infant mortality. Speaking about the dynamics of this indicator in Russia, it is worth noting that it decreased by 4 times in 1960–2013. Throughout the review period, the excess of infant mortality in our country over the EU countries declined from 3 to 2 times (*fig. 2*). However, if we analyze the successes in detail, we find them not so significant. So, in 2012 the infant mortality rate grew by 18% compared to 2011. This increase is associated with Russia's transition to the use of new definition of dead-live birth since April, 2012 [7, p. 280]. It brought our country close to the indicator of live-birth suggested by the WHO. In addition, in 2014 the Russian Federation ranked the 160th by infant mortality [18] (7.1 of the died under the age of 12 months per 1 thousand live births) of 224 possible, being close to Chile and Kuwait.

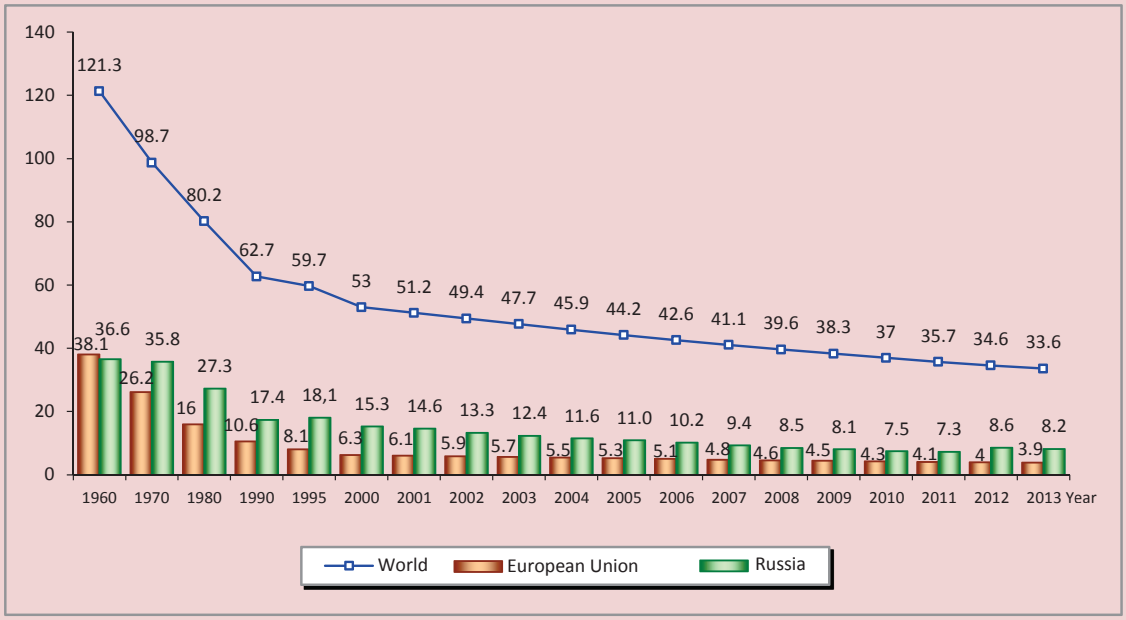
Table 6. PYLL from the main classes of death causes in different age groups of the working population in Russia and the Vologda Oblast in 2013 (years)

Classes of death causes	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
	Absolute/ in %	Absolute/ in %	Absolute/ in %	Absolute/ in %	Absolute/ in %	Absolute/ in %	Absolute/ in %	Absolute/ in %	Absolute/ in %
Russian Federation									
All death causes	**262,080 / 100**	**656,137 / 100**	**1,125,712 / 100**	**1,460,844 / 100**	**1,424,080 / 100**	**1,235,031 / 100**	**1,221,966 / 100**	**1,446,640 / 100**	**1,170,960 / 100**
External causes	190,752 / 72.8	464,615 / 70.8	634,106 / 56.3	635,085 / 43.5	524,664 / 36.8	372,807 / 30.2	293,472 / 24.0	255,502 / 17.7	140,960 / 12.0
Diseases of the circulatory system	14,400 / 5.5	45,408 / 6.9	117,078 / 10.4	211,926 / 14.5	282,576 / 19.8	334,535 / 27.1	407,790 / 33.4	550,056 / 38.0	500,560 / 42.7
Diseases of the digestive system	2,496 / 1.0	14,706 / 2.2	63,536 / 5.6	123,849 / 8.5	144,256 / 10.1	127,236 / 10.3	117,414 / 9.6	120,614 / 8.3	88,088 / 7.5
Neoplasms	14,736 / 5.6	29,713 / 4.5	48,488 / 4.3	74,217 / 5.1	102,340 / 7.2	137,747 / 11.2	188,604 / 15.4	302,445 / 20.9	288,640 / 24.6
Diseases of the respiratory system	6,384 / 2.4	14,792 / 2.3	41,572 / 3.7	66,066 / 4.5	74,424 / 5.2	64,722 / 5.2	60,606 / 5.0	71,331 / 4.9	54,480 / 4.7
Infectious and parasitic diseases	3,216 / 1.2	24,768 / 3.8	104,006 / 9.2	193,314 / 13.2	150,276 / 10.6	83,398 / 6.8	50,778 / 4.2	38,285 / 2.6	19,960 / 1.7
Vologda Oblast									
All death causes	**2,304 / 100**	**8,944 / 100**	**14,668 / 100**	**16,731 / 100**	**14,896 / 100**	**15,318 / 100**	**15,948 / 100**	**18,668 / 100**	**14,680 / 100**
External causes	816 / 35.4	3,741 / 41.8	5,662 / 38.6	5,610 / 33.5	4,284 / 28.8	4,094 / 26.7	3,384 / 21.2	3,328 / 17.8	1,552 / 10.6
Diseases of the circulatory system	240 / 10.4	344 / 3.8	684 / 4.7	1,221 / 7.3	1,596 / 10.7	2,484 / 16.2	3,996 / 25.1	5,863 / 31.4	6,024 / 41.0
Diseases of the digestive system	0 / 0	172 / 1.9	798 / 5.4	1,914 / 11.4	2,212 / 14.8	2,093 / 13.7	1,836 / 11.5	1,651 / 8.8	1,528 / 10.4
Neoplasms	96 / 4.2	215 / 2.4	532 / 3.6	528 / 3.2	896 / 6.0	1,357 / 8.9	1,890 / 11.9	2,626 / 14.1	2,768 / 18.9
Diseases of the respiratory system	48 / 2.1	86 / 1.0	380 / 2.6	660 / 3.9	532 / 3.6	391 / 2.6	540 / 3.4	741 / 4.0	592 / 4.0
Infectious and parasitic diseases	0 / 0	215 / 2.4	342 / 2.3	495 / 3.0	308 / 2.1	92 / 0.6	252 / 1.6	260 / 1.4	104 / 0.7

High mortality from external causes largely determines the dynamics of life expectancy of the population. In 1960–2013 this indicator in the world grew by 18 years, in the EU – 11 years, reaching 71 and 80 years, respectively. The most substantial growth in life expectancy was observed until the early 2000s, then there was a slight decreased in the rate (*fig. 3*).

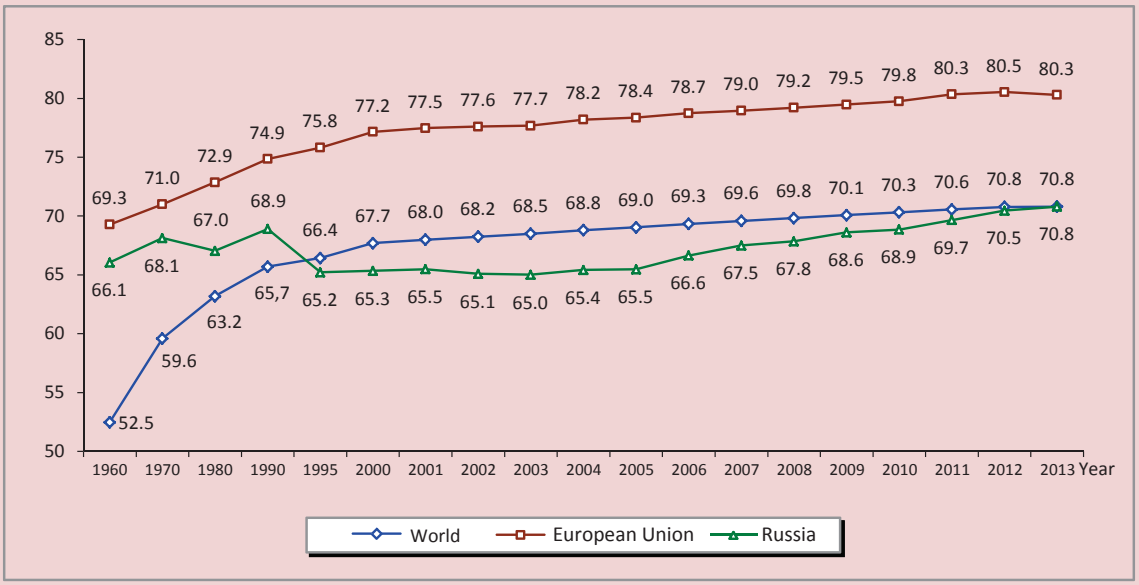
In 1960–2013 life expectancy of the population in Russia increased insignificantly – by 5 years. Unlike most developed countries, where over the last decades life expectancy increased steadily and quickly, in our country its level varied markedly: the decrease mainly coincided with the periods of serious financial and socio-economic shocks.

Figure 2. Dynamics of infant mortality in the world, the EU and Russia in 1960–2013, (died under the age of 12 months per 1 thousand live births)



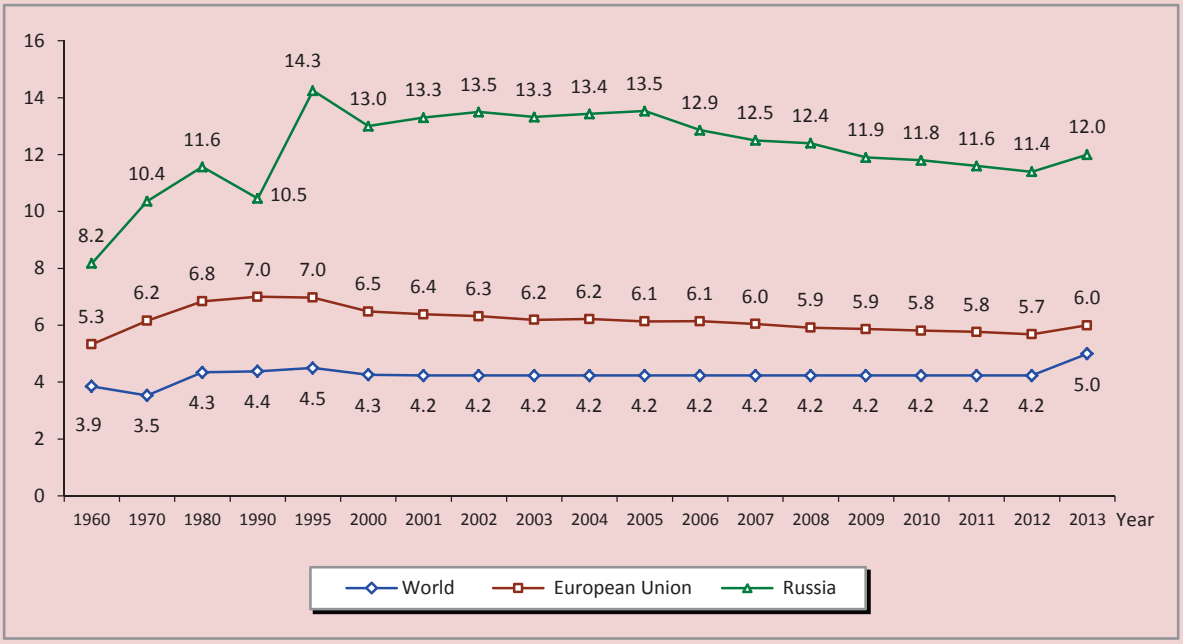
Sources: World Development Indicators. *The World Bank*. Available at: http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators#; DataFinder. *Population Reference Bureau*. Available at: http://www.prb.org/

Figure 3. Dynamics of life expectancy at birth in the world, the EU and in Russia, 1960–2013, years



Sources: World Development Indicators. *The World Bank*. Available at: http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators#; DataFinder. *Population Reference Bureau*. Available at: http://www.prb.org/

Figure 4. Gender gap in life expectancy in the world, the EU and Russia* (years)



* Calculated by the author on the basis of data from the World Bank and the Population Reference Bureau.

Sources: World Development Indicators. *The World Bank*. Available at: http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators#; DataFinder. *Population Reference Bureau*. Available at: http://www.prb.org/

The minimum value of life expectancy (64 years) was recorded in 1994. Since 2003 life expectancy of the population had grown and in 2013 it amounted to 70.8 years. This value is comparable to the global rate and is lower by 10 years than in the EU (*fig. 3*).

Speaking of gender differences in the life expectancy level, we should note that the gap between men and women amounts to 12 years in Russia, whereas in the world and the EU countries it is about 4 –6 years. The greatest gap in life expectancy of men and women in our country peaked in 1995 (14.3 years; *fig. 4*).

Besides, in the Russian mortality model the indicators vary by regions. In 2013 in 52 RF subjects the crude mortality rate exceeded the national average (13‰), for comparison: in 2000 there were 37 such subjects. The totality of RF regions by crude mortality rate can be divided into 5 groups[1]: regions with low (below 10‰), below average (10–12‰), average (12–14‰), above average (14–16‰) and high (above 16‰) mortality (*tab. 7*).

[1] While grouping we assume the EU average value equal to10‰ for the threshold value of the low level of crude death rate (CDR). Subjects division is carried out with a 2‰ step. We take into account that the national index value amounts to 13‰.

Table 7. Distribution of RF subjects by crude mortality rate in 2013

Low (<10.0‰)	Below average (10.0–12.0‰)	Average (12.0–14.0 ‰)	Above average (14.0–16.0‰)	High (>16.0‰)
Republic of Ingushetia (3.5), Chechen Republic (4.9), Yamalo-Nenets Autonomous Okrug (5.1), Republic of Dagestan (5.5), Khanty-Mansi Autonomous Okrug (6.3), Tyumen Oblast (8.2), Sakha (Yakutia) Republic (8.7), Kabardino-Balkar Republic (9.0), Karachay-Cherkess Republic (9.5), Moscow(9.6), Republic of Kalmykia (9.9)	Republic of North Ossetia-Alania, Chukotka Autonomous Okrug (10.5), Nenets Autonomous Okrug (10.7); Tuva Republic (10.9), Murmansk Oblast (11), Altai Republic (11.3), Kamchatka Krai (11.4), Tomsk Oblast, Stavropol Krai (11.7), Republic of Buryatia (11.8), Magadan Oblast and Saint Petersburg (11.9)	Komi Republic (12.0), Republic of Tatarstan (12.1), Astrakhan Oblast (12.2), Zabaykalsky Krai (12.5), Udmurt Republic, Krasnoyarsk Krai (12.7), Krasnodar Krai (12.8), Republic of Bashkortostan, Chuvash Republic, Republic of Khakassia, Sakhalin Oblast, Kaliningrad Oblast, Republic of Adygea (13.1), Khabarovsk Krai, Arkhangelsk Oblast (13.3), Novosibirsk Oblast, Omsk Oblast (13.4) Primorsky Krai, Volgograd Oblast (15.5), Irkutsk Oblast (13.6), Mari El Republic, Sverdlovsk Oblast (13.7), Belgorod Oblast, Rostov Oblast (13.8), Orenburg Oblast, Chelyabinsk Oblast, Amur Oblast, Moscow Oblast (13.9)	Perm Oblast (14.0), Altai Krai (14.2), Samara Oblast (14.3), Ulyanovsk Oblast, Leningrad Oblast (14.4), Kemerovo Oblast (14.5), Jewish Autonomous Oblast, Republic of Karelia (14.6), Penza Oblast (14.7), Republic of Mordovia (14.8), Vologda Oblast (15.0), Kaluga Oblast, Lipetsk Oblast (15.2), Kirov Oblast (15.4), Voronezh Oblast (15.5), Ryazan Oblast, Yaroslavl Oblast (15.8), Nizhny Novgorod Oblast, Bryansk Oblast (15.9)	Kostroma Oblast, Kursk Oblast, Tambov Oblast n, Kurgan Oblast (16.1), Orel Oblast n (16.2), Ivanovo Oblast (16.3), Smolensk Oblast (16,4), Vladimir Oblast (16.7), Tula Oblast (17,4), Novgorod Oblast (17.8), Tver Oblast (18,0), Pskov Oblast (18.6)
11 subjects	**12 subjects**	**28 subjects**	**19 subjects**	**12 subjects**

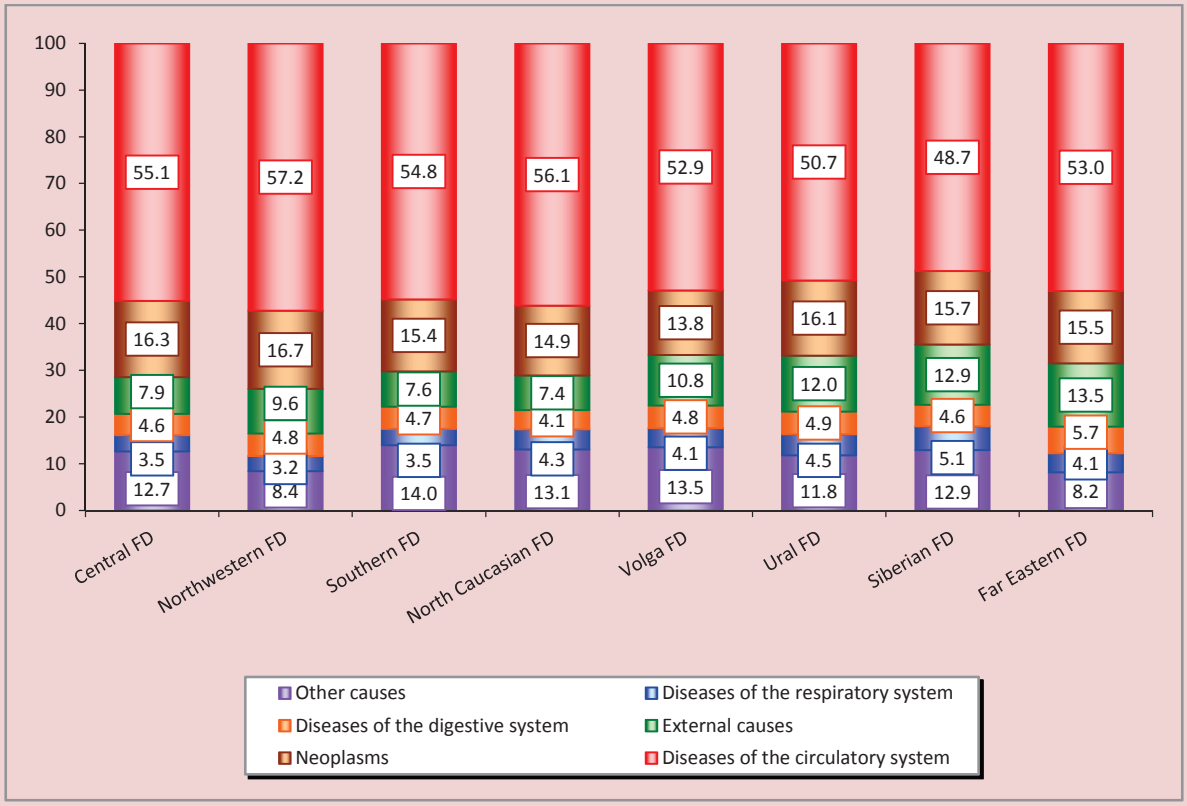
Source: *Federal'naya sluzhba gosudarstvennoi statistiki* [Federal State Statistics Service of the Russian Federation]. Available at: http://www.gks.ru/

The lowest mortality rate is characteristic of 11 RF subjects (predominantly of the North Caucasian Federal district), the below average rate – 12, the average rate – 28 (including the Vologda Oblast), the high rate – 12.

The mortality structure of macro-regions generally follows the nationwide (see tab. 2); among federal districts the Northwestern Federal district is in the lead by mortality from circulatory diseases and neoplasms (57% and 17%, respectively), the Far Eastern Federal district – from external causes and diseases of the digestive system (13.5 and 6%, respectively) and the Siberian Federal district – from diseases of the respiratory system (5%; *fig. 5*).

The gender gap in mortality rates of the working-age population declined in all macro-regions of Russia in 2000–2013. In 2013 the Far Eastern Federal district was the leader in mortality among men and women of working age (1017.4 and 315.7 deaths per 1 thousand population, respectively); the minimum value was observed in the North-Caucasian Federal district (473.1 and

Figure 5. Structure of mortality from most common classes of death causes in RF federal districts of Russia in 2013* (in % of the total mortality)



* Calculated by the author on the basis of data of the Federal State Statistics Service of the Russian Federation.

124.7 deaths per 1 thousand population, respectively). However, the greatest gender difference in the value of this indicator was observed in the Central Federal district and Volga Federal district (by 3.83 times).

Considering the Northwestern Federal district, we should emphasize that the maximum mortality rate among able-bodied men is recorded in the Novgorod Oblast (1257.5 deaths per 1 thousand population) and among women – in the Pskov Oblast (341.4 deaths per 1 thousand populations). The most favorable situation, characterized by the lowest levels of mortality of able-bodied citizens, is observed in Saint Petersburg (*tab. 8*).

The infant mortality rate also declined in all RF regions over the period. However, in relation to the 2010 level there is an increase in this indicator in each federal district (*tab. 9*) due to the changed system of birth registration. Among the regions of the Northwestern Federal district the most disadvantaged situation was formed in the Vologda Oblast in 2013 (10.1 deaths per 1 thousand live births). The lowest value

Table 8. Mortality among the working-age population in federal districts of Russia in 2000 and 2013* (deaths per 100 thousand population)

Territory	2000.			2013			2013 to 2000, in %	
	Men	Women	Gender gap in MR_{w-a}**, times	Men	Women	Gender gap in MR_{w-a}**, times	Men	Women
Central FD	1,213.4	293.0	4.14	810.2	211.5	3.83	66.8	72.2
Northwestern FD	1,260.4	346.3	3.64	850.3	248.0	3.43	67.5	71.6
Republic of Karelia	*1,345.0*	*372.3*	*3.61*	*1,103.5*	*310.6*	*3.55*	*82.0*	*83.4*
Komi Republic	*1,089.3*	*328.7*	*3.31*	*1,050.4*	*271.6*	*3.87*	*96.4*	*82.6*
Arkhangelsk Oblast	*1,361.1*	*351.2*	*3.88*	*964.0*	*242.9*	*3.97*	*70.8*	*69.2*
Vologda Oblast	*1,134.8*	*256.2*	*4.43*	*1,031.7*	*253.0*	*4.08*	*90.9*	*98.8*
Kaliningrad Oblast	*1,234.9*	*373.6*	*3.31*	*826.4*	*268.9*	*3.07*	*66.9*	*72.0*
Leningrad Oblast	*1,495.6*	*412.4*	*3.63*	*914.1*	*291.3*	*3.14*	*61.1*	*70.6*
Murmansk Oblast	*1,063.0*	*292.6*	*3.63*	*822.4*	*270.8*	*3.04*	*77.4*	*92.5*
Novgorod Oblast	*1,477.8*	*344.5*	*4.29*	*1,257.5*	*315.7*	*3.98*	*85.1*	*91.6*
Pskov Oblast	*1,519.8*	*423.4*	*3.59*	*1,135.1*	*341.4*	*3.32*	*74.7*	*80.6*
Saint Petersburg	*1,187.4*	*340.7*	*3.49*	*619.1*	*197.2*	*3.14*	*52.1*	*57.9*
Southern FD	938.8	238.4	3.94	759.5	207.7	3.66	80.9	87.1
North Caucasian FD	No data	No data	-	473.1	124.7	3.79	-	-
Volga FD	1,125.7	272.3	4.13	959.1	250.5	3.83	85.2	92.0
Ural FD	1,151.9	298.6	3.86	904.0	250.0	3.62	78.5	83.7
Siberian FD	1,196.7	354.9	3.37	1,012.1	302.4	3.35	84.6	85.2
Far Eastern FD	1,139.4	335.2	3.40	1,017.4	315.7	3.22	89.3	94.2

* Working age population of: men aged 16-59, women aged 16-54.
** MR_{w-a} –mortality rate of working-age population.
Sources: Demograficheskii ezhegodnik Rossii 2014: stat. sbornik [Demographic Yearbook of Russia 2014: Statistical Digest]. *Rosstat* [Federal State Statistics Service of Russian Federation]. Moscow, 2014. Available at: http://www.gks.ru/bgd/regl/B14_16/Main.htm; Demograficheskii ezhegodnik Rossii 2002: stat. sbornik [Demographic Yearbook of Russia 2002: Statistical Digest]. *Rosstat* [Federal State Statistics Service of Russian Federation]. Moscow, 2002, pp. 269-290.

of the indicator was registered in Saint Petersburg (4.4 deaths per 1 thousand live births).

Life expectancy at birth is the most appropriate generalized characteristic of the modern mortality rate at all ages [15, p. 89]. The analysis of its dynamics in the macro-regions of Russia reveals that in 1990–2013 this indicator increased in all federal districts (*tab. 10*). It reached the highest value in the North Caucasian Federal district (74 years in 2013), among the regions – in the Republic of Ingushetia (78.8). The lowest level of life expectancy was recorded in the Far Eastern Federal district (67.8 years) and the Tuva Republic (61.8 years). Thus, the gap in life expectancy in different RF subjects reaches the age of 17. Such differences are caused by variations in socio-economic, climatic, cultural and ethnic factors [10, p. 129].

Table 9. Dynamics of infant mortality in the federal districts of Russia in 1998*–2013
(died under the age of 12 months per 1 thousand live births)

Territory	1998	2000	2005	2010	2011	2012	2013	2013 to…, %		
								2000	2010	2012
Central FD	15.0	13.6	10.0	6.6	6.5	7.8	7.6	55.9	115.2	97.4
Northwestern FD	14.0	12.8	9.4	5.6	5.4	6.2	6.2	48.4	110.7	100.0
Republic of Karelia	*15.3*	*14.4*	*9.6*	*4.9*	*5.6*	*7.6*	*6.4*	*44.4*	*130.6*	*84.2*
Komi Republic	*16.9*	*13.0*	*8.7*	*5.0*	*4.4*	*5.9*	*6.0*	*46.2*	*120.0*	*101.7*
Arkhangelsk Oblast	*13.9*	*14.1*	*12.6*	*6.8*	*6.9*	*7.1*	*7.7*	*54.6*	*113.2*	*108.5*
Vologda Oblast	*16.6*	*16.0*	*11.6*	*7.4*	*6.5*	*8.4*	*10.1*	*63.1*	*136.5*	*120.2*
Kaliningrad Oblast	*17.5*	*19.6*	*11.3*	*4.5*	*4.5*	*5.6*	*6.5*	*33.2*	*144.4*	*116.1*
Leningrad Oblast	*9.9*	*10.3*	*9.8*	*6.0*	*5.4*	*6.1*	*5.8*	*56.3*	*96.7*	*95.1*
Murmansk Oblast	*11.8*	*12.5*	*11.2*	*5.3*	*8.6*	*6.6*	*6.2*	*49.6*	*117.0*	*93.9*
Novgorod Oblast	*16.9*	*14.0*	*9.7*	*7.2*	*7.7*	*8.2*	*8.5*	*60.7*	*118.1*	*103.7*
Pskov Oblast	*19.9*	*15.1*	*12.8*	*7.9*	*6.1*	*10.0*	*7.7*	*51.0*	*97.5*	*77.0*
Saint Petersburg	*11.4*	*10.7*	*6.0*	*4.7*	*4.3*	*4.5*	*4.4*	*41.1*	*93.6*	*97.8*
Southern FD	18.7	16.9	12.2	7.1	7.1	8.4	7.9	46.7	111.3	94.0
North Caucasian FD	No data	No data	No data	12.0	13.0	14.6	12.2	-	101.7	83.6
Volga FD	15.9	14.4	10.5	6.8	6.3	7.7	7.5	52.1	110.3	97.4
Ural FD	15.0	15.4	10.0	6.7	6.6	7.5	7.4	48.1	110.4	98.7
Siberian FD	18.1	17.6	12.3	8.4	7.8	9.4	8.5	48.3	101.2	90.4
Far Eastern FD	20.1	18.6	13.5	9.6	9.1	10.9	11.0	59.1	114.6	100.9

* Statistical data by RF federal districts has been collected since 1998.
Source: *Federal'naya sluzhba gosudarstvennoi statistiki* [Federal State Statistics Service of the Russian Federation]. Available at: http://www.gks.ru/

Thus, the development of epidemiological transition in Russia has the following distinctive features: delay of the main stages in comparison with developed countries of the world and Europe, implementation of an accelerated transition model and layering of unresolved problems of previous stages. This is reflected in higher mortality rates than in developed countries due to mortality of the working-age population from external causes and, as a consequence, significant socio-demographic and economic losses from it, as well as in substantial regional differentiation of mortality rates within the country.

As mortality of the working age population, especially among men, is a characteristic feature of the Russian mortality model in the conditions of *incomplete epidemiological transition*, reducing its level is one of the priorities of the state social policy stipulated in the leading conceptual and normative documents of Russia. The country is implementing federal and regional prog-

Table 10. Life expectancy of the population in federal districts of Russia in 1990-2013, years

Territory	1990	2000	2005	2010.	2011	2012.	2013	2013 to…		
								1990	2000	2012.
Central FD	69.5	66.1	66.5	69.9	71.2	71.4	71.9	103.5	108.8	100.7
Northwestern FD	69.1	64.5	64.2	68.9	70.1	70.6	71.3	103.2	110.5	101.0
Republic of Karelia	*68.8*	*62.9*	*61.8*	*66.4*	*68.0*	*68.0*	*69.2*	*100.6*	*110.0*	*101.8*
Komi Republic	*68.2*	*63.5*	*62.1*	*66.9*	*68.0*	*68.3*	*69.3*	*101.6*	*109.1*	*101.5*
Arkhangelsk Oblast	*69.1*	*62.8*	*63.0*	*67.9*	*68.8*	*69.7*	*70.2*	*101.6*	*111.8*	*100.7*
Vologda Oblast	*69.3*	*65.7*	*63.2*	*67.1*	*68.4*	*69.2*	*69.4*	*100.1*	*105.6*	*100.3*
Kaliningrad Oblast	*68.7*	*63.6*	*61.5*	*68.8*	*69.9*	*70.1*	*70.5*	*102.6*	*110.8*	*100.6*
Leningrad Oblast	*68.3*	*63.0*	*62.4*	*68.1*	*69.4*	*69.8*	*70.4*	*103.1*	*111.7*	*100.9*
Murmansk Oblast	*70.2*	*64.5*	*63.8*	*68.4*	*68.9*	*69.8*	*70.5*	*100.4*	*109.3*	*101.0*
Novgorod Oblast	*67.6*	*62.8*	*61.8*	*65.0*	*66.5*	*67.6*	*67.7*	*100.1*	*107.8*	*100.1*
Pskov Oblast	*68.1*	*61.9*	*60.2*	*64.6*	*66.5*	*66.5*	*67.8*	*99.6*	*109.5*	*102.0*
Saint Petersburg	*69.7*	*66.7*	*68.0*	*72.1*	*73.1*	*73.4*	*74.2*	*106.5*	*111.2*	*101.1*
Southern FD	69.7	67.3	68.1	70.1	70.7	71.3	71.8	103.0	106.7	100.7
North Caucasian FD	No data	No data	69.9	72.2	72.6	73.2	74.0	-	-	101.1
Volga FD	69.9	65.5	65.3	68.4	69.2	69.2	70.1	100.3	107.0	101.3
Ural FD	69.4	64.6	65.2	68.8	69.4	69.7	70.1	101.0	108.5	100.6
Siberian FD	67.9	63.7	62.7	67.1	67.7	68.0	68.6	101.0	107.7	100.9
Far Eastern FD	67.2	63.2	62.2	65.8	66.4	67.0	67.8	100.9	107.3	101.2

Source: *Federal'naya sluzhba gosudarstvennoi statistiki* [Federal State Statistics Service of the Russian Federation]. Available at: http://www.gks.ru/

rams of health care development; much attention is given to the reduction of mortality from road traffic accidents and alcohol consumption, as the alcohol factor contributes significantly to premature mortality, especially among men [17]. At the same time, these documents contain neither target indicators characterizing mortality of the working-age population, nor means for achieving them [13, p. 92]. They do not address the problem of high production traumatism as a factor of disability and subsequent premature death. In Russia in 2013 more than 36 thousand people suffered from production accidents with disability for 1 day and 1.7 thousand people died because of them. In our opinion, as the rate of industrial accidents is extremely high, it is necessary to take preventive measures, such as:

– creation of special rooms or corners at enterprises devoted to prevention of accidents and occupational diseases;

– promotion of safety measures in the workplace by means of systematic lectures, talks, briefings with experts in the field of life safety, as well as visual study aids, documentaries, TV shows, etc.;

– briefings with medical staff devoted to provision of first medical aid to victims of industrial accidents.

Given the high mortality rates of the working-age population as a result of road accidents, it is advisable to continue the implementation of regional programs devoted to the prevention of such accidents, particularly designing safer road infrastructure, increasing the availability and improving the quality of care provided to victims of road accidents [6, pp. 90-91]; to strengthen control over observance of traffic regulations.

There is another direction of improving the system to prevent mortality among the working-age population, such as development and maintenance of positive attitudes to a healthy lifestyle through active involvement of mass media, public organizations, trade unions, authorities and agencies.

References

1. Andreev E.M., Kvasha E.A., Khar'kova T.L. Vozmozhno li snizhenie smertnosti v Rossii? [Is it Possible to Reduce Mortality in Russia?]. *Demoskop Weekly* [Demoskop Weekly], 2004, no. 145-146. Available at: http://www.demoscope.ru/weekly/2004/0145/tema01.php
2. Vishnevskii A.G., Shkol'nikov V.M. *Smertnost' v Rossii. Glavnye gruppy riska i prioritety deistvii* [Mortality in Russia. Main Groups at Risk and Priorities for Action]. Moscow : Moskovskii Tsentr Karnegi, 1997. 84 p.
3. *Demograficheskaya modernizatsiya Rossii: 1900–2000* [Demographic Modernization of Russia: 1900–2000]. Under editorship of A.G. Vishnevskii. Moscow : Novoe izdatel'stvo, 2006. 608 p.
4. Demograficheskii ezhegodnik Rossii 2014: stat. sbornik [Demographic Yearbook of Russia 2014: Statistical Digest]. *Rosstat* [Federal State Statistics Service of Russian Federation]. Moscow, 2014. Available at: http://www.gks.ru/bgd/regl/B14_16/Main.htm
5. Demograficheskii ezhegodnik Rossii 2002: stat. sbornik [Demographic Yearbook of Russia 2002: Statistical Digest]. *Rosstat* [Federal State Statistics Service of Russian Federation]. Moscow, 2002. 397 p.
6. Korolenko A.V. Osnovnye cherty sovremennogo demograficheskogo krizisa v Rossii i puti ego preodoleniya [The Main Features of the Current Demographic Crisis in Russia and Ways of its Overcoming]. *Problemy razvitiya territorii* [Problems of Development of Territories], 2014, no. 2 (70), pp. 79-94.
7. *Naselenie Rossii 2012: dvadtsatyi ezhegodnyi demograficheskii doklad* [Population of Russia 2012: Twentieth Annual Demographic Report]. Executive editor A.G. Vishnevskii. Moscow : Izd. dom Vysshei shkoly ekonomiki, 2014. 412 p.
8. Prokhorov B.B., Gorshkova I.V., Shmakov D.I., Tarasova E.V. Obshchestvennoe zdorov'e i ekonomika [Public Health and Economy]. Moscow : MAKS Press, 2007. 292 p.
9. Omran A. Epidemiologicheskii aspekt teorii estestvennogo dvizheniya naseleniya [Epidemiological Aspect of the Natural Population Change Theory]. *Problemy narodonaseleniya. O demograficheskikh problemakh stran Zapada: sb. perevodnykh statei* [Population Problems. On the Demographic Problems of the West: Collection of Translated Articles]. Moscow: Progress, 1977. 303 p.
10. Prokhorov B.B., Gorshkova I.V., Tarasova E.V. Usloviya zhizni naseleniya i obshchestvennoe zdorov'e [Living conditions of the Population and Public Health]. *Problemy prognozirovaniya* [Studies on Russian Economic Development], 2003, no. 5, pp. 127-140.
11. *Rossiya na puti k sovremennoi dinamichnoi i effektivnoi ekonomike: doklad* [Russia on the Way to Modern, Dynamic and Efficient Economy: Report]. Under editorship of A.D. Nekipelov, V.V. Ivanter, S.Yu. Glazyev. Moscow : RAN, 2013. 93 p.

12. Semenova V.G. *Obratnyi epidemiologicheskii perekhod v Rossii* [Reverse Epidemiological Transition in Russia]. Moscow : TsSP, 2005. 287 p.
13. Shabunova A.A., Shakhot'ko L.P., Bobrova A.G., Malanicheva N.A. Smertnost' trudosposobnogo naseleniya Rossii i Belarusi kak ugroza demograficheskomu razvitiyu territorii [Able-Bodied Population Mortality in Russia and Belarus as a Threat to the Demographic Development of the Territories]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2012, no. 2 (20), pp. 83-94.
14. *Federal'naya sluzhba gosudarstvennoi statistiki* [Federal State Statistics Service of Russian Federation]. Available at: http://www.gks.ru/
15. Shabunova A.A. *Zdorov'e naseleniya v Rossii: sostoyanie i dinamika* [Population Health in Russia: State and Dynamics]. Vologda : ISERT RAN, 2010. 408 p.
16. Shabunova A.A., Kalashnikov K.N. Ekonomicheskaya otsenka poter' trudovogo potentsiala naseleniya [Economic Evaluation of Losses in Labor Potential of the Population]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2008, no. 4 (4), pp. 53-61.
17. Yumaguzin V.V., Vinnik M.V. Faktory smertnosti ot vneshnikh prichin i puti ee snizheniya: opyt ekspertnogo interv'yu [Factors of Mortality from External Causes and Ways to Reduce it: Experience of Expert Interviews]. *Sotsial'nye aspekty zdorov'ya naseleniya* [Social Aspects of Public Health]. Available at: http://vestnik.mednet.ru/content/view/595/lang,ru/
18. The World Factbook. *Central Intelligence Agency*. Available at: https://www.cia.gov/library/publications/the-world-factbook/
19. DataFinder. *Population Reference Bureau*. Available at: http://www.prb.org/
20. World Development Indicators. *The World Bank*. Available at: http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators#
21. Global Health Observatory Data Repository. *World Health Organization*. Available at: http://apps.who.int/gho/data/view.main.680?lang=en
22. World Health Statistic 201. *World Health Organization, 2014*. 177 p.

Cited Works

1. Andreev E.M., Kvasha E.A., Khar'kova T.L. Is it Possible to Reduce Mortality in Russia? *Demoskop Weekly*, 2004, no. 145-146. Available at: http://www.demoscope.ru/weekly/2004/0145/tema01.php
2. Vishnevskii A.G., Shkol'nikov V.M. *Mortality in Russia. Main Groups at Risk and Priorities for Action*. Moscow : Moskovskii Tsentr Karnegi, 1997. 84 p.
3. *Demographic Modernization of Russia: 1900–2000*. Under editorship of A.G. Vishnevskii. Moscow : Novoe izdatel'stvo, 2006. 608 p.
4. Demographic Yearbook of Russia 2014: Statistical Digest. *Federal State Statistics Service of Russian Federation*. Moscow, 2014. Available at: http://www.gks.ru/bgd/regl/B14_16/Main.htm
5. Demographic Yearbook of Russia 2002: Statistical Digest. *Federal State Statistics Service of Russian Federation*. Moscow, 2002. 397 p.
6. Korolenko A.V. The Main Features of the Current Demographic Crisis in Russia and Ways of its Overcoming. *Problems of Development of Territories*, 2014, no. 2 (70), pp. 79-94.
7. *Population of Russia 2012: Twentieth Annual Demographic Report*. Executive editor A.G. Vishnevskii. Moscow : Izd. dom Vysshei shkoly ekonomiki, 2014. 412 p.
8. Prokhorov B.B., Gorshkova I.V., Shmakov D.I., Tarasova E.V. *Public Health and Economy*. Moscow : MAKS Press, 2007. 292 p.
9. Omran A. Epidemiological Aspect of the Natural Population Change Theory. *Population Problems. On the Demographic Problems of the West: Collection of Translated Articles*. Moscow: Progress, 1977. 303 p.

10. Prokhorov B.B., Gorshkova I.V., Tarasova E.V. Living conditions of the Population and Public Health. *Studies on Russian Economic Development*, 2003, no. 5, pp. 127-140.
11. *Russia on the Way to Modern, Dynamic and Efficient Economy: Report*. Under editorship of A.D. Nekipelov, V.V. Ivanter, S.Yu. Glazyev. Moscow : RAN, 2013. 93 p.
12. Semenova V.G. *Reverse Epidemiological Transition in Russia*. Moscow : TsSP, 2005. 287 p.
13. Shabunova A.A., Shakhot'ko L.P., Bobrova A.G., Malanicheva N.A. Able-Bodied Population Mortality in Russia and Belarus as a Threat to the Demographic Development of the Territories. *Economic and Social Changes: Facts, Trends, Forecast*, 2012, no. 2 (20), pp. 83-94.
14. *Federal State Statistics Service of Russian Federation*. Available at: http://www.gks.ru/
15. Shabunova A.A. *Population Health in Russia: State and Dynamics*. Vologda : ISERT RAN, 2010. 408 p.
16. Shabunova A.A., Kalashnikov K.N. Economic Evaluation of Losses in Labor Potential of the Population. *Economic and Social Changes: Facts, Trends, Forecast*, 2008, no. 4 (4), pp. 53-61.
17. Yumaguzin V.V., Vinnik M.V. Factors of Mortality from External Causes and Ways to Reduce it: Experience of Expert Interviews. *Social Aspects of Public Health*. Available at: http://vestnik.mednet.ru/content/view/595/lang,ru/
18. The World Factbook. *Central Intelligence Agency*. Available at: https://www.cia.gov/library/publications/the-world-factbook/
19. DataFinder. *Population Reference Bureau*. Available at: http://www.prb.org/
20. World Development Indicators. *The World Bank*. Available at: http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators#
21. Global Health Observatory Data Repository. *World Health Organization*. Available at: http://apps.who.int/gho/data/view.main.680?lang=en
22. World Health Statistic 201. *World Health Organization, 2014*. 177 p.

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SCIENTIFIC REVIEWS. OPINIONS

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Monograph "The Young People of Russia at the Turn of the 21st Century: Education, Employment, Social Well-Being". D.L. Konstantinovskii, E.D. Voznesenskaya, G.A. Cherednichenko. Moscow: TsSPiM, 2014. 548 p.

Since the 1950th the youth has been attracting attention not only of politicians, but also scientists. However, the key issues: "Young people, what features do they have? How do they live? What do they strive for?" have not lost their relevance nowadays. The researchers study aspects related to expectations and preferences of the youth, socialization, motivation and professional self-determination. The monitoring has been conducted since the 1960s. The considerable expertise and analytical information are accumulated and the extensive databases are formed. This involves numerous publications devoted to the socio-economic situation of young people, such as the studies of D.L. Konstantinovskii ("Youth of the 1990s: Self-Determination in the New Reality", 2000), G.A. Cherednichenko ("When the Time to Choose Comes. Aspirations of the Youth and First Steps after Graduation, 2001), Yu.A. Zubok ("Phenomenon of Risk in Sociology: Study of the Youth, 2007), Z.A. Danilova ("Deviant Behavior among the Youth", 2008), I.M. Il'inskii ("Youth and Youth Policy", 2001).

We would like to particularly highlight the collective monograph edited by D.L. Konstantinovskii, which presents the results of the long-term research projects (since the 1960s) determining the impact of demographic, educational, economic subsystems on values and behavior of young people. It is the unique research, as it gives the opportunity to trace the transformation of individual characteristics of young people under the influence of external environmental changes. Many myths are already disproved, for example about equal opportunities and accessibility of educational services for different categories of the population; the problems of youth unemployment are raised.

The research of the team of authors under the supervision of D.L. Konstantinovskii is summarized in the monograph "The Young People of Russia at the Turn of the 21st Century: Education, Employment, Social Well-Being". The systematic approach, it is based on, allows us to study the position of different groups of the youth (rural and urban, workers and students) in terms of educational, professional and career trajectories and issues related to social health.

This study substantiates the transition to the new model of educational behavior

and employment. According to the authors, it is characterized by the expansion of the educational sector due to various forms of lifelong education, earlier transition "study – work", change of the stages of learning and work throughout life and prevalence of different forms of non-standard employment. We believe, the implementation of these conditions will help overcome the discrepancy between the education sector and the labor market and will contribute to the more effective use of human capital.

The monograph raises the issue about the impact of education on people's satisfaction with their life situation. The financial situation is considered as an indicator of success and effectiveness of the educational trajectory. The authors' approach to calculation of the weighted average index of the material situation of various youth groups is innovative. It helps identify the growth of welfare due to the increase in the educational level.

The considerable attention is also paid to the strategies of formation of human capital of the youth, identification of the links between the level of accumulated human capital and the population's subjective estimates of their social and professional situation. There is an interesting phenomenon associated with the fact that more educated young people are more interested in additional professional education.

We cannot but agree with the authors' version of the reasons for this situation, caused by the conditions on the labor market. In particular, it is believed that young people with higher education often have jobs with high requirements for education and training. In this regard, additional training can ensure complete compliance with job requirements. The socio-professional status is one of the factors affecting the results of training. According to the study, the higher it is, the more often young people seek additional training and this training has a different effect on the change in the position of employees.

This study has an undoubted advantage over similar ones: the extensive database provides the opportunity to interpret the results in dynamics and consider socio-economic characteristics of the youth (qualification, job position, income, etc.). It seems reasonable to use the interviews results in order to obtain qualitative assessments of the youth's potential and the reasons for changing educational and career trajectories.

The interviews results underline the approach to the typology of the youth's professional trajectories and the identification of 2 main directions, such as the change in the professional trajectory due to the increased educational level and the maintenance of the same trajectory. The employment factors, as well as the spheres of youth employment in each case are described. The authors find out that the second trajectory (the education level is maintained (e.g., vocational secondary) includes 2 directions – horizontal (the

professional position is consistent with the education level) and downward (people choose jobs that require lower levels of education).

Relying on the data obtained during the interviews, the researchers make reasonable, meaningful conclusions that the success of the professional trajectory is largely determined by the demand on the labor market and the employee's education level. It is shown that in most cases higher education involves a higher level of qualification and a more stable position of a worker on the labor market. In addition, profession obtained at the earlier stages of learning influences the choice of professional trajectory and the desire to increase the qualification level, and the effectiveness of learning increases when the second and subsequent education corresponds to the first.

We support the authors' attitude to the evaluation of the role of professional self-determination and value orientations of the youth in the formation of educational and professional trajectories. We would like to highlight the results of the motive typology based on several indicators: depending on the importance degree and the impact nature (external and internal). The study also presents the structure of factors influencing educational trajectories of the youth by the indicators, such as stratification of professional education, belonging to families different in culture and education, academic performance, motivation and dependence in decision making on external influence.

There is an interesting section of the monograph devoted to the relationship of educational and professional trajectories. The authors raise the problem of the difficulty of their separation due to the experience accumulated in the form of knowledge, skills and professional practices throughout the life cycle. The monograph introduces the authors' interpretation of these concepts. It presents the approach to the study of educational and professional trajectories, taking into account their specificity, the definition of stability (instability) and the evaluation of job satisfaction as a result of the implementation of one or another trajectory.

At the same time, the monograph contains some statements, which are ambiguous and require further development. So, the conclusions about the high competitiveness of secondary school leavers and the sufficiency of higher education for professional development are rather debatable. In practice, every fifth in medium and large Russian companies considers the shortage of skilled personnel as a barrier to innovative transformations. And, according to the study "Global Innovation Barometer 2012", more than 40% of the managers in Russian enterprises and more than 50% in the BRICS countries believe that innovative development requires personnel with a higher level of education.

The research of D.L. Konstantinovskii has convinced us that young people, in general, can adapt to changes easily, but their position is largely determined by the

socio-economic situation in the country and in the region. Besides, there is significant differentiation within this population group according to social, educational, cultural and material conditions. It is reasonable to develop targeted public policy measures aimed at effective reproduction of youth potential.

The monograph contains interesting factual material, reasonable results of long-term research conducted by the team of authors. It is valuable among scientists and readers interested in the issues of educational and youth employment policy.

Let us note that at the regional level similar studies are conducted, in particular, in the Vologda Oblast in 2015 the sociological survey devoted to the socio-cultural values will be carried out among the youth. It seems interesting to compare the results presented in the monograph and those that will be obtained, identify similar trends, problems and mechanisms of their solution.

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