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RUSSIAN ACADEMY OF SCIENCES

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INSTITUTE OF SOCIO-ECONOMIC DEVELOPMENT OF TERRITORIES
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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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Leonidova G.V. – Problems of Governance. The education sector areas: state and development prospects.

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Uskova T.V., Chekavinskii A.N., Lukin E.V. – Economic development of the city: state, problems, prospects.

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FROM THE CHIEF EDITOR

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Halfway to a Fourth Presidential Term

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Russia's expert community has more than once raised the issues concerning public administration inefficiency. The emerging economic, social and political reality, which Russia has to deal with in the mid-2015, further increases the urgency of a decisive move toward the system-wide solution of the problems related to the enhancement of public administration efficiency.

In December 2014, the Ministry of Economic Development of the Russian Federation made a forecast, which assumed that in 2015 the country's gross domestic product would decrease by 0.8%, and a number of other economic indicators would somewhat deteriorate[1].

But, according to Rosstat, the actual reduction in the main indicators for January–May 2015 turned out to be much more substantial. For five months Russia's gross domestic product compared to the same period of the previous year was 96.8%, i.e. it decreased by 3.2%. The index of industrial production amounted to 97.7%. Real disposable money incomes of the population in five months compared to the last year's level were 97%, and the real average monthly wage per employee was 91.2%[2]. In short, the crisis situation in the Russian economy has not improved so far, and negative trends in several parameters are growing.

[1] *MER ukhudshilo prognoz dlya rossiiskoi ekonomiki na 2015 god* [Ministry of Economic Development Has Made a More Negative Forecast for Russian Economy for 2015]. Available at: http: //www /Forbes.ru

[2] *Sotsial'no-ekonomicheskoe polozhenie Rossiiskoi Federatsii – 2015 g.* [Socio-Economic Situation in the Russian Federation – 2015]. Available at: http //www.gks.ru/regl/

According to several well-known domestic experts, two main factors can have immediate impact on overcoming the crisis: 1) growth of oil prices in the world market and 2) abolition of economic sanctions that the U.S. and its Western European partners have imposed on Russia after the accession of Crimea to our country and provision of political support to the self-proclaimed Donetsk and Lugansk people's republics in Ukraine. Both of these factors are external. It is no use to expect rapid change in this respect.

Therefore, overcoming the crisis in Russia depends primarily on the use of internal capabilities and reserves. And this is when the improvement of public administration efficiency becomes critically important. In our opinion, it is crucial for the structural adjustment of the economy on the principles of vertical integration; it is also very important for fighting corruption and for making at least some efforts to reduce extreme social inequality and everything else that actually hinders the implementation of the presidential program and complicates the pursuit of independent sovereign policy.

Unfortunately, the entire executive power hierarchy, including the current Government of Russia, continues to pursue a liberal course, which hinders the transition of the country toward a modern, dynamic and efficient economy. This is written in many evidence-based publications of domestic experts and scholars[3].

Official documents of regulatory authorities, in particular, the Accounts Chamber of the Russian Federation[4] prove that there are significant flaws in the organization of efficient public administration by the Government. The summary report, presented by Chairman of the Accounts Chamber T.V. Golikova in May 2015 in the State Duma, as in previous years, points out insufficient credibility,

[3] See, for example: Kachukov R. Bezal'ternativnost' planovoi neoindustrializatsii [Absence of Alternatives to Planned Neoindustrialization]. *Ekonomist* [Economist], 2015, no. 4; Amosov A. Mozhno li otlozhit' do 2017 g. povorot k novomu industrial'nomu razvitiyu [Is It Possible to Delay until 2017 the Shift to New Industrial Development]. *Ekonomist* [Economist], 2015, no. 3; Mikul'skii K. Ekonomika Rossii i protivorechie ee ustroistva [Russia's Economy and the Contradiction of Its Organization]. *Obshchestvo i ekonomika* [Society and Economics], 2014, no. 12; Gubanov S. Ekonomika bez dvizhushchei sily [Economy without a Driving Force]. *Ekonomist* [Economist], 2014, no. 8; Ot krizisnykh potryasenii i razrushitel'nykh reform – k razvitiyu: chto dolzhno sdelat' gosudarstvo, chtoby pokonchit' s krizisom v 2015 godu? (Doklad Instituta problem globalizatsii) [From Crisis and Destructive Reforms – to Development: What the Government Should Do to End the Crisis in 2015? (Report of the Institute of Globalization Problems)]. *Rossiiskii ekonomicheskii zhurnal* [Russian Economic Journal], 2014, no. 6; etc.

[4] Legal basis for the formation and functioning of the Accounts Chamber of the Russian Federation is set out in Article 101 of the Constitution of the Russian Federation, which states that for controlling the implementation of the federal budget the Council of the Federation and the State Duma shall create the Accounting Chamber, which is a monitoring body with a special constitutional status, which is accountable to the Russian Parliament, and through the mechanisms of democracy – to all taxpayers. The Federal law of April 5, 2013 No. 41-FL "On the Accounts Chamber of the Russian Federation defines the status of the Accounts Chamber as a permanently functioning supreme body of external public audit (control), and significantly expands the list of tasks, functions and powers of the Accounts Chamber.

Key indicators of the work of the Russian Federation Accounts Chamber in 2012–2014

Показатели	2012	2013	2014	2014, %	
				to 2012	to 2013
Number of executed audit and expert-analytical activities	502	470	445	88.6	94.7
Number of control activities with participation of law enforcement agencies and the Federal Security Service	47	39	21	44.7	53.8
Number of revealed violations, billion rubles	**781.4**	**722.9**	**524.5**	**67.1**	**72.6**
- of budget legislation	187.2	384.2	342.8	183.1	89.2
- in the management of state property	8.2	23.6	25.5	3.1 p.	108.0
- in placement of orders	130.7	233.3	39.6	30.3	17.0
Number of criminal proceedings initiated	**78**	**39**	**24**	**30.8**	**61.5**
Number of citations of the General Prosecutor's Office on correction of violations of the law	369	113	152	41.2	134.5
Number of officials brought to account under disciplinary procedures	**716**	**575**	**394**	**55.0**	**68.5**

Source: Reports of the accounts Chamber for 2012–2014.

reliability, and quality of budgets developed by the Government. The report once again emphasizes the inconsistency between the level of organization of the budget process and its execution by the main budget managers. It is noted that the claimed transition to the program principle for the planning and execution of the national budget is not realized. The current system of inter-budget transfers does not provide balance and stability of consolidated budgets in the regions. The report of the Accounts Chamber provides a large number of examples of irrational use of budgetary funds *(see Key indicators of the work of the Russian Federation Accounts Chamber in 2012–2014)*.

The Chamber states that over one third of annual budget allocations is made in the fourth quarter, which breaks the regularity of the budget process. In 2014, a third of the indicators (18 out of 62) established by the presidential decrees of May 7, 2012 were not achieved by the federal executive authorities. According to the analysis conducted by the Chamber, eleven out of forty adopted state programs do not include the indicator of labor productivity. Analyzing the Accounts Chamber reports for the last three years, we can say that the activities of the RF Government do not contribute to the solution of systemic problems character in the sphere of budget management due to the following reasons:

- lack of an integrated system for strategic planning; inconsistency between strategic planning and budget planning;
- insufficient implementation of measures to develop the revenue potential of the RF budgetary system;
- lack of a full system of government programs, which enables to achieve goals and solve strategic development problems with the use of complex interrelated activities and inter-sectoral interaction;

• low quality of management of state property and contract system, which leads to inefficient budget spending;

• uneven expenditures, a significant number of changes introduced in the course of federal budget execution, non-performance of annual budget allocations in full;

• significant growth of public debt, destabilizing the budgets of all levels;

• lack of own financial resources of budgets of RF subjects to implement their commitments in full;

• considerable dependence of the budgets of state extra-budgetary funds on federal budget transfers.

The lack of an effective system that could monitor actual performance of the state apparatus leads to its irresponsibility and to the fact that it fails to achieve the country's socio-economic development goals.

How can this comply with the requirements of rationality and social justice that for years **the Government has been ignoring the extreme difference between the decile population groups with the highest and lowest income**, which, even according to official statistics, has become 16-fold (and in reality it is much greater)?

In fact, for many years, **the Government has been ignoring the need to enhance labor productivity**. Russia lags considerably behind the U.S. and the leading European countries by this indicator. So far, there are no visible changes in the country; moreover, in recent years this gap has been increasing. Modernization of national industrial and agricultural production is extremely slow. Production assets of the majority of industries do not undergo profound renovation; as a result, obsolete technologies are used. The pace of improvement of production infrastructure and general organization of labor, which determine the growth of productivity in modern conditions, is also very slow.

June 17, 2015, the newspaper "Izvestia" published an appeal of the Russian Geotechnical Association to the RF President V.V. Putin, **in which it points out the crisis of management in the entire construction industry**[5]. The authors are exasperated by the extremely low level of professional leadership of the Ministry of Construction of the Russian Federation created in the second half of 2013. And it is not just the examples provided in the appeal; the point is there is no consistency in strategic problem solving in this sphere, just like in many other departments.

The authors are forced to appeal directly to the President, since they do not believe in the efficiency of government structures, the interests of which are closely intertwined.

And how can we assess the reform of the Russian Academy of Sciences sped up by D.A. Medvedev's Government? Was it like a special operation conducted in June 2013? Objectively, it aimed to do away with one of the main competitive advantages of national science. V.V. Ivanov, RAS Vice-President, writes: **"Now it has become apparent that the Ministry of Science and**

[5] O krizise upravleniya v stroitel'noi otrasli [About the Management Crisis in the Construction Industry]. *Gazeta "Izvestiya"* [Izvestia Newspaper], 2015, no. 107 (29353), June 17.

Education planned the so-called reforms only for two steps: first, take away the Academy's institutes and pass them under the guidance of the government; second, deprive the academic community of its influence on decision-making not only in science, but in the interests of Russia's development, i.e. the goals, for which the Academy was initially created and what it has been doing throughout its long history"[6].

Academician V.M. Polterovich notes: **"The insufficient qualification of those responsible for the science reform is the main source of the problem – our officials do not have the basic technique to conduct institutional reforms. There is one of the main mistakes that they make during reform elaboration and implementation, such as the so-called method of shock therapy... Now, the draft law of June 28, 2013 (on the reform of state academies) is typical shock therapy. The purpose of this law had nothing to do with the purpose of enhancing the level of science in Russia. We all know what we got. The compromise that we have now is achieved in the desperate struggle, but not in the elaboration process. This leads to enormous costs"**[7].

Academician E.M. Galimov emphasizes: **"The first stage of work in the system of the Federal Agency for Scientific Organizations (FANO) was completely disappointing. The expectation that FANO would undertake the issues of economic management was of no effect. The President urged FANO to take upon property matters and let researchers focus on science. Scientists are still concerned about renting out premises to carve out money for current repairs, maintenance of security, communication, maintenance of the heat supply and sewerage systems, etc. FANO clearly considered its task to carry out only administrative measures and instill "order" in science... Trust should be the guiding principle of the state–science relations"**[8].

Experts, social scientists, economists, financiers, production managers, who are concerned about the development of national economic and political independence, have developed a strong opinion that **the government is still full of those, for whom the sharing out and wasting of national property remains the most important thing**. It seems that Yu.Yu. Boldyrev, a well-known economist and politician (by the way, in the late 1990s, he was Deputy Head of the Accounts Chamber of the Russian Federation) is right in many respects, when he says that **"there is no crisis in our country, except for that organized by our government"**[9].

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[6] Ivanov V. Blitskrigom po nauke [Blitzkrieg against Science]. *Nezavisimaya gazeta – Politika* [Independent Newspaper – Politics], 2015, no. 10, June 16.

[7] 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. The text of the publication is given below.

[8] Galimov E.M. Mozhet li byt' uspeshnym proekt FANO–RNF? [Can the FANO–RSF Project Be a Success?]. *Ekspert* [Expert], 2015, no. 25, June 15. The text of the publication is given below.

[9] Boldyrev Yu. Ne nado davat' sebya strich' [Do Not Let Yourself Be Sheared]. *Literaturnaya gazeta* [Literary Newspaper], 2015, no. 22 (6511), June 3.

Judging by the dynamics of national socio-economic development, we should openly admit that **the team of top government officials that managed the country from 2009 to 2012 has failed to cope with the tasks it faced.** Still, many people who were on that team are currently holding high positions; this certainly does not improve the efficiency of public administration, because they got used to work inefficiently, and they are not afraid of anything.

The media, including the Internet, are full of facts about unseemly and unethical deeds of officials at various levels, from the local to the federal.

Note that regional leaders, who "are at fault" (see *list of heads*) were members of the ruling party "United Russia" and the party recommended them to be appointed governors. But the facts show that the party has not created an effective mechanism to assess professional skill and moral qualities of the persons nominated to managing positions; there is no timely purging of its ranks, and there is no responsibility for failing to fulfill ones duties.

List of heads at the federal and regional level, who were dismissed in 2012–2015*

Name, Position	Period of office and date of resignation (reason)	Reasons for and/or consequences of resignation
A.E. Serdyukov, RF Defense Minister	February 15, 2007 – November 6, 2012	Due to inability to cope with the management of the property of the Ministry of Defense
E.N. Vasil'eva, Head of the Defense Minister's Office, Head of the Department for Property Relations of the RF Defense Ministry	2010 – January 2012	May 8, 2015 sentenced to 5 years in prison, found guilty of fraud, embezzlement and money laundering (550 million rubles)
A.A. Reimer, Director of the Federal Penitentiary Service (FSIN of Russia)	August 3, 2009 – June 26, 2012	March 30, 2015 detained and arrested. Accused of fraud in the procurement of electronic bracelets for prisoners in the amount of about 3 billion rubles.
V.A. Yurchenko, Novosibirsk Oblast Governor	September 22, 2010 (appointed) – February 2, 2012 (appointed) – March 17, 2014 (loss of trust)	Several episodes of fraud and negligence in the sale of land and change of purpose of land were revealed (damage is assessed at 34 million rubles)
S.A. Bozhenov, Volgograd Oblast Governor	February 2, 2012 (appointed) – April 2, 2014 (voluntarily)	Inappropriate spending of budget funds and abuse of power were revealed. In 2013 – 3 major terrorist attacks in Volgograd
N.V. Denin, Bryansk Oblast Governor	December 28, 2004 (elected) – October 18, 2007 (appointed) – October 14, 2012 (elected) – September 9, 2014 (loss of trust)	Abuse of power in budget allocation was revealed.
A.V. Khoroshavin, Sakhalin Oblast Governor	August 9, 2007 (appointed) – August 9, 2011 (appointed) – March 25, 2015 (loss of trust)	March 4, 2015 arrested when taking a bribe and arrested on charges of taking a bribe (about 360 million rubles).

* Based on the data published in public media and on websites.

At the same time, one more thing is clear: enhancement of political mechanisms in order to implement Vladimir Putin's strategic course requires a broader social movement. We think that the solution to these tasks is manifested more and more clearly in the activities of the All-Russia People's Front (ONF). Recently, the President has been actively supporting the ONF, the establishment of which was initiated by Vladimir Putin in May 2011 during the State Duma election campaign.

Currently, the ONF is gradually turning into a coalition of non-governmental organizations actively seeking to help implement V.V. Putin's political course, which he declared during the presidential campaign in March 2012.

But the very existence of the ONF is not a systemic solution either; in fact, it is the decision of the President that he was forced to make in order to compensate for the inefficiency of the current system of public administration at least to some extent. And hours-long live television phone-ins are also part of such compensation.

In our opinion, non-governmental organizations will not be able to introduce any cardinal improvements in the current level of Government performance.

Russia's system of state management requires substantial changes and people who are willing to follow systemic, and, therefore, scientific, management principles: clear goal-setting, reliable ways of achieving socially beneficial goals with real responsibility for the result.

In May 2013, an editorial of the journal "Expert" made the following conclusion about the effectiveness of D.A. Medvedev's Government: **"We need a new paradigm, we need new ideas how to improve our country; we need new carriers of these ideas… But the ideological power is in the same hands. We can expect nothing useful from these people anymore; they prevent Russia from moving forward"[10].**

More than two years have passed. The Government still consists of the same old carriers of ideas, that is why the Federal State Statistics Service registers clearly unsatisfactory results of national socio-economic development.

According to sociological centers, the level of support of the President's performance reached its historic maximum of 89% in June 2015[11].

But what will happen, if the same people in the Government with the same old ideas and the same performance results continue to bear responsibility for the efficiency of public administration in Russia???

[10] Vyiti iz breda [Come Out of Delirium]. *Ekspert* [Expert], 2013, no. 19, May 13–19.
[11] Data of Levada Center, VTsIOM, FOM.

Supplement

Comparative analysis of summary reports of the Accounts Chamber of the Russian Federation for 2012–2014.

General conclusion from comparison of sections*	2012	2013	2014
FORMATION OF THE FEDERAL BUDGET			
From year to year approaches of the financial-economic block of the Government of the Russian Federation demonstrate the unsoundness of socio-economic development parameters, which leads to continuous introduction of changes in the federal budget, breaking the rhythm of budgetary process	In terms of the need to implement the program-target principle for the planning and execution of the budget, the requirements to the quality of the socio-economic development forecast are raised. This forecast should not only determine the initial conditions for the development of the draft federal budget with high degree of reliability, but also to be targeted, i.e. to reflect the results of goals and objectives in the medium term.	Comparative analysis of the dynamics of the main macroeconomic indicators, which have developed over recent years, shows a significant deviation from the predicted values, which may indicate insufficient degree of accuracy and reliability of forecasts.	Comparative analysis of the dynamics of the main macroeconomic indicators which have developed over recent years, shows their significant deviation from the predicted values, which may indicate a lack of reliability and quality of the developed forecasts (the forecast for GDP growth in 2015 is reduced to 97% vs. 101.2% at the time of adoption of the federal budget).
EXECUTION OF THE FEDERAL BUDGET			
Low quality and lack of proper control over the execution of the budget does not allow the beneficiaries to fully accept expenditure commitments for the medium term, and increases the disagreement in actions between public authorities at different levels.	Monitoring the quality of public finances management showed an insufficiently high level of organization of the budget process by the main administrators of budget funds and the use of goal-oriented tools of budgeting. In assessing the quality of execution of the federal budget in terms of expenditure, it has been found that more than 30% of budget allocations were executed in the fourth quarter.	Monitoring the quality of public finances management showed an insufficiently high level of organization of the budget process by the main administrators of budget funds and the use of goal-oriented tools of budgeting. In assessing the quality of execution of the federal budget in terms of expenditure, it has been found that about one third of budget allocations in 2013, as in the previous years, were executed in the fourth quarter.	Monitoring the quality of public finances management showed an insufficiently high level of organization of the budget process by the main administrators of budget funds and the use of goal-oriented tools of budgeting. Quarterly analysis of the evenness of execution of the federal budget expenditures over a number of years has shown that the highest amount of budget allocations falls on the end of the year. The level of execution of expenditures for the fourth quarter of 2014 amounted to 30.5%.
DECREES OF THE RF PRESIDENT OF MAY 7, 2012			
The fulfillment of the promises made by Vladimir Putin during the election campaign is in jeopardy. It appears that the Accounts Chamber should assess the total loss due to the failure to execute or the improper execution of presidential decrees. In addition, there is a need organize constant monitoring of the achievement of targets set out in the decrees.	It seems that it will be difficult to achieve the parameters established in the presidential decrees for the long term on a number of macroeconomic indicators (share of fixed capital investment in GDP, and growth rate of labor productivity), there are certain risks in solving the problem of increasing labor remuneration.	Dynamics of individual target indicators characterizing the state of the economy (share of investments in fixed capital in GDP, growth rate of labor productivity), allows us to say that there are risks of failure to meet the deadlines set out in the decrees of the President.	By the end of 2014, 18 (29%) out of 62 target indicators established by the decrees have not been implemented. The dynamics of individual indicators forecasted for 2015–2017, for example, increase in the share of investment in fixed capital, increase in the share of high-tech products and knowledge-intensive industries, implementation of measures to promote a healthy lifestyle, allows us to make a conclusion that there is a risk of not achieving the planned results within the deadline.

Continuation of the supplement

RF PUBLIC DEBT			
The public debt of the Russian Federation is growing every year, which creates additional risks for the economy, especially in the context of exhaustion of reserve funds. The increase in debt-servicing costs leads to the reduction of the productive areas of budgeting.	Debt sustainability of the federal budget reduces. The volume of public debt of the Russian Federation will increase from 13.1% of GDP in 2013 to 13.4% of GDP in 2015. The increase of the national debt requires better forecasting of the performance of borrowing programs, their connection with the results of execution of the federal budget.	In 2013, the growth of the state debt of the Russian Federation continued; the debt increased by 1042.6 billion rubles, or 16%. State guarantees are provided without checking the financial condition of the principal and without the right of recourse, which creates risks of warranty cases.	In 2014, the growth of the state debt of the Russian Federation continued; it increased by 36.4% and as of January 01, 2015 amounted to 10299.1 billion rubles, or 14.5% of nominal GDP. The Finance Ministry has not issued guidance documents on the procedure of formation of indicators of the draft programs for the state internal and external loans of the Russian Federation.
STATE (FEDERAL AND TARGETED) PROGRAMS			
Despite the fact that the implementation of program methods, when each program has its targets, the achievement of which is measured by the performance indicators, has been going on for more than 10 years, the budget has not become a program budget, but it remains traditional and departmental. According to experts, state programs, prior to their adoption by the government, should be discussed at meetings of the relevant committees of the State Duma and be accompanied by the opinions of the Accounts Chamber.	When assessing the implementation of federal target programs, it has been established that planned goals, objectives and results were not achieved. The programs do not fully carry out the role of a catalyst for the development of industrial and social infrastructure, promotion of innovation and investment activity.	A comprehensive system of government programs that enables the use of complex interrelated activities and interdisciplinary interactions to achieve the goals and solve the strategic challenges of socio-economic development, has not yet been formed; and the majority of programs are mostly a set of expenditure requirements that are insufficiently supported by reasonable goals, objectives and indicators.	The principle of formation and changes of government programs on the basis of the amounts of budget funding does not meet the goal of transition to program-based planning and execution of the budget. Essentially, "institutional" budgets were guised as government programs. Under this approach, state programs cannot be considered as complete and effective tools for the planning and execution of the federal budget.
INTER-BUDGETARY RELATIONS			
Measures to reduce regional polarization remain ineffective, because the current subsidies-based system of funding does not aim to solve this task. Inertial approaches of government agencies to territorial governance, lack of a unified system for strategic planning hamper modernization and diversification of regional economies.	In the changed economic conditions, the subjects of the Russian Federation, in order to solve the problems of financial security of transmitted powers and implement the provisions of presidential decrees of May 07, 2012 it is necessary to work out new directions of development of the system for inter-budgetary relations; and the Government of the Russian Federation should adopt the appropriate normative act. Still there are risks to the sustainability of regional budgets associated with substantial debt. There remain considerable differences in the pace of economic development in different regions, in the main indicators of people's income, in the volume of investments in fixed capital, in the level of unemployment. Inter-regional differences in fiscal capacity remain high.	Still there are risks to the sustainability of regional and local budgets associated with substantial debt. There remain considerable differences in the pace of economic development in different regions, in the main indicators of people's income, in the volume of investments in fixed capital, in the level of unemployment. Inter-regional differences in fiscal capacity remain high.	Still there are risks to the sustainability of regional and local budgets associated with substantial debt. The problems of the consolidated budgets of subjects of the Russian Federation are based on a high level of differentiation of budgetary provision; attempts to equalize it have been carried out for many years and have not lead to significant results. The current system of inter-budgetary transfers does not provide the balance and sustainability of the consolidated budgets of the regions. Untied financial assistance in the form of grants for ensuring the balance has many flaws, much of it lacks systemic character, its volumes do not cover the actual lack of funds.

Continuation of the supplement

PRIVATIZATION AND STATE PROPERTY MANAGEMENT			
There is no legislation systemically regulating the state property management. The very low rate of return on the assets of the state in corporatized companies indicates a decrease in the degree of implementation by the state of its rights as an owner.	The current legal framework does not allow for making a reliable estimate of the property during bankruptcy proceedings, which gives an opportunity to assess the property by the value significantly different from the market value. Policy in the field of bankruptcy elaborated by the RF Ministry of Economic Development does not fully meet the requirement of efficient management of state property.	Forecast plans (programs) for privatization of federal property are not executed. There is no transparency in decision-making procedures on the conditions of privatization. In the current socio-economic situation there is a need to revise the principles and priorities of state property management, to strengthen control and regulation in the public sector of economy.	Federal budget revenues from privatization of stakes in state-owned companies in 2010–2014 amounted to only 21% of the amount originally planned by the Law on the federal budget. Forecasts of federal budget revenues from privatization set out in the government privatization programs for 2010–2014 were of declarative character. To date there is no approved methodology for making a forecast of revenues from privatization.
STATE PURCHASES			
The Accounts Chamber has found that the tasks in procurement for state and municipal needs, have not been fulfilled yet. Violations detected by auditors indicate the presence of increased risks for the budget in the segment of procurements	Illegitimate interpretation of the imperative norms of the legislation by the federal executive authorities creates an environment favorable for systematic violation of the law when making procurements. So far, there is no effective system for forecasting and economic assessment of the volume of purchases for state needs and an appropriate budgeting system.	It has been found out that customers violate the norms established by the RF Budget Code and Civil Code, the requirements of the legislation in the sphere of placement of orders and protection of competition and other norms. The results of audits confirm the necessity to adoption systemic measures, proportionate to the scale and conditions of major contracts and identified violations at their placement.	The timing of implementation of the provisions of the Federal Law of April 05, 2013 No. 44-FL "On the contract system in procurement of goods, works, services for state and municipal needs", which were to be adopted, is delayed. According to the Federal Treasury, there is a decrease of savings from public procurement. This trend has been going on for three years already.
RESIDENTIAL CONSTRUCTION			
Irresponsibility of the government, which caused the failure to implement housing programs, actually means the failure to solve the problem of housing construction.	The planned indicators for housing programs for 2009–2011 have not been achieved. The indicators on repair of apartment houses have been achieved by 99.1%, on the resettlement of citizens from emergency housing – by 66.9%.	Housing construction is hampered by the lack of the required number of land plots equipped with engineering infrastructure. Out of the ten values of target indicators established for 2012 by the Federal Target Program "Housing", which is part of the state program "Providing affordable and comfortable housing and communal services for citizens of the Russian Federation", the need for the development of which was pointed out in the decree of the RF President of May 07, 2012 No. 600, the values for six indicators are not determined, and the values for three indicators have not been achieved.	The activity of JSC "Agency for housing mortgage lending" (AHML) aimed at the development of the primary market of mortgage lending is inefficient. The Decree of the RF President of May 07, 2012 No. 600 and the instructions of the President and the Government to develop special programs of mortgage lending for certain categories of citizens have not been executed. OJSC "AHML" has not implemented any projects aimed at improving the availability of housing for the economically active population by increasing the volumes of construction of economy class housing.

End of the supplement

PENSION FUND OF THE RUSSIAN FEDERATION (PFR)			
Chronic deficit of the Pension Fund defines one of the most acute problems of Russia's budgetary system and poses a constant threat to its stability.	An adequate legal and regulatory framework necessary for a more effective execution of the budget of the PFR has not been formed.	The audit of the report on the budget of the PFR has established that at the time of the audit the laws aimed at ensuring a more effective implementation of the budget of the Pension Fund were not adopted.	The goal of ensuring the financial sustainability of the pension system set out in the Budget Address of the President dated June 13, 2013 is not achieved, and the goals set out in the Strategy for Development of the Pension System are not achieved either.

* Comparative analysis was carried out by ISEDT RAS.

As we can see from the above analysis of the reports of the Accounts Chamber, there is no improvement of the quality of formation and execution of the budget of the Russian Federation by the Government headed by Dmitri Medvedev.

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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 April – June 2015, and also on average for the last six surveys (August 2014 – June 2015). These data are compared with the data for 2013, 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 April – June 2015, there was a continuing upward trend in the support of the RF President's performance: the approval level increased from 68 to 70%, the share of negative assessments remained the same (16%). In general, people's assessments are better than in 2013 (when the level of approval was 55%), in 2014 (64%) and early 2015 (the approval level in February was 66% and the share of negative judgments was 21%).

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: the nationwide level of approval of the performance of the RF President did not change significantly. Thus, according to VTSIOM surveys carried out in April – May 2015, the level of support of Vladimir Putin's performance is 88% (the share of negative assessments is 7%). According to Levada Center (over the same period) approval of the President of the Russian Federation is 86%; the proportion of negative assessments is 13%.

[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	Aug. 2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…		
												2013	2011	2007
RF President														
I approve	75.3	58.7	55.3	64.1	66.4	66.8	66.0	66.3	67.5	69.5	67.1	+12	+8	-8
I do not approve	11.5	25.6	29.4	22.3	19.3	18.5	19.7	20.5	16.2	16.1	18.4	-11	-7	+7
Chairman of the RF Government *														
I approve	-*	59.3	48.9	54.2	55.2	56.2	56.3	56.1	56.5	59.1	56.6	+8	-3	-
I do not approve	-	24.7	32.8	27.6	26.8	23.9	24.7	24.7	20.5	19.5	23.4	-9	-1	-
Governor														
I approve	55.8	45.7	44.4	40.1	38.8	39.7	39.3	38.3	37.1	40.5	39.0	-5	-7	-17
I do not approve	22.2	30.5	33.2	38.9	40.1	39.6	37.0	37.4	37.5	35.4	37.8	+5	+7	+16

* Included into the survey since 2008.

Over the past two months there has been an increase in the proportion of the Vologda Oblast residents who believe that the President is successful in protect democracy and strengthening citizens' freedoms (from 39 to 42%). Assessment of the activity of the head of state in the field of restoring order in the country and economic recovery did not change significantly (50 and 36%, respectively).

It is noteworthy that public opinion concerning V. Putin's work to strengthen Russia's international standing has deteriorated (the share of positive assessments for the last two months decreased from 53 to 51%, the proportion of negative judgments increased from 29 to 33%).

In general, people's current assessments are better than they were in the beginning of the year, and better than in 2013 and 2014. This also concerns their judgements about challenges such as economic recovery and prosperity that the President has to cope with and that are the most relevant for the Oblast residents.

However, on average over the last six surveys, the proportion of negative assessments remains higher than the proportion of positive answers in the attitude of the population toward the activities of the President concerning two issues – protection of democracy (42 vs. 40%) and the increase in the welfare of citizens (51 vs. 35%).

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	Aug. 2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…		
												2013	2011	2007
Strengthening Russia's international standing														
Successful	58.4	46.2	45.7	50.4	50.9	52.3	50.8	50.4	52.7	51.1	51.4	+6	+5	-7
Unsuccessful	24.9	33.7	36.2	32.4	30.0	31.0	30.3	29.5	28.7	32.5	30.3	-6	-3	+5
*Index of success***	*133.5*	*112.5*	*109.5*	*118.0*	*120.9*	*121.3*	*120.5*	*120.9*	*124.0*	*118.6*	*121.0*	*+12*	*+9*	*-12*
Imposing order in the country														
Successful	53.2	36.6	39.4	48.0	47.5	49.4	52.1	50.3	50.1	49.9	49.9	+10	+13	-3
Unsuccessful	34.0	50.0	47.5	39.1	37.8	37.8	35.1	37.3	37.5	38.0	37.3	-10	-13	+3
Index of success	*119.2*	*86.6*	*91.9*	*108.9*	*109.7*	*111.6*	*117.0*	*113.0*	*112.6*	*111.9*	*112.6*	*+21*	*+26*	*-7*
Protecting democracy and strengthening the citizens' freedoms														
Successful	44.4	32.4	31.8	37.5	37.6	38.2	40.7	39.5	39.2	42.2	39.6	+8	+7	-5
Unsuccessful	37.0	48.3	51.0	45.4	43.7	44.3	41.9	40.9	39.9	38.3	41.5	-10	-7	+5
Index of success	*107.4*	*84.1*	*80.8*	*92.1*	*93.9*	*93.9*	*98.8*	*98.6*	*99.3*	*103.9*	*98.1*	*+17*	*+14*	*-9*
Economic recovery and increase in the citizens' welfare														
Successful	47.2	30.7	31.3	34.8	35.1	33.9	37.6	34.4	34.7	36.2	35.3	+4	+5	-12
Unsuccessful	39.1	56.1	56.8	53.4	50.2	54.4	50.8	51.5	49.9	49.9	51.1	-6	-5	+12
Index of success	*108.1*	*74.6*	*74.5*	*81.4*	*84.9*	*79.5*	*86.8*	*82.9*	*84.8*	*86.3*	*84.2*	*+10*	*+10*	*-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 April – June 2015 shows that their support to the "United Russia" increased slightly (from 38 to 40%), which in general corresponds to the growth of people's approval of federal authorities. Assessments concerning other parties in the last two months did not change significantly: the share of the Oblast residents who believe that their interests are expressed by KPRF is 7%, by LDPR – 5%, by the "Just Russia" – 3%.

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

Party	2007	Election to the RF State Duma 2007, fact	2011	Elec-tion to the RF State Duma 2011, fact	2013	2014	Aug. 2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…		
														2013	2011	2007
United Russia	30.2	60.5	31.1	33.4	29.4	32.8	34.3	35.5	36.7	38.8	38.2	40.3	37.3	+8	+6	+7
KPRF	7.0	9.3	10.3	16.8	11.3	9.7	9.1	9.3	8.3	7.7	7.8	6.8	8.2	-3	-2	+1
LDPR	7.5	11.0	7.8	15.4	7.2	7.6	6.9	7.3	7.8	6.7	6.1	5.4	6.7	-1	-1	-1
Just Russia	7.8	8.8	5.6	27.2	4.6	3.5	3.7	3.9	3.2	4.1	3.7	3.3	3.7	-1	-2	-4
Other	1.8	–	1.9	–	0.6	0.3	0.1	0.7	0.1	0.3	0.1	0.2	0.3	0	-2	-2
No party	17.8	–	29.4	–	34.9	34.4	35.0	32.6	32.7	30.3	31.5	32.5	32.4	-2	+3	+15
It is difficult to answer	21.2	–	13.2	–	10.2	11.7	10.9	10.7	11.1	12.0	12.5	11.6	11.5	+1	-2	-10

It is necessary to note the recovery growth of social well-being assessments after their sharp decline in the beginning of the year. In February 2015, compared with December 2014, the share of positive assessments of social mood dropped from 71 to 62%. In the following months (from February to June 2015) there was an increase in the share of positive assessments (from 62 to 70%).

In April – June 2015, the proportion of the Vologda Oblast residents, who describe their mood as "normal and fine", rose from 68% to 70%; the proportion of those, who "experience stress, anger, fear, depression", decreased from 27 to 24%.

The stock of patience remains at the same level: 79% of the Oblast residents believe that "everything is not so bad; it's difficult to live, but it's possible to stand it", 15% say that "it's impossible to bear such plight". For comparison, in December 2014, the share of positive assessments was 80%, in February, 2015 – 74%.

The assessments of financial position have improved for the first time in the course of the last six surveys. In April – June 2015, the share of those, who consider that they have "average income", increased from 37 to 39%, the proportion of "the poor and extremely poor" fell from 52 to 48%,

The consumer sentiment index, which characterizes people's forecasts concerning the prospects of economic development and their personal wealth, increased from 73 to 80 points, which roughly corresponds to the level of December 2014 (82%).

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

Answer option	2007	2011	2013	2014	Aug. 2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…		
												2013	2011	2007
Mood														
Usual condition, good mood	63.6	63.1	68.6	69.4	70.5	69.3	70.9	61.8	67.6	69.5	68.3	0	+5	+5
I feel stress, anger, fear, depression	27.8	28.9	26.2	24.9	25.1	24.6	24.1	31.3	26.6	24.4	26.0	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	82.5	80.3	80.0	74.3	78.9	79.0	79.2	0	+4	+5
It's impossible to bear such plight	13.6	15.3	14.2	12.6	12.8	12.1	13.6	17.3	14.9	14.7	14.2	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	44.1	43.5	42.3	38.3	36.7	39.4	40.7	-3	-2	-7
The share of people who consider themselves to be poor and extremely poor	42.4	44.3	46.9	49.1	49.6	49.3	51.0	53.3	51.6	48.0	50.5	+4	+6	+8
Consumer Sentiment Index														
Index value, points	105.9	89.6	90.3	87.6	87.1	84.0	82.3	75.7	73.4	80.1	80.4	-10	-9	-25

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

In April – June 2015, the proportion of negative assessments of the current financial situation in the Vologda Oblast decreased from 38 to 32%, the share of negative forecasts for the coming year decreased from 31 to 24%. This allows us to expect positive changes

nationwide. According to the associates of the Institute of Sociology of RAS, "numerous forecasts[2], which predict economic collapse and social depression in Russia by the spring of 2015, prove to be wrong... As always happens in times of crisis, society captures the increasing tension even if there are no serious social cataclysms in the country[3].

Public opinion concerning the current situation and prospects of development of welfare situation (as a percentage of the number of respondents)

Вариант ответа	How would you asses your financial situation: is it better or worse than it was a year ago?				Do you think that in a year your financial situation will be better or worse or about the same as now?			
	October 2014		April 2015		October 2014		April 2015	
	Vologda Oblast	Russian Federation	Vologda Oblast	Russian Federation	Vologda Oblast	Russian Federation	Vologda Oblast	Russian Federation
Better	9	22	6	10	6	31	5	25
The same	48	56	41	44	38	46	34	38
Worse	28	22	38	46	23	23	31	37
It is difficult to answer	15	–	16	–	33	–	30	–

Source of the data for the Vologda Oblast: public opinion monitoring carried out by ISEDT RAS.
Source of the data for the Russian Federation: information-analytical summary of the findings of the national survey "Russian everyday life in crisis: how we live and how we feel" (RAS Institute of Sociology, 2015).

[2] Some examples of pessimistic forecasts for spring 2015:

1. Mikhail Delyagin, Doctor of Economics, Director of the Institute of Globalization Problems: "The growth of social tension in spring will lead to major protest actions, but they will be scattered; however, in autumn they will begin to unite in a common front". Source: *Ofitsial'nyi sait Moskovskogo ekonomicheskogo foruma* [Official Website of the Moscow Economic Forum]. Available at: http://me-forum.ru/media/news/3693/

2. "In 2015, economic recession will increase on the background of accelerating inflation: by mid-year, inflation can reach nearly 20%, which has not been observed since the early 2000s. Forecasts predict a 5–10% decline in real incomes for the first time since the 1990s, which will bring down the retail trade and the service sector... According to Barclays, the peak price growth of 16–17% will occur in March – April, in the end of the year it will be 12.5%. However, analysts at Barclays do not rule out that, given the unprecedented devaluation and volatility of exchange rate, the rate of inflation can be higher. Source: Krizis-2015: k chemu i kak gotovyatsya ekonomisty i proizvoditeli v Rossii? [Crisis-2015 What Do Economists and Manufacturers in Russia Prepare for and How Do They Do It?]. *Gazeta "Vedomosti"* [Vedomosti Newspaper], January 26, 2015. Available at: http://www.vedomosti.ru/library/articles/2015/01/26/glavnoe-ne-kurs-a-stabilnost

3. Andrey Davidovich, Director of Market Research & Management Consulting Agency "Market": "We will feel the crisis especially acutely by the spring of 2015". Source: *Delovaya gazeta "Vzglyad"* [Business Newspaper "View"]. Available at: http://www.vz.ru/economy/2015/1/3/722716.html

4. Vladislav Zhukovsky, independent economist and investment advisor (from an interview on December 1, 2014): "The current crisis will reach its peak in about six months. I think that by the spring of 2015, consumer loans will be finally guzzled, and the mortgage market will also face problems. Source: *Svobodnaya pressa* [Free Press]. Available at: http://svpressa.ru/economy/article/105772/

[3] *Informatsionno-analiticheskoe rezyume po itogam obshchenatsional'nogo issledovaniya "Rossiiskaya povsednevnost' v usloviyakh krizisa: kak zhivem i chto chuvstvuem?"* [Information-Analytical Summary of the Findings of the National Survey "Russian Everyday Life in Crisis: How We Live and How We Feel"]. IS RAN [RAS Institute of Sociology]. 2015. Pp. 2, 4.

In April – June, 2015 in 8 out of 14 socio-demographic groups there was an increase in the proportion of people describing their mood as "fine, normal, good", especially among men (from 67 to 73%), people aged under 30 (from 74 to 79%), persons with secondary vocational education (from 68 to 74%), and 20% of the wealthiest (from 78 to 83%).

There were no significant changes in 5 groups: women (67%), people aged 30 – 55 (68%), the poorest 20% (57%), the residents of Cherepovets (65%) and districts (65%).

A slight decrease in the proportion of people, who characterize their mood positively, is observed only among persons with higher and incomplete higher education (from 73 to 71%).

Social mood in different socio-demographic groups (answer option "Good mood, usual, good condition", as a percentage of the number of respondents)

Category of population	2007	2011	2012	2013	2014	Aug. 2014	Oct. 2014	Dec. 2014	Feb. 2015	Apr. 2015	June 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…		
													2013	2011	2007
Sex															
Men	65.9	64.5	69.1	69.9	68.9	69.5	68.8	69.7	61.7	67.4	72.7	68.3	-2	+4	+2
Women	61.7	62.0	65.8	67.5	69.8	71.4	69.8	72.0	61.9	67.8	66.8	68.3	+1	+6	+7
Age															
Under 30	71.3	70.0	72.3	75.5	75.1	79.1	76.6	76.4	71.3	73.5	79.4	76.1	+1	+6	+5
30–55	64.8	62.5	67.9	69.2	69.5	70.3	68.3	69.8	58.3	67.9	67.6	67.0	-2	+5	+2
Over 55	54.8	58.3	62.1	62.4	65.4	64.9	66.1	69.1	60.7	63.7	65.9	65.1	+3	+7	+10
Education															
Incomplete secondary, secondary	58.4	57.4	57.2	60.6	62.5	63.3	65.4	67.8	54.8	62.1	64.0	62.9	+2	+6	+5
Secondary vocational	64.6	63.6	66.7	68.1	70.4	71.3	70.2	71.8	65.2	68.2	73.6	70.1	+2	+6	+5
Incomplete higher, higher	68.6	68.3	77.0	77.4	76.2	77.7	73.3	73.5	65.8	73.1	70.6	72.3	-5	+4	+4
Income groups															
20% of the poorest people	51.6	45.3	51.5	46.2	50.8	54.1	50.2	55.1	38.3	55.6	57.1	51.7	+6	+6	0
60% of the people with middle-sized income	62.9	65.3	68.7	71.9	72.3	71.5	73.5	75.0	65.2	69.2	71.3	71.0	-1	+6	+8
20% of the most prosperous people	74.9	75.3	81.1	83.3	84.8	89.6	79.0	81.6	80.3	78.1	82.5	81.9	-1	+7	+7
Territories															
Vologda	63.1	67.1	73.6	75.0	76.4	80.7	75.5	75.6	66.4	72.5	75.6	74.4	-1	+7	+11
Cherepovets	68.1	71.2	76.2	75.3	76.3	76.5	72.8	73.2	63.1	69.8	71.2	71.1	-4	0	+3
Districts	61.6	57.1	59.8	61.6	61.8	61.5	64.0	67.1	58.6	63.7	65.1	63.3	+2	+6	+2
Oblast	63.6	63.1	67.3	68.6	69.4	70.5	69.3	70.9	61.8	67.6	69.5	68.3	0	+5	+5

Assessments of social mood in all socio-demographic categories of the Oblast residents are better than at the beginning of 2015. However, the level of December 2014 has been reached only in 7 of out of 14 categories of the population so far.

On average for the last 6 surveys, in comparison to 2013, there have been some negative changes among people with higher and incomplete higher education (the share of positive assessments decreased from 77 to 72%) and among the residents of Cherepovets (from 75 to 71%).

Conclusion:

The results of the survey carried out in June 2015 indicate that after a period of tension, which took place in the late 2014 – early 2015 and was associated with the exacerbation of financial problems (rising prices, fluctuations in the exchange rate of the national currency, pessimistic expectations due to the impact of sanctions), public opinion of the Vologda Oblast residents is gradually improving. In the past two months the estimation of performance of federal and regional bodies of state administration became more positive, the position of "United Russia" strengthened (which also indicates that the population supports the current government), self-assessment of financial situation became more positive.

Positive changes in the estimates of the population influence the current mood of the people and their expectations concerning the future (this is evidenced by the dynamics of the consumer sentiment index, which improved for the first time for the last year).

The Vologda Oblast residents' assessments concerning various aspects of their lives show the trend of recovery growth. Perhaps this suggests that people began to hope for success in overcoming the tense domestic situation, both for the country and for themselves. However, it is premature to speak about that with confidence. Improvement of public opinion can be associated with the beginning of summer (for many people it is the period when they go to their dachas and work at their subsidiary plots), and with the information policy of federal and regional authorities, which has changed in comparison with the late 2014 – early 2015.

April 28, speaking at the Truth and Justice Second Media Forum of Independent Regional and Local Media, Vladimir Putin described the current situation as follows: "I wouldn't even call it a crisis – we have certain developments and complications... But overall, it is already clear that there is no collapse, nor will there be one. And that is what's most important"[4].

The President's optimism is transmitted to the population through the media and, of course, affects the dynamics of public opinion. However, it is still unknown how the dynamics of the socio-economic situation in Russia will develop further.

[4] Stenogramma Mediaforuma nezavisimykh regional'nykh i mestnykh SMI [Transcript of the Media Forum of Independent Regional and Local Media]. *Rossiiskaya Gazeta* [Russian Newspaper], April 28, 2015. Available at: http://www.rg.ru/2015/04/28/mediaforum-site.html

THEORETICAL ISSUES

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Polterovich V.M.

Reformers of science lack the necessary qualifications to cope with the task*

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– I have spent many years working on various reforms of different countries as an object of the study and, therefore, I can not agree with the paragraph in the draft conference resolution, which begins as such: "The dominance of the narrowly utilitarian approach to science is the main source of the problem..."

I believe that any, even narrowly utilitarian approach can not explain what is happening in science. The answer to the question "Where is the source?" is quite different. I propose to change the paragraph as follows: **"The insufficient qualification of those responsible for the science reform is the main source of the problem"** *(hereinafter underlined by the Editorial Board)*. The conference demands the resignation of Minister of Education and Science D.V. Livanov. The conference appeals to the President and the RF Government to initiate the development of the project aimed at changing the scientific field, based on the professional analysis of evolution of the systems to manage science both in Russia and abroad to ensure thorough evaluation of the necessary institutional experiments with subsequent adjustment of reform plans".

I will explain. In general, the major reform of institutional systems is a very difficult and fine task and there are no unified measures to solve it and be sure about effectiveness of the results Undoubtedly, the

* It was published in the newspaper "Search" of June 5, 2015, no. 23 (1357). It is a speech (slightly abridged) at the third session of the permanent Conference of research workers. V.M. Polterovich works at the Central Economics and Mathematics Institute of the RAS and the Moscow School of Economics.

experience of other countries, particularly more advanced, is one of the key sources of our knowledge about reforming. The matter is not about comparing what we have and what the USA have. Most often these comparisons are fruitless. If you want to learn from the experience of developed countries, consider what was going on 50 or 100 years ago. There can be found answers to many key questions. And, of course, one should not rely only on the experience of developed countries – the knowledge of the countries that have a similar development level should be taken into account.

In my opinion, the fact is that **our officials do not have the basic technique to conduct institutional reforms. There is one of the main mistakes that they make during reform elaboration and implementation, such as the so-called method of shock therapy.**

Shock therapy is a direct transition from one institutional system to another without introducing intermediate institutions. Why are these stages required? Such reforms include borrowing or transplantation of institutional systems of more developed countries. However, during the direct transfer of the institutional system from a developed country to a less developed one all sorts of constraints appear: resource, technological, cultural, institutional, political... All of this should be taken into consideration. To do it, it is necessary to build a whole sequence of institutional changes. Only then we can hope for success.

If we do not do that, the reform efforts prove fruitless. We get the results completely different from the forecasted by the reformers and incur huge costs.

I want to remind you that the method of shock therapy was used in the 1990s to conduct reforms, such as liberalization of prices and foreign trade, privatization, monetization of benefits and then the pension reform. The introduced uniform state exam has similar disadvantages. Now, it is estimated that in Russia in the 1990s the loss of gross domestic product was greater than in 1937–1945...

In fact, those mistakes, which I mention about, are repeated in different countries and periods of time... But the Russian experience of the 1990s has led to the development of the corresponding theory; nowadays such methods are unacceptable. **The method shock therapy has flaws, but it has served as the basis for reform of science in Russia.**

I will give an example of a well-conducted reform. You remember that price liberalization in Russia was held overnight January 2, 1992. Most prices in Russia were liberalized. In China this process took 15 years. They started in 1978 with six large enterprises in Sichuan. The Chinese did not change the planned system unchanged, but let these enterprises sell excessively manufactured products at market prices. For 15 years the number of enterprises involved in this experiment had been increased, on the one hand. On the other hand, the careful management of planned performance had continued, so that the share of products manufactured to fulfill the plan had been gradually reduced... In 1979 there were 100 companies. In 1993 the planned system was reduced to 5%, the process of price liberalization was

completed. Market infrastructure appeared and the experience was accumulated. China managed to avoid inflation, payments crisis and barter dominance. The growth exceeded 10% per year.

Actually, **any reform requires elaboration**. There are typical steps to calculate the project: formulation of the objectives; analysis of the evolution of institutions in developed countries; analysis of similar reforms in developing countries; division of the reform in stages and its presence as a sequence of intermediate institutions; comparison of the integral benefits of the reform with the integrated costs; justification of the viability of planned trajectories; selection of the effective technologies for the reform implementation, including establishment of the necessary support institutions and experimentation; method to analyze the results of implemented institutional changes. It is impossible to consider a project without these calculations!

Now get a bird's-eye view of the RAS reform. Stage I (2008–2013). What were the arguments to carry out the reform? I quote "Kommersant" (2006): "…The Academy has been called a "quasi-agency" and "isolated from social problems by the politicized distribution corporation that cares not about research, but about comfortable existence". Approximately since 2008 the funds have been transferred from the Russian Academy of Sciences to national research universities. The bet was made on establishment of the science management system, similar to that existing in the United States. And there was no justification for it…

And there was another argument. I quote "Kommersant-Vlast" (2007): "… Minister of Education Andrey Fursenko has complained about… the rigid system in his Department, stubbornly trying to bring up a creator. Now, according to the Minister, the main thing is to nurture a consumer who will be able to use achievements and technologies developed by others".

I have to say here that the task of borrowing is also misunderstood, as you should know a frontline to borrow wisely. But in order to know it, you need to conduct your own research. So, in 2013–2014 it was actually stated that fundamental science is not needed.

Now, **the draft law of June 28, 2013 (on the reform of state academies) is typical shock therapy. The purpose of this law had nothing to do with the purpose of enhancing the level of science in Russia. We all know what we got. The compromise that we have now is achieved in the desperate struggle, but not in the elaboration process. This leads to enormous costs.**

The radical shift has been recently made in the direction of reform. Now Germany, but not the USA is the pattern to follow! The statement of A. Fursenko is very interesting here: **"Integration of Russian science into the global scientific community, contrary to expectations, has not made it more effective"** (Fursenko, Letter to Putin of June 11, 2014). **It is the recognition that all the conducted reforms have been fruitless.** Now the plan to structure scientific

organizations has arisen... This document has been written by economists, who are not enough literate and hide their names!

What is the plan? It presupposes the imitation of the German system without any consideration of how it fits or how it is consistent with other documents, etc. It proposes to establish 4 societies, while structuring Russian scientific organizations: "Planck society", "named after Helmholtz", "named after Fraunhofer" and "named after Leibniz". There are no comparisons and justifications again. It is absolutely illiterate. There is no word about the need for experimental confirmation of the structuring plans. So, I conclude with the statement I have started with: "The insufficient qualification of those responsible for the science reform is the main source of the problem".

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Galimov E.M.

Can the FANO–RSF project be a success?*

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FANO and RSF should serve science, not manage it. Their purpose is to create a new framework for the domestic science organization. However, now this pair looks more like forceps for crushing and grinding.

Russian science is seriously weakened. It no longer has opportunities that science has in the advanced countries: newest devices and materials for experiments, modern infrastructure, finally, wages – not only for scientists, but also for highly qualified technicians and engineers servicing unique scientific equipment, without which they can not realize their dreams. These people have left science. As for scientists themselves, the picture is a bit different as it is painted sometimes. Yes, when the borders were opened, many of them went abroad, mainly promising young people. Scientists over 40 were not welcome abroad. In ten years they would be paid pension. But it is mature scientists who are carriers of knowledge, methods and scientific experience. Therefore, Russian science has lost little in this aspect. For more than 20 years it has continued to produce surprisingly high-quality scientific results even without sufficient support, at least in natural sciences: mathematics, theoretical physics, sciences about earth and life, chemistry. Today people who have devoted their life to academic science are 60–80 years old. Though, we should keep in mind that scientists do not necessarily have to be physically nimble, they should have "quick mind", as the poet said. Brains are trained by many years of reflection.

Instead of helping – cleaning

Having been Director of Vernadsky Institute of Geochemistry and Analytical

* The article was published in the journal "Expert" of June 15, 2015 No. 25. In the recent past Academician E.M. Galimov was Director of Vernadsky Institute of Geochemistry and Analytical Chemistry of Russian Academy of Sciences.

Chemistry of Russian Academy of Sciences (GEOKhI RAN), I watched the processes unfolding in the field of science in the country. The Institute is engaged in global geochemistry and forecasting mineral raw materials, space research, research in the ocean (it has a oceanographic ship), biogeochemistry and ecology, the problem of radioactive waste disposal, development of analytical chemistry. This is a typical large institute of the Russian Academy of Sciences, one of the best. So, as the saying goes, what is good or bad for this institution, good or bad for science.

The first stage of work in the system of the Federal Agency for Scientific Organizations (FANO) was completely disappointing. The expectation that FANO would undertake the issues of economic management was of no effect. The President urged FANO to take upon property matters and let researchers focus on science. Scientists are still concerned about renting out premises to carve out money for current repairs, maintenance of security, communication, maintenance of the heat supply and sewerage systems, etc. FANO clearly considered its task to carry out only administrative measures and instill "order" in science.

Do we need this work of FANO? Probably, yes. As FANO reported at the meeting of the President's Council of Advisors on Science and Technology, the inspection had revealed dozens of small pseudo-scientific organizations, which attracted budgetary funds. The parasitic structures, identified by FANO, were formed, because the scientific community had been imposed to stick to bureaucratic building of science. Paper reports were multiplied and money went into the sand.

It would seem that the government could rely on the Russian Academy of Sciences in the struggle for the quality and effectiveness of science. However, the authorities opposed it to FANO. And the Agency launched a "purge" in institutes –flagships of science, focusing on formal indicators (age, number of publications, etc.). The established commissions searched for violations, often ludicrous nature, and left vital issues unresolved.

The state of the research fleet of the Russian Academy of Sciences is still an unresolved problem. In the Soviet times the huge, highly equipped fleet was managed by the state. The academic institutions carried out only expeditions and operational management of vessels that were assigned to them. With the beginning of "perestroika" the vessels were left in the hands of institutions virtually without any support. To maintain and repair the fleet more than 100 million rubles a year was allocated from the budget, while the normal operation of the fleet of this size and quality demanded at least 2 billion rubles a year. The scientific fleet is a valuable tool for studying planetary geological processes, in particular processes in the ocean that affect environment, climate, biological productivity, causing catastrophic events. Therefore, scientists sought to keep the scientific fleet afloat. Without any help and support people kept public property, relying solely on the old Soviet concern for the public good. They organized international

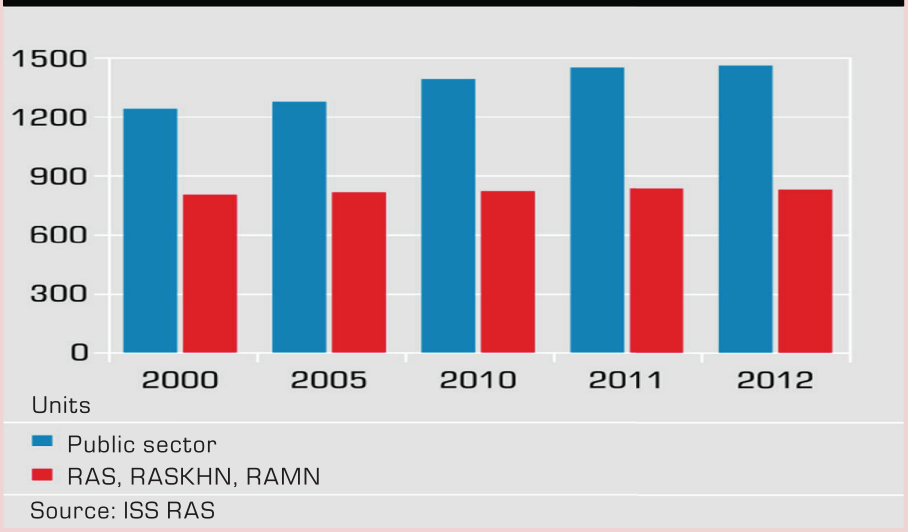
expeditions when foreign partners were ready to pay for them. They freighted ships. The vessels even carried cargo and tourists. They hoped for the time when the scientific fleet would be fully used for its intended purpose. It would seem that the time had come. All the property, institutions and the fleet were transferred to FANO. However, as in other cases, the Agency took the position of a supervisory organization, refusing to bear any responsibility.

My personal conflict with the leadership of FANO was connected with the problem to repair and maintain the vessel belonging to the Institute. Today when this conflict is already resolved, it makes no sense to go into the details. It is only important to note that there is an important result of past discussions: FANO should take real action to save the fleet, in particular the vessel belonging to GEOKhI RAN. It is really happening now. It is a shift in the right direction, which has showed that **if FANO considers its main goal to support research institutions in the organization of their activities, respect the work of scientists (the Agency staff clearly lacks it), this new form of science organization can play a positive role in our country.**

To find common ground

To make the reform of science successful it is extremely important to find the correct platform of interaction between FANO and RAS. There are declarations on joint action, expert functions of the RAS and coordination of personnel decisions. But the **institutions are almost completely cut off from any influence from the Russian Academy of Sciences. If someone thinks that it is the way to improve science, they are mistaken. In today's circumstances the creation of institutions of dual subordination would be the best solution**. Moreover, from the beginning the principle of "two keys"

Organizations carrying out research and development — Graph 1



Source: ISS RAS

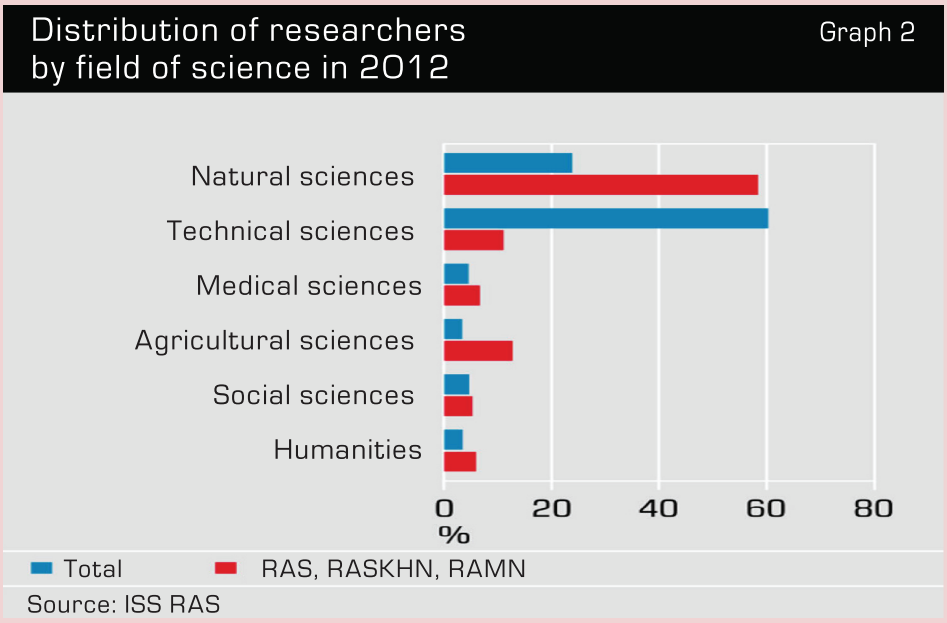
was the basis for the reform, as announced by its initiators. In this case directors of the institutions, responsible for the property component, would be appointed by FANO and their supervisors would make up the staff of the RAS. They should be selected in teams of institutes, then in departments of the Russian Academy of Sciences (according to the same procedure as before), approved by the RAS Presidium and accountable to it. The same applies to the status of the Academy advisers. This would make it possible for FANO to carry out property and personnel policies and for the RAS – scientific-methodological guidance.

On funding of science

Russian science has another source of funds – Russian Scientific Fund (RSF), whose main task is to distribute grants. That would seem good. The system of research grants is widely used all over the world. It is aimed at supporting the initiatives to minimize the time between the emergence of promising ideas and their inclusion in the base funding. However, the RSF, actually in conjunction with FANO, has another purpose: distribution of funding among those who will remain after FANO "cleaning".

However, scientific talent and talent to fill in an application are often two different things. The expert committees, even if they are composed of objective and competent scientists can not make a correct judgment, as the applications represent just fragments of a holistic scientific work. Only research teams know who is who, who generates ideas, who is a great experimenter, though he/she do not often publish hi/her works and is lazy to defend a thesis. **Only basic funding – the funds allocated to the institutions for their teams and academic boards to manage them – can be used as efficiently as possible.**

Distribution of researchers by field of science in 2012 Graph 2



Source: ISS RAS

Do we need grants? Is this form to support science useful? Yes, but only as an addition to the base funding. For specialized institutions, such as institutes of the Academy of Sciences, this form of financing can be just devastating. As in the case of FANO, the uneven and ill-considered use of forms and methods to distribute grants from the RSF lead to the transfer of good intentions into a bad practice.

This also applies to the problem of technical equipment, which is of great importance in modern science. It is expensive and devices for finest tests and a number of support equipment and materials. It would seem that the most economical and efficient way of their use is not to distribute devices of all institutions, but to create centers for collective use. Centers for collective use are useful. However, they can only be of secondary importance, just to obtain routine data, like rent a car. Rented cars are also useful. But private cars give more opportunities. Every car owner will tell you this. People without their own cars find it appropriate to rent a car when necessary. Unique devices should be in possession of specialized research laboratories, which do not only use them, but also create new methods on their basis. But, of course, the use of unique devices, installed in special laboratories, should bee carried out within the framework of scientific cooperation, as all over the world.

Science and society

Science can not be considered outside the society. Without adjusting some basic things, it will be impossible to properly reform science.

Cash against goods. The question is why state corporations managers sometimes get tens of millions rubles a month. President Vladimir Putin says that such a salary is paid to their foreign colleagues. We ca not pay less to people occupying a similar position. It is convincing. But this argument should be extended to other cases. The salary of a professor at an institute is less than 50 thousand rubles a month and the salary of a professor of the same qualification level, for example, in Canada amounts to 300–400 thousand rubles a month in our currency.

But the main thing for any scientist is not payment, but the opportunities provided to conduct research. They are determined by the funds allocated to equipment, experiments and expeditions. Everyone understands that **it is impossible to have competitive science in the country where the funding of science per scientist is lower by 5–7 times than in the countries with advanced scientific and technological culture.** Of course, it is understood by the government as well. It does not want to "waste" money on funding the entire scientific community as widespread now, but provide targeted support to the most productive working departments and, consequently, increase wages of effectively working scientists and reduce the total number of scientists. This is the FANO–RSF project. In other words, it is the principle "cash against goods". But in science there is a different principle "pay up first". We can do nothing about it. It is necessary to look for a nonlinear compromise. The institutions that will be able to reduce the number by 20%, should receive two-fold increased funding. In the

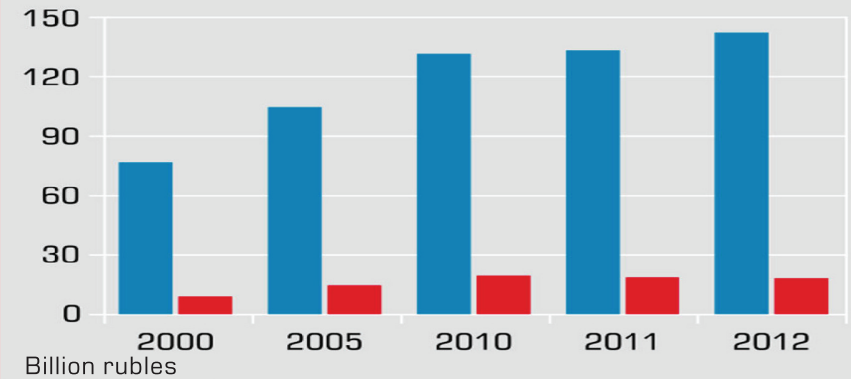
next five years, the institutions that will reduce the number by 20% one more time, should again receive two-fold increased funding. Then the funding for institutions that have achieved outstanding results should be also increased. So, in ten years it will be possible to reach the normal level of the state of science.

What to expect from business. Applied science should get money from business. The state should create the conditions for business to receive profit from it. However, until science can provide businesses with the 10–15% increase in profit, while the 50% increase is agreed with officials, business is unlikely to show interest in science. After all, to invest in science means to risk money. But the wider and more powerful the basis of science, the greater practical benefit from it. This basis is created by fundamental science. Fundamental science, sometimes abruptly changing the direction of production, is rather in contradiction with the current needs of business. **The state needs fundamental science not to solve its current problems, but provide the development foundation and secure the future.**

Trust and science. Trust should be the guiding principle of the state–science relations. Distrust causes the need to keep everything under control. People line up bureaucratic barriers with the good intention to prevent abuse. As a result, honest people lose a lot of time and effort to prove their honesty: inquiries, reports, justifications, etc. Meanwhile, crooks, who feel at ease in the bureaucratic world, can overcome all barriers easily. Total control requires the maintenance of a huge bureaucratic and law enforcement apparatus. Only at first glance it seems that it is wiser to prevent a crime than to look for the culprit. In most cases it is more advantageous to trust people, and when a violation occurs, to find and punish the guilty. One has to control everybody, but to look for the few.

In particular, it is necessary to let the institutions determine the direction of spending funds allotted by the state. Until recently everything was written down by articles. Budget organizations live a poor, but irresponsible life. If there is a fire – we are not to blame. We asked for the money on fire-fighting equipment, but did not get any. When the teams can distribute money on their own, they will have to think how to work optimally and how increase wages. To buy expensive equipment, they will have to reduce the staff number. But it will be their own decision, not imposed from higher authorities, which causes distrust and resistance. **Therefore, the reforms do not succeed, as they are imposed top-down and not the result of rational choices of the research team**. It is necessary to cancel the law on tenders, a striking manifestation of the distrust principle. It is very important to be able to transfer unspent funds to the next fiscal year. Then it is possible to save money on an expensive appliance for some years. Up to date the means have been written off at the year end, as it is convenient from bureaucratic considerations. Funding is often received in the last months of the year. So, not to lose money, they are spent for completely unnecessary or secondary purposes.

Domestic expenditures on research and development at 2000 values — Graph 3



Source: ISS RAS

In Russia people always respect learning, education. Belonging to the respected part of society has attracted the gifted to science. Now this incentive has virtually disappeared. To restore it in our society is a task no less important than funding. I hope that FANO considers the problems in this direction.

The scientific community has a suspicion that the FANO–RSF project focuses only on the seizure of property and the elimination of existing forms of domestic science, especially academic. I believe that the FANO–RSF project has good, but unobtainable goals. The authorities obviously have the wrong impression about organic helplessness of Russian science and the need for its adjustment to Western standards. Many methods and ideas that work in the West are not applicable in Russia. These ideas are not bad, but Russia traditionally has other social priorities. Officials urge scientists to take the initiative in reforming, but they are deaf to the suggestions that do not fit into their view, and those proposals that are suitable for them are often unproductive. If you stand your ground stubbornly, waiting for collapse of the opponent, this could lead to the total collapse. The experience of discussions shows that the constructive approach and the readiness to come to common ground can make the reform successful.

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SOCIO-ECONOMIC DEVELOPMENT STRATEGY

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Passive Behavior of the Government. Budget Problems are Aggravating in the Regions

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Abstract. Despite a number of reforms, the current multi-level budgetary system does not fully correspond to the development strategy of the country and its regions. ***Still the Russian Government has not taken effective measures to address the main structural contradiction of the budgetary system, based on the non-adequate distribution of revenue and expenditure responsibilities, manifested in the sharp decline in the revenue base of territorial budgets during the 2009 global financial crisis. However, the crisis effects have not been analyzed and the conclusions have not been made.*** The Ministry of Finance of the Russian Federation tried to solve the problem of territorial budgets imbalance not by enhancing existing mechanisms of revenue distribution at the regional level, but by granting large-scale loans to be repaid after 2012. Despite it, due to the sharp rise in the social burden[1], the deficit and the debt load enlarged and resulted in the budget crisis in the regions. The experts of the Higher School of Economics state that 20 RF subjects, having the level of public debt above 80%, had been actually in default[2] by the end of 2014. Instead of finding ways out of the fiscal crisis, the Russian authorities gradually lose overall control over the processes of regional development. The mechanisms of federal target programs work poorly and the RF subjects have to finance program activities[3]. In fact, the management of territorial development is reduced to the transfer of financial

[1] After the adoption of the Presidential decrees of May 7, 2012 the social load has been redistributed between levels of the budget system: the regions' share in the social sector financing has increased from 46% in 2012 to 51% in 2014

[2] *Vysshaya shkola ekonomiki: 20 rossiiskikh regionov fakticheski v defolte* [Higher School of Economics: 20 Russian are Regions Actually in Default]. Available at: http://www.finmarket.ru/news/4015638

[3] In 2008–2014 the amount of subsidies to territorial budgets to co-finance the federal target programs decreased by 6 times – from 123.9 billion rubles to 20.3 billion rubles.

resources from the federal budget to the regions and the Ministry of Finance of the Russian Federation regulating interbudgetary relations has, in fact, become the only real institute of regional policy. But the interbudgetary policy of the Ministry of Finance does not gain visible economic returns: in 2006–2014 the amount of repayable financial assistance to the regional budgets increased from 0.6 to 1.5 trillion rubles, and the number of self-sufficient territories decreased from 20 to 11. The worsening of socio-economic problems is accompanied by a difficult international environment, adverse effects of external sanctions against Russia and falling oil prices. Already in 2014 the losses from the sanctions amounted to 40 billion U.S. dollars, from the decline in oil prices 100 billion U.S. dollars[4]. However, the federal budget for 2015 was approved without taking into account these factors. It demonstrates the inability of the Russian Government to accurately assess the situation and forecast events even in the short term. Due to forced significant amendments to the federal budget in April 2015, ***its deficit was increased seven-fold, from 0.4 to 2.7 trillion rubles.*** Surely, this imbalance of the country's budget will seriously complicate the implementation of local budgets. In the new version of the federal budget transfers to regions cut by 72 billion rubles, or by 10.5%. The anti-crisis plan of the Russian Federation Government aimed at cutting budget spending provides not grant financial support to the regions, but allocation of budgetary loans in the amount of 160 billion rubles, which will be returned to the The Federal Treasury. These funds will be enough to repay only 15% of the accumulated commercial debt of regional budgets. ***Such a short-sighted budgetary policy of the central authorities deprives the regions of any hope of solving the problem of rising public debt.*** The crisis, greatly affecting the regions with metallurgical specialization, has highlighted the limits of countercyclical potential of fiscal policy. The lack of budget risk management involves deep drop in tax revenues, a major revenue source of regional budgets. Another negative consequence is that the Vologda Oblast, the Lipetsk Oblast, the Chelyabinsk Oblast and the Kemerovo Oblast have lost the status of donor regions. The article presents the results of the research in the problems of budgetary provision of the Vologda Oblast, the Lipetsk Oblast and the Chelyabinsk Oblast, carried out by ISEDT RAS. The leading domestic corporations of ferrous metallurgy are located in these areas. The work evaluates the state of regional budgets, debt policy and interaction with the federal budget as of year-end 2014. The main accent is made on the analysis of relations between metallurgical corporations and territorial budgets. Despite the fact that the metallurgy-oriented regions are characterized by significant structural features, the estimates vary greatly in the territorial context. However, we can make a general conclusion that in these regions one can observe ***the growing problems connected with the receipt of tax payments from the key revenue generating industry since 2009***. It entails a number of other negative factors of the regional budget systems functioning. ***Due to highly inefficient economic policies pursued by the central government in respect of the largest taxpayers, the regional authorities have completely lost the ability to regulate their economic activities.***

Key words: metallurgical corporation, regional budgets, income tax, public debt, public management efficiency.

[4] Ershov M., Tanasova A., Tatuzov V., Lupandina O. Finansovaya sfera: o nekotorykh sobytiyakh i itogakh 2014 goda [Financial Sector: on Some Events and Results of 2014]. *Rossiiskii ekonomicheskii zhurnal* [Russian Economic Journal], 2015, no.1, pp. 100-109.

In 2014 the budgets of metallurgy-oriented regions were executed in the conditions of aggravated socio-economic problems of regional development. The growth of gross regional product (GRP) was the lowest for the last fifteen years (excluding 2009). The Vologda region had the lowest average annual growth rate of the economy, amounting to 0.3% (*tab. 1*).

The decrease in investment activity is one of the main factors for the deceleration of economic growth. The decline of investment in fixed assets, which amounted to 54% compared to the pre-crisis level, was recorded in the Vologda Oblast in connection with the completion of major investment projects and the reduction of investment programs of the energy companies. The negative trend in investment growth was characteristic of other regions, but the decline was not as severe as in the Vologda Oblast (*tab. 2*).

The decline in investment activity in these regions was caused by sharp deterioration of financial results of the economic entities due to lower demand for industrial products, insufficient working capital necessary for the implementation of mutual settlements and payments (*tab. 3*).

In 2014, even without adjustments for inflation, the net profit of enterprises in the Lipetsk Oblast and the Chelyabinsk Oblast accounted for 35%–60% of the 2008 level. The financial results of the Vologda Oblast economy were characterized by a significant loss, which amounted to 34 billion rubles, i.e. 60% of the territorial budget's revenue.

Such serious yield decline in the economies of metallurgy-oriented regions occurred against the backdrop of significant profit growth in all the constituent entities of the Russian Federation. Surely, the metallurgical companies had a decisive influence on the formation of financial

Table 1. Index of physical volume of GRP in Russia in 2007–2014, % to the previous year

Subject	2000–2011	2011	2012	2013	2014	2012–2014
Lipetsk Oblast	105.0	104.8	101.8	103.4	101.0	102.1
Chelyabinsk Oblast	104.9	105.3	102.4	101.5	102.2	102.0
Vologda Oblast	103.1	106.9	104.8	95.5	100.5	100.3
Russian Federation	105.3	104.3	103.4	101.3	100.6	101.8
Sources: data of the Federal State Statistics Service of the Russian Federation; the author's calculations.						

Table 2. Index of physical volume of investment into fixed capital in Russia in 2008–2014, % to the previous year

Subject	2008	2009	2010	2011	2012	2013	2014	2014 to 2008, %
Lipetsk Oblast	118.4	91.9	116.5	102.8	78.0	103.5	105.0	93.3
Chelyabinsk Oblast	113.8	75.9	99.2	107.6	100.1	103.2	101.8	85.2
Vologda Oblast	85.9	71.1	116.1	149.4	120.7	38.7	80.5	46.4
Russian Federation	109.5	86.5	106.3	110.8	106.8	100.8	97.3	106.7
Sources: data of the Federal State Statistics Service of the Russian Federation; the author's calculations.								

Table 3. Net financial result of the organizations' activity (profit +, loss -) in Russia in 2008–2014, billion rubles

Subject	2008	2009	2010	2011	2012	2013	2014	2014 to 2008, %
Lipetsk Oblast	116.9	32.4	45.6	44.1	36.5	3.7	40.6	34.7
- metallurgy	*103.9*	*24.9*	*38.4*	*39.5*	*28.1*	*-10.9*	*30.2*	*29.1*
Chelyabinsk Oblast	53.8	43.7	67.3	28.6	53.2	-34.4	32.0	59.4
- metallurgy	*26.5*	*31.3*	*42.5*	*6.1*	*20.4*	*-58.0*	*No data*	*No data*
Vologda Oblast	90.8	10.6	-21.6	28.6	55.2	15.4	-33.6	x
- metallurgy	*55.8*	*5.2*	*-33.3*	*0.03*	*17.3*	*12.4*	*-35.5*	*x*
Russian Federation	3801	4432	6331	7140	7825	6854	5906	155.4
- metallurgy	*313*	*207*	*351*	*289*	*284*	*148*	*238*	*76.0*

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

results of the regions under analysis. The losses of the metallurgical enterprises of the Lipetsk Oblast and the Chelyabinsk Oblast in 2013 and the Vologda Oblast in 2014 could not be compensated be any other industry. It reveals disadvantages of monofunctionality once again. The decline in consumer activity, which used to be one of the drivers of economic growth, has become a distinctive feature of recent years.

In 2014 due to accelerated inflation and counter-sanctions imposed by the Russian authorities, the real wages growth rate in the Vologda Oblast and the Lipetsk Oblast, real monetary incomes of the population in the Chelyabinsk Oblast acquired a downward trend (*tab. 4*).

The deterioration of the socio-economic situation resulted in strengthening of destructive processes in the regional budgetary systems. By the end of 2014 the metallurgy-oriented regions, like most Russian regions, could not reach the pre-crisis volume of budgets' revenues in real terms. However if the whole country requires 6% of the sources for complete recovery of the revenue, the Lipetsk Oblast and the Chelyabinsk Oblast – 10% and the Vologda Oblast – 26% (*tab. 5*).

The slow recovery of revenue sources, even in the conditions of expanded support for metallurgy-oriented regions[5] provided by the federal government, resulted in the accumulation of debt problems. At the same time, various aspects of the regional authorities' debt policy are non-uniform. First, the debt load of the Vologda Oblast was above 80% and close to critical (100% in the volume of own revenues of the budget). In the Lipetsk Oblast and the Chelyabinsk Oblast the debt burden increased significantly, but was significantly lower than in the Vologda Oblast: 51 and 26% of the territorial budgets' total revenue, respectively (*tab. 6*).

[5] In 2009–2014 the amount of federal transfers to the budgets of the analyzed regions doubled compared to 2008.

Table 4. Consumer demand dynamics in Russia in 2008–2014, % to previous year

Indicators	2008	2009	2010	2011	2012	2013	2014	2014 to 2008, %
Vologda Oblast								
Real incomes of the population	100.5	103.3	108.2	100.8	110.6	105.6	101.8	134.0
Real wages	108.4	92.9	105.6	99.8	106.9	104.4	98.2	107.3
Retail trade turnover	108.5	89.4	116.3	107.6	119.7	101.7	102.0	138.9
Consumer price index	114.3	107.2	109.2	105.7	106.0	107.2	112.0	157.5
Lipetsk Oblast								
Real incomes of the population	108.8	105.4	103.0	97.8	112.0	103.8	106.4	131.3
Real wages	105.0	91.7	104.7	102.7	109.1	102.3	95.0	104.5
Retail trade turnover	117.3	100.0	106.9	109.2	107.5	107.0	104.7	140.6
Consumer price index	116.0	108.7	108.1	104.7	106.6	106.3	111.9	156.0
Chelyabinsk Oblast								
Real incomes of the population	116.1	97.0	103.1	99.1	101.8	104.6	97.2	102.6
Real wages	108.8	91.7	107.9	104.1	106.7	107.9	100.0	118.6
Retail trade turnover	122.4	93.0	100.8	101.7	105.6	104.1	99.5	104.3
Consumer price index	112.8	108.6	109.6	108.3	106.3	105.4	109.9	58.7
Russian Federation								
Real incomes of the population	103.8	101.8	105.4	101.2	105.8	104.8	99.0	119.2
Real wages	111.5	96.5	105.2	102.8	108.4	105.3	101.3	120.7
Retail trade turnover	113.5	94.9	106.5	107.1	106.3	103.9	102.5	122.5
Consumer price index	113.3	108.8	108.8	106.1	106.6	106.5	111.4	58.8

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

Table 5. Dynamics of revenues of the RF subjects' budgets in 2008–2014, billion rubles*

Subject	2008	2009	2010	2011	2012	2013	2014	2014 to 2008, %
Lipetsk Oblast	76.0	54.3	59.1	60.3	61.8	56.8	56.4	74.2
Chelyabinsk Oblast	60.2	49.0	48.5	50.0	50.0	49.1	54.2	90.0
Vologda Oblast	159.3	122.0	141.8	143.3	145.6	139.2	142.5	89.5
Russian Federation	9300.8	8104.3	8367.4	9111.5	9120.7	8695.4	8746.6	94.0

* In the 2014 prices.
Sources: data of the Federal Treasury; Federal State Statistics Service of the Russian Federation; the author's calculations.

Table 6. State and municipal debt of the RF subjects in 2008–2014

Indicators	2008	2009	2010	2011	2012	2013	2014
Vologda Oblast							
Received loans, billion rubles	0.2	6.4	8.5	8.9	6.7	13.3	33.2
Debt, billion rubles	1.7	11.0	19.0	26.9	30.9	34.9	38.0
Debt burden, %*	3.8	39.4	52.8	67.0	70.7	81.1	82.0
Lipetsk Oblast							
Received loans, billion rubles	0	0.55	2.9	4.1	3.4	4.8	4.4
Debt, billion rubles	4.0	6.5	7.8	10.4	13.9	17.7	22.4
Debt burden, %*	12.0	25.1	25.7	30.4	38.7	46.7	51.4
Chelyabinsk Oblast							
Received loans, billion rubles	0.7	4.5	1.5	1.2	5.5	14.3	11.9
Debt, billion rubles	0.3	4.7	11.9	13.6	20.4	28.7	30.5
Debt burden, %*	0.3	8.0	13.9	14.2	19.3	26.2	26.0
Russian Federation							
Received loans, billion rubles	230.5	474.9	576.2	548.3	709.9	1038.3	1994.7
Debt, billion rubles	599.6	1024.5	1265.5	1387.3	1596.7	2026.3	2402.3
Debt burden, %*	12.2	24.0	25.4	23.8	25.0	30.8	33.6

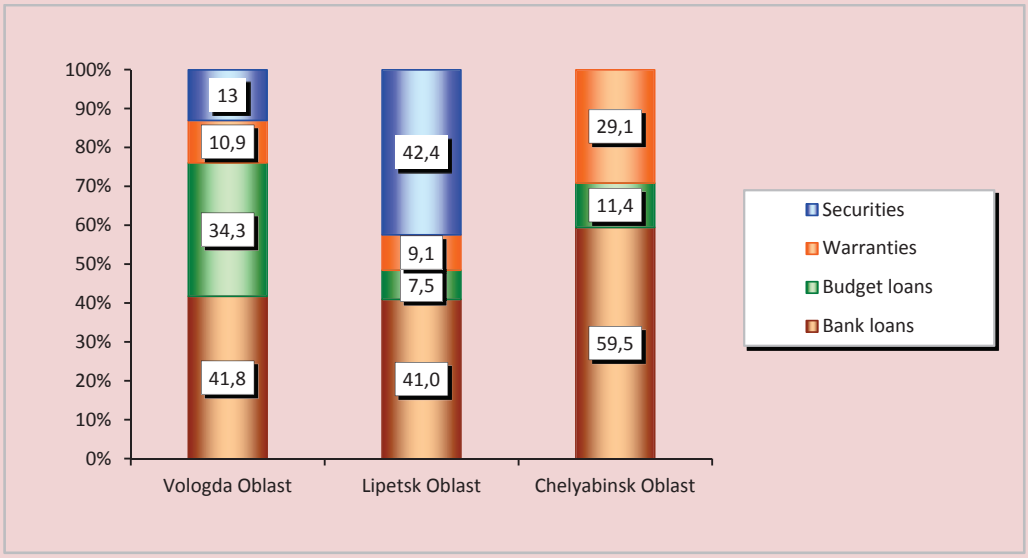
* The debt burden is calculated as the ratio of debt to the volume of own incomes of the RF subject's budget.
Sources: data of the Ministry of Finance; the Federal Treasury; the author's calculations.

Second, the debt policies in the Lipetsk Oblast and the Chelyabinsk Oblast were aimed at hampering the attraction of credit resources. If in 2014 the authorities of these regions curtailed borrowing, in the Vologda Oblast, on the contrary, the debt load increased by 2.5 times due to the year-end budgetary loans for the substitution of bank ones.

Giving regions loans from the federal budget, the Russian Government is trying to ease their debt problems. However, to get these loans the regional authorities must meet a number of strict conditions to reduce the deficit and market borrowings. To comply with these conditions it will be difficult, since the debt crisis is caused by the growing social expenditure under the Presidential decrees on the background of the slowdown in the economy and budgetary revenues. Besides, the aid in the form of debt financing will only lead to further worsening of the regional budgets[6]. Realizing this, the Ministry of Finance of the Russian Federation demands to forego a salary increase. ***"It is most important to decide on the expenditure commitments of***

[6] The ineffectiveness of such policy can be revealed on the example of the Vologda Oblast. Despite massive federal loans in 2014, amounting to 17.3 billion rubles, the public debt of the region continues to grow. As of June 1, 2015, it amounted to 35.2 billion rubles as compared to 34.9 billion rubles as of January 1, 2015. The dynamics of commercial loans has not changed – in the debt structure they amount to 14 billion rubles, or 40%.

Figure 1. Structure of state and municipal debt of the RF subjects in 2014, %



Sources: data of the Ministry of Finance; the author's calculations.

the regions, so that they do not increase the expenditure on salaries", claims Minister of Finance A.G. Siluanov[7]. Certainly, the position of the financial agency is directly contrary to the strategic objectives set by the head of the state. Third, there were differences in the structure of debt *(fig. 1)*.

All the studied regions have commercial loans, but if we compare them with own revenues of territorial budgets, required for further reimbursement, it turns out that after 2014 ***the Vologda Oblast will have to allocate 34% of its own funds, the Lipetsk Oblast – 21% and the Chelyabinsk Oblast – 15%***. Therefore, the most onerous market component of the debt will be for the Vologda Oblast budget. In addition, the Chelyabinsk Oblast has structural advantages of debt obligations, such as high proportion of conditional (guarantee) debt, and the Lipetsk region – the share of securities, comparable with bank loans, characterized by the longer repayment period and the possibility of establishing lower rates compared to bank ones. Fourth, there was a high degree of differentiation of regions by volume of budget funds used for repayment and servicing of loans. In accordance with the budget legislation, the loans repayment is carried out at the expense of own revenue sources of the sub-federal budgets, so the budget stabilization is largely determined by the level of expenditures on these purposes (*tab. 7*).

[7] Sokrashchenie zarplat pomozhet vypolnit' maiskie ukazy Prezidenta [Decline in Wages will Help to Implement May Decrees of the President]. *Nezavisimaya gazeta* [Independent Newspaper], 2015, March 12..

Table 7. Expenses of RF subjects' budgets on repayment and servicing of loans in 2011–2014

Subject	2011		2012		2013		2014	
	Billion rubles	%*	Billion rubles.	%*	Billion rubles	%*	Billion rubles	%*
Vologda Oblast	5.2	13.0	8.1	18.5	10.6	24.7	28.7	62.0
Lipetsk Oblast	1.4	4.0	3.0	8.3	3.9	10.4	5.8	13.3
Chelyabinsk Oblast	1.5	1.6	3.8	3.6	6.7	6.1	6.2	5.3
Russian Federation	436.7	7.5	617.2	9.7	803.7	12.2	1729.6	24.2

* To own revenues.
Sources: data of the Federal Treasury; the author's calculations.

These data show that the Vologda oblast has the most dramatic situation, where ***more than 60% of own revenues received in 2014 was used not for the development but for the reimbursement of loans and interest payments***. The Lipetsk Oblast allocated 13% for these purposes and in the Chelyabinsk region the expenditure on loans repayment was unburdensome for the budget.

The steady growth of the cost of public debt servicing poses a threat to the unconditional execution of vital commitments to the population, forcing the regional governments to allocate priority funding to repay debt. We have no information about the reason to attract loans. However, we can get a general idea by comparing the volume of public debt and investment expenses of the budget by share in GRP (*tab. 8*).

According to the table, since 2012 these regions have been reducing capital investments and increasing public debt in GRP. Hence, the majority of attracted loans were used for financing current expenditures,

Table 8. Public debt and investment expenses of the RF subjects' budgets in 2011–2014, % of GRP

Indicators	2011	2012	2013	2014	2014 to 2011, p.p.
Vologda Oblast					
Public debt	8.3	8.7	10.2	10.5	+2.2
Investment costs	2.0	1.5	1.5	1.2	-0.8
Lipetsk Oblast					
Public debt	3.6	4.7	5.6	6.6	+3.0
Investment costs	1.6	1.2	1.6	1.3	-0.3
Chelyabinsk Oblast					
Public debt	1.8	2.4	3.3	3.1	+1.3
Investment costs	2.0	1.8	1.5	1.0	-1.0
Russian Federation					
Public debt	3.1	3.2	3.8	4.0	+0.9
Investment costs	2.6	2.2	2.0	1.7	-0.9

Sources: data of the Ministry of Finance; the Federal Treasury; the author's calculations.

Table 9. Per capita transfers from the federal budget to the RF subjects in 2009–2014

Indicators	2009	2010	2011	2012	2013	2014
Russian Federation						
Transfers, rubles	10472	9778	11500	11340	10546	11437
Vologda Oblast						
Transfers, rubles	9204	7177	8358	8800	7883	8442
In % to the national average	87.9	73.4	72.7	77.6	74.7	73.8
Transfers return,million rubles	140.8	456.6	283.8	211.8	475.7	432.7
Lipetsk Oblast						
Transfers, rubles	7574	6208	6988	7169	7238	9066
In % to the national average	72.3	63.5	60.8	63.2	68.6	79.3
Transfers return,million rubles	186.6	150.5	178.5	245.1	534.0	316.4
Chelyabinsk Oblast						
Transfers, rubles	7132	6197	6674	6864	6434	7305
In % to the national average	68.1	63.4	58.0	60.5	61.0	63.9
Transfers return,million rubles	127.9	581.0	690.4	649.4	1256.5	1269.2
Sources: data of the Ministry of Finance; the Federal Treasury; the author's calculations.						

servicing and repayment of borrowings. The use of credit resources for financial support of the current expenditures will constantly necessitate refinancing and, in the end, the debt burden can become long-term.

In summary, it can be argued that the lack of clear mechanisms to finance expenditures between the budget system levels has eventually forced the regions to ***attract expensive market loans for the implementation of not only investment, but also social programs, provoking a protracted debt crisis***, and the Russian authorities have not found a way out yet.

Speaking about budgetary problems of the regions, we can not but mention that the federal government, which largely created these problems, has reduced the financial support of regions. The amount of non-repayable receipts from the federal budget to the metallurgy-oriented regions, most affected by the crisis consequences, was by 23–37% lower than the national (*tab. 9*).

It is important to note that against the background of the inadequate allocation of transfers, most of them remained unspent due to their untimely provision by the central government and were returned to the federal budget. According to the table, this trend increased in 2013–2014, thus once again revealing the ineffective interbudgetary interaction.

The problems and their factors, despite some specific features, are characteristic of the overwhelming majority of RF subjects. In the metallurgy-oriented regions these problems are complicated by internal conditions related to the activities of the largest transnational corporations.

The presence of such holdings, strategic taxpayers, should create noticeable fiscal effects. However, the ISEDT RAS research[8] indicates that the advantages of large-scale production are not accompanied by the acceleration of socio-economic development of territories. On the contrary, the corporation represented by their parent enterprises (steel mills[9]) has formed a unique system of governance in the regions of presence and become tools of pumping out local resources in favor of the owners.

Unfortunately, the analysis of public statements of parent enterprises of ferrous metallurgy corporations in 2014[10] justifies this conclusion, although financial performance was quite good. The enterprises' revenues increased by 10–18% due to the grown profitability from export sales on the background of ruble devaluation. Profit from sales was great. We should pay attention to the decline or slowdown in prime costs and costs that directly affect the tax base (*tab. 10*).

Nevertheless, the further analysis of financial statements showed contradictory trends. According to Table 10, in 2014 ***CHerMK and MMK had the largest volume of sales profit after 2009. It should have led to the increase in pre-tax profit. Instead, both steel works reported about losses and in CHerMK the loss was the most significant during the period.*** How can the situation be justified? According to the Vologda Oblast government, the CHerMK losses were caused by the fluctuations in currency exchange[11]. Indeed, compared with 2013, the losses were by six times higher (*tab. 11*).

As shown by the results of our own analysis, the losses included the costs on dissolution of American non-core asset management companies, accounted in other expenses of CHerMK. If these expenses were not taken into account in the financial result formation, ***the company could have profit in the amount of 57.3 billion rubles. It would exceed the 2008 level. According to our calculations, loss of profit tax due to the recognition of such a substantial amount of unproductive expenditure amounted to 19 billion rubles, including more than 17 billion rubles to the Vologda Oblast budget. In short, in 2014 CHerMK had the potential to reach the pre-crisis volume of payments to the budget.*** These facts confirm the correctness of the ISEDT RAS conclusions about the ineffectiveness of the business transnationalization strategy

[8] Ilyin V.A., Povarova A.I., Sychev M.F. *Vliyanie interesov sobstvennikov metallurgicheskikh korporatsii na sotsial'no-ekonomicheskoe razvitie* [Impact of the Metallurgical Corporations' Interests Owners on Socio-Economic Development]. Vologda: ISERT RAN, 2012. 102 p.; Ilyin V.A., Povarova A.I. *Problemy gosudarstvennogo upravleniya* [Problems of Public Administration]. Vologda: ISERT RAN, 2014. 181 p..

[9] Cherepovets Steel Mill (CHerMK), Magnitogorsk Iron and Steel Works (MMK), Novolipetsk Steel (NLMK).

[10] *Ofitsial'nyi sait PAO "Severstal"* [Official Website of "PAO Severstal"]. Available at: http://www.severstal.ru/; *Ofitsial'nyi sait OAO "Magnitogorskii metallurgicheskii kombinat"* [Official Web-Site of OJSC "Magnitogorsk Iron & Steel Works"]. Available at http://www.mmk.ru; *Ofitsial'nyi sait OAO "Novolipetskii metallurgicheskii kombinat"* [Official Web-Site of OJSC "Novolipetsk Steel"]. Available at: http://www.lipetsk.nlmk.ru/

[11] *Itogi sotsial'no-ekonomicheskogo razvitiya Vologodskoi oblasti za 2014 god: doklad zamestitelya Gubernatora oblasti A.V. Kozhevnikova na publichnykh slushaniyakh po godovomu otchetu ob ispolnenii oblastnogo byudzheta za 2014 god* [Results of Socio-Economic Development of the Vologda Oblast in 2014: Report of the Vice-Governor of the Region A.V. Kozhevnikov at the Public Hearing Devoted to the Annual Report on Regional Budget Execution in 2014]. Available at: http://www.vologdazso.ru/analitic/219029/

Table 10. Financial performance of steel mills in 2008–2014, billion rubles

Indicators	2008	2009	2010	2011	2012	2013	2014	2014 to 2013, %
CHerMK								
Revenue	243.6	143.6	209.8	254.3	223.6	212.9	233.6	109.7
Prime cost	157.4	104.5	157.5	200.8	182.2	174.2	171.2	98.3
Commercial expenses	5.3	7.2	9.9	12.9	13.9	14.2	13.8	97.5
Management costs	7.0	6.2	7.8	9.3	11.8	9.4	8.8	93.1
Profit from sales	73.9	25.6	34.6	31.2	15.7	15.1	39.8	264.4
Interest expenses	4.7	8.8	10.8	10.3	10.9	9.2	9.0	98.2
Pre-tax profit	52.8	5.8	-34.1	-1.4	16.3	9.2	-37.7	x
MMK								
Revenue	226.0	137.3	201.8	247.3	243.1	225.5	266.5	118.6
Prime cost	160.9	101.2	164.9	211.4	203.8	195.0	205.4	105.4
Commercial expenses	4.7	4.1	5.3	5.9	9.4	12.3	13.8	112.3
Management costs	6.7	5.5	6.1	6.6	7.5	7.2	6.6	91.0
Profit from sales	53.7	26.5	25.5	23.3	22.3	10.1	40.7	401.2
Interest expenses	1.1	1.6	2.3	3.5	4.4	3.9	4.3	110.6
Pre-tax profit	15.6	34.0	29.6	-5.2	11.4	-58.6	-1.3	2.2
NLMK								
Revenue	202.1	128.6	179.9	221.2	240.1	225.5	262.7	116.5
Prime cost	115.1	94.3	130.7	174.0	205.8	199.7	200.0	100.1
Commercial expenses	10.8	12.2	14.1	15.7	18.3	17.9	19.4	108.5
Management costs	3.7	4.6	6.2	7.0	7.9	8.5	9.9	116.1
Profit from sales	72.4	17.4	28.9	24.4	8.1	-0.6	33.5	x
Interest expenses	2.0	2.1	3.2	3.7	6.3	6.35	6.4	101.4
Pre-tax profit	90.2	25.8	39.0	40.8	24.2	-10.4	23.3	x
Sources: data of financial statements of the steel mills; the Federal Treasury; the author's calculations.								

Table 11. Other expenses of CHerMK in 2013–2014, billion rubles

Indicators	2013	2014	2014 to 2013, %
Other expenses, total	49.0	192.7	392.8
- exchange differences	11.5	63.4	551.3
- costs on dissolution of Severstal US Holdings, LLC and Severstal Investments LLC	0	95.0	x
Loss of tax as a result of accounting for the costs on foreign companies dissolution	0	19.0	x
- including to the Vologda Oblast budget	0	17.1	x
Sources: data of financial statements of PAO Severstal; the author's calculations.			

Table 12. NLMK Profit estimated, according to different accounting figures in 2014

Indicators	Billion rubles
Pre-tax profit (according to cost accounting data)	23.3
Taxable profit (according to tax accounting data)*	7.8
Difference	15.5
Loss of profit tax	3.1
- including to the Lipetsk Oblast budget	2.8

* Tax accounting serves as the basis for determining profit tax.
Sources: data of financial statements of OJSC "NLMK"; the author's calculations.

selected by PAO Severstal. The costs on operating foreign companies, carried out at the expense of CHerMK profits, should be recognized as means to withdraw resources from the cash flow of the plant in order to minimize the tax base. ***If in 2004–2013 the average annual amount of the withdrawn financial resources amounted to 45 billion rubles, in 2014 it amounted to 95 billion rubles.*** Thus, the Vologda Oblast did not get 10 billion rubles of profit tax annually.

The unprofitableness of MMK in 2014 was mainly influenced by negative exchange differences, which indicates the poor performance of the company's management on currency risk management. In addition, the increase in prime cost, commercial and interest expenses resulted in the 12.4 billion ruble decrease in pre-tax profit.

The ISEDT RAS research in the problems of profit tax administration reveals significant gaps in the sphere of tax legislation[12]. The extremely complex method for profit tax calculation, based on double standards (cost and tax accounting), allows taxpayers, especially the largest, to manipulate the assessment of revenue and expenses when calculating the tax base. In practice, this often leads to the underestimation of assessed profit tax. For example, in 2014 the NLMK profit was optimized to 15.5 billion rubles for the purposes of taxation by using different ways of calculating it. Hence, the Lipetsk Oblast budget missed almost 3 billion rubles of profit tax (*tab. 12*).

The legitimate use of different schemes to minimize profit tax resulted in the profound drop in its revenue from the largest steel mills. In fact, in 2013–2014, Cherepovets Steel Mill and Magnitogorsk Iron and Steel Works did not pay profit tax to the budget. In 2014 Novolipetsk Steel's payment to the Lipetsk Oblast budget amounted to 12% of the 2008 level, while the revenue from sales increased by 30% (*tab. 13*).

The legitimate and large-scale decline of profit tax in the share of sales revenue indicates that the smaller part of taxes was localized at the enterprises for further mobilization to the regional budgets. The

[12] Povarova A.I. Snizhenie fiskal'noi funktsii naloga na pribyl': faktory i puti povysheniya [Reduction of the Fiscal Function of Corporate Tax: the Factors and Ways of Increase]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2014, no. 3, pp. 180-195.

Table 13. Profit tax proceeds from steel mills in 2008–2014

Indicators	2008	2009	2010	2011	2012	2013	2014	2014 to 2008, %
CHerMK								
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
- to the regional budget	*10191.6*	*3466.1*	*3917.6*	*2774.4*	*2052.2*	*0.46*	*0.8*	*0.008*
To revenue, %	5.7	2.7	2.1	1.2	1.0	0.0002	0.0004	-5.7 p.p.
MMK								
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
- to the regional budget	*7673.6*	*456.8*	*1339.2*	*1435.5*	*1762.2*	*0*	*128.7*	*0.002*
To revenue, %	4.7	0.4	0.7	0.6	0.7	0	0.05	-4.7 p.p.
NLMK								
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
- to the regional budget	*11500.9*	*1156.1*	*4556.6*	*5537.5*	*2456.9*	*0*	*1399.0*	*12.2*
To revenue, %	7.8	1.0	2.8	2.8	1.1	0	0.6	-7.2 p.p.

* Since there are no precise data about paid taxes, the table shows the current profit tax calculated in the statements on profit and loss.
Sources: data of financial statements of steel mills; the author's calculations.

Table 14. Balance of funds from steel mills' financial activities in 2012–2014, billion rubles

Steel mill	2012	2013	2014	Total for 2012–2014
CHerMK	-32.8	-43.8	-41.3	-117.9
MMK	-12.9	-18.1	-4.5	-35.5
NLMK	-1.5	-2.9	-37.5	-41.9

Sources: data of financial statements of steel mills; the author's calculations.

fact that financial flows were removed from the economic activity of the ferrous metallurgy enterprises is supported by the negative value of net cash from financial activities, including dividends, loans to affiliated companies, etc. (*tab. 14*).

The cash flows withdrawn from Cherepovets Steel Mill and Novolipetsk Steel for the last three years, first, are almost by threefold higher than the annual volume of the Vologda Oblast budget revenue and, second, equivalent to the annual budget of the Lipetsk Oblast. The tax burden of the metallurgical complex enterprises is not consistent with their profit and incomes of owners and key managers of these enterprises (*tab. 15*).

According to the table, in 2008–2014 on the background of the decline in tax burden by 1.7–3.7 times the fortune of metallurgical corporations owners increased by 1.4–3 times. Though the contribution to

Table 15. Remuneration of management bodies, state and dividends of owners of metallurgical corporations in 2008–2014

Indicators	2008	2009	2010	2011	2012	2013	2014	2013 to 2008, times
CherMK								
Remuneration of management bodies, million rubles per year	86.2	630.0	601.3	1068.5	650.0	801.6	1147.6	+13.3
Fortune of the owner, billion rubles	4.3	9.9	18.5	15.3	12.8	10.5	13.0	+3.0
Dividends of the owner, million rubles	25499	0	5272	12696	7618	5505	39165	+1.5
Tax burden, %*	11.1	2.8	4.4	4.4	3.8	4.0	3.0**	-3.7
MMK								
Remuneration of management bodies, million rubles per year	495.4	497.3	276.9	52.1	276.6	672.3	248.5	-2.0
Fortune of the owner, billion rubles	2.5	9.8	11.2	5.6	4.2	2.8	3.5	+1.4
Dividends of the owner, million rubles	3698	3556	3171	0	2685	0	5655	+1.5
Tax burden, %*	7.7	3.7	4.3	6.5	3.0	3.6	2.5	-3.1
NLMK								
Remuneration of management bodies, million rubles per year	188.1	230.9	291.9	223.5	206.5	293.6	531.0	+2.8
Fortune of the owner, billion rubles	5.2	15.8	24.0	15.9	14.1	16.6	11.6	+2.2
Dividends of the owner, million rubles	9240	1045	9330	10253	3178	3435	4511	-2.0
Tax burden, %*	11.6	5.5	6.7	5.5	6.4	6.2	7.0	-1.7

* Calculated as the ratio of taxes paid to all levels of budget, to revenue.
** As the statements of Severstal have not disclosed the amount of taxes, the data are taken from the Federal Tax Service reporting, regarding the whole metallurgical production of the Vologda Oblast (excluding insurance premiums).
Sources: data of the journal "Forbes"; financial statements of the still mills; the author's calculations.

the budgetary system reduced significantly, the annual remuneration of top managers at PAO Severstal, paid at the expense of the parent enterprise, increased by 13.3 times. The revenues of 10 members of the Severstal Board of Directors exceeded the remuneration of 24 members of the management bodies at OJSC "MMK" and 18 members of the management bodies at OJSC "NLMK" by 5 and 2 times, respectively. The amount of dividends paid to the main owner of Severstal in 2014, draws our attention. ***The sum was record for the entire study period. Amounting to almost 40 billion rubles, it is almost equivalent to the volume of tax payments to the Vologda Oblast budget in 2014.*** As Cherepovets Steel Mill reported net losses in 2014, the shareholders should not be rewarded, according to the international practice[13]. ***The dividends were paid from retained earnings. In the end, the main investment resource of the enterprise decreased by 3 times – from 98 to 32 billion rubles.*** No accident that the decline of investment in fixed capital in the Vologda Oblast was the strongest among

[13] As a rule, the largest companies in the world use not more than 25% of net profit to pay dividends.

other Russian regions in the last two years. Moreover, the main owner of Severstal controls it through the Cyprian offshore, applying a lower tax rate (5% instead of 13%), that is why ***the Vologda Oblast budget lost more than 3 billion rubles of individual income tax in 2014.*** The withdrawal of financial resources forced the management bodies to take loans. ***Their volume increased almost by 4 times and provoked the growth of CHerMK corporate debt***. At the end of 2014 the loan debt exceeded the total revenue by 24%. Other mills curtailed the attraction of borrowed funds and were characterized by moderate debt (*tab. 16*).

Aggressive escalation of corporate debt, which was higher than proceeds, and withdrawal of one third of the reserved profits to pay dividends created high risks of financial stability not only for the core asset of Severstal, but also for the economy of the Vologda Oblast in terms of replenishment of budget revenues and investment development. Thus, in 2014 the contradictory between the interests of comprador-oriented large corporations and the interests of regions of presence increased. And if ***before 2009 the mechanisms to balance these interests could be assessed by the corporation's contribution to the formation of budget revenues, in recent years this criterion has lost its objectivity.***

Summarizing, it can be argued that in 2014 the budget problems of regional development were not resolved, but, on the contrary, worsened. First, the large-scale optimization, selected as the method to reduce the debt load of regions and covered investment and social expenses, has not achieved its goal. The process to increase government debt has continued in regions, already characterized by a high level of debt, increasingly affects the regions, previously having minimal obligations. Second, the increased distortion in the structure of

Table 16. Debt of steel mills in 2013–2014, billion rubles

Indicators	2013	2014	2014 to 2013, %
CherMK			
Involved loans	29.0	110.1	379.0
Debt	168.1	288.7	171.8
In % to revenue	*78.9*	*123.6*	*+44.7 p.p.*
MMK			
Involved loans	38.6	39.6	102.7
Debt	80.0	115.7	144.6
In % to revenue	*35.6*	*43.4*	*+7.8 p.p.*
NLMK			
Involved loans	57.1	13.8	24.1
Debt	112.8	119.9	106.3
In % to revenue	50.0	45.6	-4.4
Sources: data of the financial statements of the still mills; the author's calculations.			

public spending in favor of expenditure on repayment and servicing of loans can become critical for economic development of the regions. Third, the inaction of the RF Government in relation to the changes in approaches to regulating the profits of big business has not allowed the regions exporting raw materials and unfinished goods to benefit from the effects of ruble devaluation in order to increase tax payments to the budget.

Violating the fundamental principle of budgetary policy – the principle of balanced budgets at all levels – in the critical conditions of 2014 the Russian authorities continued to shift the burden of social spending from the federal to regional budgets, did not expand the revenue base, leaving the regions on the brink of survival. The anti-crisis plan, developed by the RF Government, is characterized by the clear dominance of support for banks over support for the real sector of economy and regional budgets.

The analysis of the budgets in the Vologda Oblast, the Lipetsk Oblast and the Chelyabinsk Oblast shows a lack of tools to use key resources of the territories in the state management system. As a result ***the regional authorities, having no legislative levers to regulate the activities of big business, gradually are failing to implement the strategic plans of economic development and solving primarily the social problems within the budget allocation***. Paradoxically, the regions having high-yield companies on their territories become beneficiary due to the inefficient budgetary policy. Most Russian regions require a unified system of management of industry and investment potential. Without this the economic activity will focus only on servicing the current budget deficit to the detriment of the strategic development priorities.

Developing the draft federal budget for 2016, the government structures reproduce the ideology of the budget policy for 2015, based on the sequestration of all costs. The new draft budget stipulates the by 13% costs reduction. Without structural reforms it can entail serious risks for socio-economic stability. In this situation there is little hope for the solution to budgetary problems of the regions.

In our opinion, for the initial stabilization of regional funds the Russian Government should: restructure debt on the loans issued from the federal budget; transform debt financing of the sub-federal budgets to predominantly transfer; radically change the administration of large taxpayers' profit. Refusing to change the essence of the budget policy and emptying the regional budgets, the Government demonstrates its inability to guarantee a decent living standard f for Russian citizens and provokes deepening socio-economic problems, fraught with political instability.

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Methodological Tools for Assessing the Effectiveness of Implementation of the State Social and Economic Development Policy of Russia's Regions

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Abstract. The article considers the issues of improvement of methodological support in assessing the effectiveness of the state social and economic policy in relation to Russia's northern regions. It provides a brief analysis of methodological approaches and mechanisms to assess the policies based on the function of the area of assessment, the object, subject and target of assessment, and depending on the methods of estimation. The authors point out the absence of a common approach to interpretation of the notions of "effectiveness" and "performance efficiency" of a policy, this fact leads to ambiguity and complexity of assessment. The methodological tools proposed by the authors for assessing the implementation of the policy include key principles and an algorithm. Assessment of policy effectiveness using the proposed tools includes socio-economic, environmental and institutional components. The socio-economic component involves evaluation of the goals and objectives of the policy with regard to Russia's northern regions on the basis of qualitative and quantitative indicators. The environmental component involves consideration of the impact of territorial conditions on the achievement of goals and objectives. The institutional component includes assessment of the quality of regional state programs. The advantage of this set of methodological tools lies in the fact that it takes into consideration the regional and northern specifics in the policy target-setting, and provides for a comprehensive assessment. This makes it possible to develop specific recommendations for the regulation of various spheres of socio-economic development of Russia's northern regions, and to identify reasons for failures in achieving the set goals and objectives.

Key words: methodological tools, evaluation, state policy, northern region.

The achievement of goals and obtainment of desired results within the framework of implementation of the state social and economic policy is an important condition for sustainable socio-economic growth of the region. The improvement of the public administration efficiency is stimulated by the introduction of mechanisms and procedures of policy assessment, which are in constant dynamic change.

During the development of the author's approach to the evaluation, we relied on the works of domestic and foreign researchers, as well as on the current state mechanisms of policy evaluation. Numerous approaches to assessment can be grouped as follows: by the function of the area of assessment [1; 6; 8]; evaluation objects (policies, programs, projects); used evaluation methods; assessment target; realization levels (local, regional, national); policy implementation stages (pre-assessment, accompanying assessment, summative assessment) [8]; assessment subject [7].

According to the function of the area of assessment, the scientists single out approaches focused on the evaluation of the results of comprehensive policy, carried out, for example, in the region [8; 14; 16]. The project SIRENA, developed by the Novosibirsk researchers helps simulate socio-economic development of the region, including in the short-and long-term perspective, and assess the impact of management decisions of the center on the development of individual regions or their combination by given socio-economic indicators. The information system for monitoring and evaluation of regional development (RAUNIS), used abroad, is analogous to SIRENA [13]. The assessment of efficiency of enforcement authorities' activities in the RF subjects is an example of the integrated policy assessment mechanism adopted at the state level [8]. At the same time, there are mechanisms that focus on the estimation of individual areas of socio-economic development: in the field of evaluation of education policy [17], healthcare and employment [4].

Most frequently used methods are the following:

– method of integral estimates [8] with the use of statistical indicators and data of sociological research;

– method to compare the actually achieved rate and the planned one [12];

– analysis of "cost-outcome" (cost-effectiveness analysis, analysis of "cost-benefit") [6; 11-13];

– methods of subjective evaluations (based on surveys) [2; 5];

– methods to evaluate factors and risks [5; 10].

We can consider an assessment target, such as result of the executive bodies' activities in a Russian Federation subject [7]; socio-economic implications of management decisions [10]; efficiency of government spending [2; 11; 12]. At the present time there is no common view on content aspects of the categories "effectiveness" and "performance efficiency" of a policy that leads to ambiguity and complexity of evaluation. The concept "effectiveness of implementation of state policy" is usually interpreted as the degree of objectives achievement, reflected in the

improvement of socio-economic indicators of regional development within the planned timeframe. Due to the proximity of the concepts "effectiveness" and" of a policy, policy efficiency is seen as an integral part of the effectiveness. Traditionally, the concept "effectiveness" is interpreted as the ratio of outputs and costs and is quite narrow. In the broad sense effective management should be viewed as a complex category, which, on the one hand, is understood as the "state of economy, when a certain ratio of output and costs to achieve this output gives the subject the opportunity to obtain maximum results due to the use of resources of a certain value or leads to the production of goods of a certain value at the lowest costs of resources" [11]. On the other hand, it is a broad understanding of management effectiveness that provides an assessment of economic, social and technical effectiveness. Depending on the subject of the evaluation we can differentiate external (on the part of higher authorities or third party organizations [2; 5; 9; 10]), internal or self-assessment [11; 12].

The majority of methods to estimate the authorities' activity are characterized by the lack of complexity of the used systems of indicators, insufficient elaboration of the evaluation criteria and concentration mainly on the analysis of quantitative indicators. It is necessary to take into account regional specifics of policy implementation – in our case, the so-called special northern conditions. The author's methodological tools to assess the effectiveness of implementation of the state social and economic policy aimed at developing northern regions of Russia helps evaluate the effectiveness of implementation of the policy goals and objectives in the systematic relationship with institutional aspects and policy implementation conditions. The methodological tools are based on the principles of balance and complexity. The balance principle is focused on ensuring the balance between short-term and long-term goals of regional development, the balance of domestic interests in the region's development and interests of the state, the compliance of indicators of upper levels of the hierarchy with lower levels. The complexity principle is based on the inclusion of equivalent aspects of the policy effectiveness assessment: effectiveness of goals and objectives achievement; quality of state regional development programs; conditions for the implementation of socio-economic policy in the northern regions.

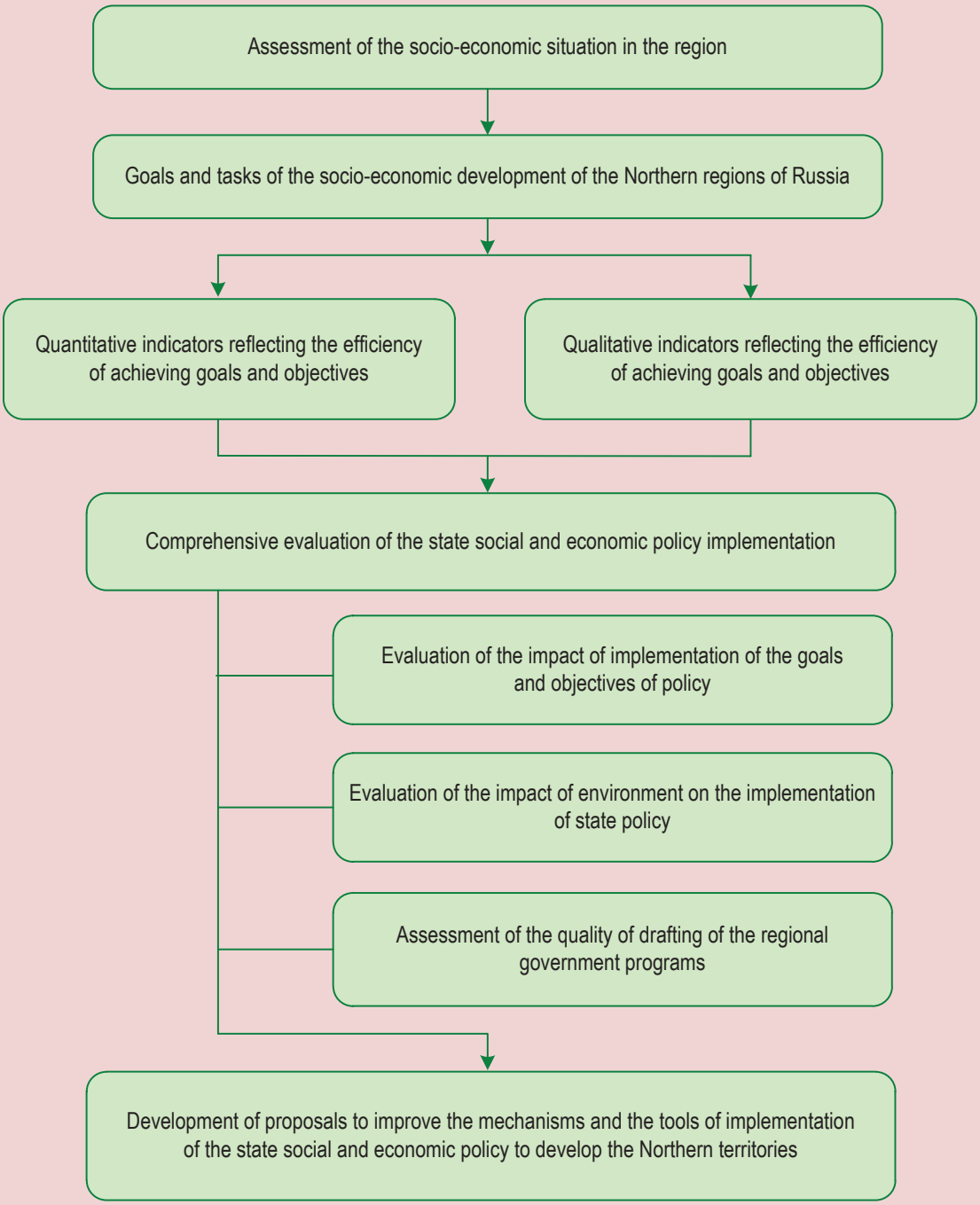
The algorithm to evaluate the implementation of socio-economic development policy in the northern regions of Russia includes *(figure)*:

Stage 1. Assessment of the socio-economic situation in the region

It includes characteristics of the geographic location, the level of economic assimilation of the territory, the sectoral structure of economic complex, the investment activity of the territory, features of the demographic situation in the region, the level and quality of life, the financial condition of the territory.

The study of the socio-economic situation in the region is necessary to identify potential opportunities and threats for the region's development of that require management decisions.

Schematic diagram of the methodical approach to evaluating the effectiveness of implementation of the state social and economic policy in Russia's Northern regions



System of indicators to assess the effectiveness of achieved goals and objectives of the regional socio-economic policy

Goal	Tasks	Quantitative indicators	Quality indicators
Improvement of the territorial organization of economy	Formation of the stable settlement system, creation of clusters, "growth points"	Population density, persons/km^2 Level of economic assimilation, GRP/km^2	Missing
Ensuring high and sustainable economic growth rates	Development of foreign economic and interregional relations in the interests of the region's economic development	Share of foreign trade turnover of the region in the foreign trade turnover of the country, %	Missing
	Diversification of the industrial production and the structure of the economy	Share of manufacturing industries in GRP, % Share of the employed in manufacturing industries, %	Missing
	Increasing the efficiency of regional economy	Specific residential electricity consumption, kW/h/person Electricity intensity of GDP, kW/h/thousand rubles	Missing
	Modernization and development of the innovative activity	Volume of innovative products (works, services), million rubles Internal costs on R&D to GRP,%	Missing
	Improvement of the socio-economic effectiveness of natural resources use	Share of revenues of the region's consolidated budget from the use of natural resources, %	Missing
	Development of small and medium business	Number of enterprises of small and average business, units/10000 persons Share of the employed at enterprises of small and average business, %	Entrepreneurial activity level Satisfaction with business environment
	Tourism development	Number of places in hotels, units/1000 persons Number of places in food courts, units/1000 persons	Satisfaction with created conditions for tourism development in the region Assessment of the region's attractiveness for tourism development
Strengthening the financial state of the region	Increasing investment inflow to the region and implementation of the investment projects	Volume of investment in fixed capital per capita, million rubles/person Rating of investment attractiveness of the region, place	Missing
	Improving interbudgetary relations relations (refuse of subsidies)	Share of own tax and non-tax) revenues in the consolidated budget of the region, % Own revenue of the consolidated budget per person, rubles	Missing

Continuation the table

Upgrade and development of infrastructure	Development of transport and energy infrastructure (reducing infrastructure constraints)	Density of public paved roads, km of roads per 1000 km^2 Production of electricity, billion kW/h	Satisfaction with transport services in the region
	Development of information technologies and communication services	Number of users of the fixed broadband Internet, thousand persons	Satisfaction with accessibility and quality of signal
Development of institutional support	Improving the system of state and municipal management	Development of procedures of regulatory impact assessment of draft legal acts Number of multipurpose centers for state service provision, units/10000 persons	Assessment of the perceived corruption level in the region
Ensuring environmental safety	Reducing the negative impact on the environment	Emissions of pollutants into atmospheric air from stationary sources per unit area, tons/km^2 Discharge of polluted wastewater into surface water bodies per unit area, m^3/km^2	Satisfaction with environmental conditions
	Sustainable development of unique regional ecosystems	Investment in environmental protection, thousand rubles Share of specially protected natural reservations in the total area of the territory, %	Missing
Development of human potential	Formation of the population and labor resources in the volume required for the solution of economic tasks	Natural increase, thousand persons Migration increase, thousand persons Proportion of the working age population, % Overall unemployment rate (ILO), %	Missing
	Improving the competitiveness of labor potential, workforce and social sectors	Proportion of employees with higher professional education, %	Satisfaction with the availability and quality of higher professional
	Growth of real money incomes	Ratio of average per capita income and subsistence minimum, %	Satisfaction with family income
	Provision of social infrastructure (healthcare, education)	Composite index of the social infrastructure development level, points	Satisfaction with the availability and quality of free preschool education Satisfaction with the availability and quality of medical care Satisfaction with the conditions for doing sport Satisfaction with the conditions for leisure activities
	Preservation and maintenance of the traditional lifestyle of indigenous peoples of the North	Share of indigenous peoples of the North who can speak national language, % Share of self-employed indigenous peoples of the North	Satisfaction with living conditions.

Stage 2. Justification of *strategic goals* and *tactical objectives* of the region's development and list of *quantitative (objective)* and *qualitative (subjective)* indicators reflecting the efficiency of their achievement.

It contains a comprehensive analysis of the strategic documents defining socio-economic development of Russia's Northern regions and results of comprehensive assessment of the socio-economic situation in these regions. The objectives of the state socio-economic policy are grouped into 7 blocks within the identified strategic objectives of policy. For each task we substantiate the use of the indicator, which dynamics of changes would indicate the effectiveness of its implementation. The evaluation system includes quantitative and qualitative indicators *(table)*. The quantitative indicators of performance efficiency assessment are based on statistical data and the qualitative ones – on results of the sociological survey of population and experts.

Stage 3. Comprehensive evaluation of the state socio-economic policy implementation in the Northern territories

It is carried out according to the method, including 3 blocks: assessment of the impact of implementation of the socio-economic policy objectives and tasks; assessment of the conditions of state policy realization; assessment of the quality of drafting of the regional government programs.

Block 1. *Method to assess the performance efficiency of implemented goals and objectives of the state socio-economic policy in the Northern territories*

The strategic goals, tactical objectives and outcomes should be consistent with the final significant effect and the choice of indicators [11, 12]. In accordance with this approach, we developed the system of quantitative and qualitative indicators that reflect the effectiveness of implemented goals and objectives of the state socio-economic policy development in the Northern territories.

The total integral indicator to assess achieved goals and objectives of the state socio-economic policy in the Northern territories is a sum of the policy efficiency indices on the basis of quantitative and qualitative indicators, adjusted by a weighting factor:

$$TII = 0.8 \times EI + 0.2 \times CI$$

To justify the weighting factor value we used the method to assess the performance of the executive authorities in the RF subjects, developed by the Ministry of Regional Development of the Russian Federation [7]. The advantage of this approach lies in the possibility of obtaining more objective evaluations of the performance of the executive authorities due to the adjustment of the Federal State Statistics Service data by sociological surveys. The proposed performance indices help evaluate the efficiency of policy implementation in the Northern regions of the Russian Federation and identify "weak points" by calculating indices by blocks of tasks.

Block 2. *Method to assess the impact of conditions on the implementation of the state social and economic policy of Northern territories development*

The problems of socio-economic development and the practical measures of state bodies to regulate regional development should be systemically considered by analyzing the conditions that affect the formation and implementation of regional socio-economic policy and taking them into consideration when developing program and strategic documents. The developed method includes the typology of conditions, the system to characterize their indicators and the algorithm to evaluate the effect of conditions on policy performance. It takes into account the following groups of conditions: resource and climate; geographical; economic; social; demographic; financial; institutional.

The first group describes climatic conditions and resource potential of the territory. The demand and the development features determine the main vector of the Northern region development. This group is assessed by bioclimatic index of the weather mode severity; integrated index of the availability of natural resources and the potential sustainability of natural ecosystems, expressed in points.

The second group describes geographic and geo-economic features of the Northern region and possibility of its use for socio-economic development. This group of conditions is evaluated by the following indicators: GDP per unit area (rubles/km^2); population density (persons/km^2); density of paved public roads (km/thousand km^2); coefficient of energy supply in the region; cost of a fixed set of consumer goods and services (% of the national average); share of foreign trade turnover of the region in the foreign trade turnover of the country (%).

The third group of conditions is used to evaluate the level of accumulated economic potential and competitiveness of the region. The assessment indicators are the following: volume of GDP per capita (rubles/person); share of GRP in the total GRP of the Russian Federation (%); cost of fixed assets (rubles/person); GRP per employee in the region's economy (rubles/person); volume of innovative goods, works, services (million rubles).

The fourth group characterizes the level of social development of the territory and is associated with the development of living standard. These conditions are evaluated by the following indicators: number of economically active population (thousand persons); share of economically active population of the Russian Federation subject in the economically active population of the country (%); purchasing power of money incomes of the population (times); ratio of purchasing power of money incomes in the region and the national average (%); retail trade turnover (million rubles); share of retail trade turnover of the region in the total retail trade turnover of the country (%).

The fifth group describes demographic potential of the population and characteristics of the reproductive processes based on the study of natural and mechanical movement of the population through the assessment of indicators of the region's population (thousand persons), natural and migration growth (‰).

The sixth group helps assess the financial condition of the territory and is estimated by the following indicators: share of own revenues in the consolidated budget of the region (%); level of expenditures of the region's consolidated budget per capita (rubles/person).

The seventh group characterizes the degree of the region's involvement in the program regulation of socio-economic development and the level of budget subsidization through the use of indicators: share of investment from the federal and regional budgets in the total amount of investment in fixed capital of the region (%) and proportion of uncompensated receipts to the region's consolidated budget (%).

The algorithm to evaluate the effect of conditions on the state policy efficiency includes the following steps:

1. Definition of the main groups of conditions to implement the state social and economic policy of Northern development and the metrics.

2. Construction of the correlation matrix to determine the tightness of relationship between conditions and identification of conditions maximally independent from each other.

3. Construction of regression models to determine the degree of correlation between indicators, reflecting the policy implementation conditions, and indicators revealing the efficiency of solving problems.

4. Construction of the model to assess the impact of policy implementation conditions on the effectiveness of goals and objectives of the state policy to develop the Northern regions by using the method of equal intervals.

The use of this method helps evaluate the intensity of the impact of certain conditions on the implementation of specific tasks of socio-economic policy.

Block 3. *Assessment of the quality of drafting of the regional government programs*

The well-elaborated program document raises the possibility of its use as an effective tool for the socio-economic policy implementation and leads to more effective expenditure of budgetary funds. Based on the analysis of state documents [1, 2] we formed 10 indicators for evaluating the quality of drafting of state programs at the regional level. To quantify them, we use numerical methods, comparing various indicators of the quality of state programs drafting and find a composite index, which reduces all indicators to a single value – points.

The indicators disclosing the quality of drafting of regional programs are:

1. Goal, tasks and priorities identified in the state program should take into account the provisions of strategic documents approved by the RF President and the RF Government, provisions of priority national projects and individual decisions of the RF President and the RF Government.

For evaluation of the considered indicator we calculated the ratio of the targets agreed in federal documents and the regional program and the total number of targets identified at the federal level.

2. Compliance of the tasks formulated in the regional program to the outcomes of its implementation.

To assess compliance of the tasks to the outcomes we calculated the ratio of the number of tasks that correspond to the final results and the total number of tasks stipulated by the state program.

3. Compliance of the indicators of the regional state program to the outcomes stated in it.

To estimate compliance of the indicators and the outcomes we calculated the ratio of the number of outcomes that correspond to the adequate performance of their measurement and the total number of outcomes.

4. Compliance of the tasks stated in the regional state program to the set of basic measures of the program.

The assessment of the compliance of the tasks stated in the regional state program to the set of basic measures of the program involves the calculation of the ratio of the number of tasks that correspond to the activities and the total number of tasks.

5. Compliance of the state of the sphere of regional state program implementation to the problems.

To evaluate it we calculated the ratio of the number of problems identified through the analysis of statistical data and agreed with the problems stipulated by the state program and the total number of problems identified on the basis of statistical data analysis.

6. Compliance of the tasks formulated in the state regional program to the highlighted problems.

The assessment of this indicator involves calculation of the ratio of the number of problem and the total number of problems stipulated by the regional state program. The first six indicators are ranked, the points are calculated.

7. Presence of justified demand in financial resources for its implementation in the regional state program.

8. Accounting and risk analysis in the regional state program.

9. Presence of risk management measures in the regional state program.

10. Availability of the method to assess the effectiveness of the regional state program.

The points by criteria 7–10 are assigned as follows: if the program has necessary financial resources for its implementation, methods of assessing effectiveness, risk analysis and risk management measures, it is assigned 1 point. Otherwise, the program is assigned 0 points.

The identification of the role of each criterion by calculating weighting factors is the next stage of assessment. The weighting factors of the criteria for the quality of drafting of the regional government programs are calculated by the method of expert assessment. According to the direct evaluation method, the coefficients are given to each criterion: the larger the contribution of the criterion, the higher the weighting factor. Then the weighting factors are averaged by averaging arithmetic.

The last stage of the drafting of regional state programs concerns calculation of the final index of the quality of drafting of the regional programs, which represents the sum of scores by 10 quality criteria with weighting factors.

Stage 4. Development of the proposals on improvement of the mechanisms and tools to implement the state social and economic policy development of the Northern territories

On the basis of comprehensive assessment of the effectiveness of government policies we developed recommendations for public authorities. The consideration of different aspects of the assessment allows us to fully characterize the process of achieving these goals and objectives from the perspective of socio-economic results, intensity of the impact of conditions and quality of the state programs development. It helps develop specific recommendations aimed at optimizing the development of individual components of large blocks: socio-economic, environmental and institutional.

The advantages of the proposed methodological tool are the following: possibility to consider regional specificity, including that of the Northern regions, in the formulation and implementation of goals and objectives of the policy. The problems to take into account the specifics of the North are stated in many strategic and policy documents; however, they are not methodologically supported. The methodical approach helps, on the one hand, consider the problem of the policy effectiveness comprehensively and, on the other hand, develop targeted recommendations for the regulation of various spheres of socio-economic development and identify reasons for failing to achieve the set goals and objectives.

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REGIONAL ECONOMY

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Organizational-Economic Mechanism for Industrial Complex Management as a Tool of Regional Economic Development

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Abstract. Effective functioning of economy is possible only if all economic sectors function successfully. However, only the regions with a developed industrial complex can provide a decent quality of life and promote economic growth. At the same time, certain systemic problems have emerged in the industrial complex during the years of market reforms; these problems can be solved only with the help of profound and comprehensive transformations, such as an extensive use of advanced scientific and technological achievements and the formation of a fundamentally new approach to the development of the industrial complex. Under current economic conditions the functioning and development of the industrial complex depends to a great extent on the efficiency of their management mechanism. Therefore, it is expedient to begin modernization of the industrial complex and enhance its competitiveness with the changes in the existing management system. The paper outlines main problems in the development of the industrial complex, presents the typology of regions according to the level of development of the industrial complex. The authors prove that innovation has the greatest effect on the performance of the industrial complex. In

addition, the article presents the results of mathematical modeling of the influence of the main components of innovative activity on the volume of shipped products by enterprises of Russia's industrial complex. The authors put forward their suggestions concerning the adjustment of existing mechanism for the regional industrial complex management and present the priorities of its development in the long term. The authors also substantiate a viewpoint about the necessity of establishing a Foundation for the development of industrial technology in the region.

Key words: region, industrial complex, organizational-economic mechanism, innovation activity, classification, mathematical modeling.

Industrial complex is the basis of Russia's economy because it provides all economic sectors with the means of labor, ensuring economic security of the state and a decent standard of living. In 2013, manufacturing and mining enterprises and organizations, which produce and transmit electricity, gas and water, account for more than 32% of GDP *(fig. 1)*. For nine years, since 2005, this indicator has not changed significantly, and it still holds a significant share in GDP.

However, recent crisis phenomena in the economy have had a significant impact on the volume of products shipped by industrial enterprises *(fig. 2)*. Thus, compared with 2005, manufacturing production in 2013 grew only by 29%, showing a significant drop

Figure 1. Structure of Russia's GDP in 2005–2013, % [12, 13]

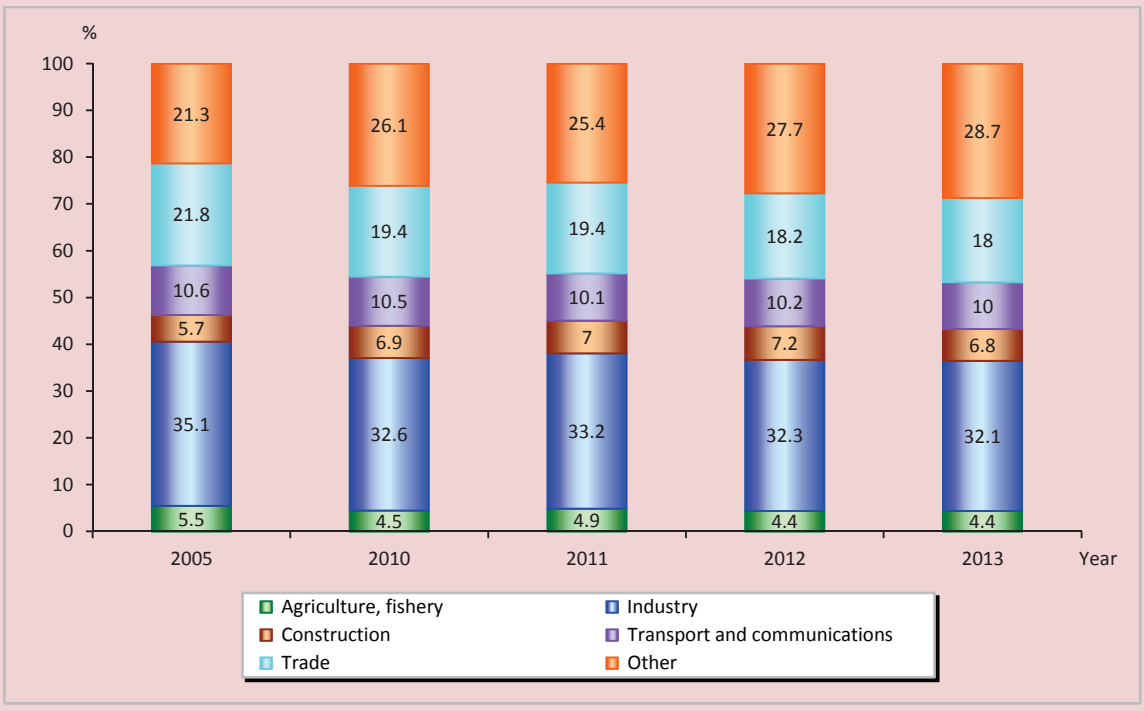
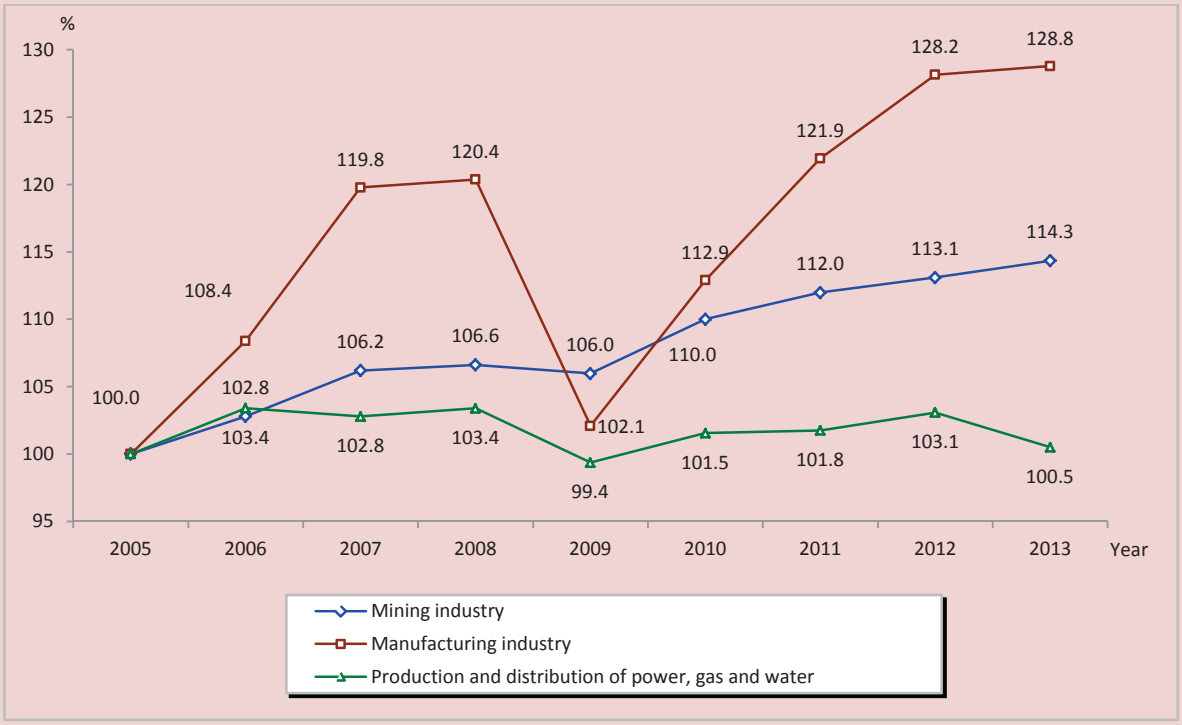


Figure 2. Dynamics of industrial production in the Russian Federation in 2005–2013 (2005 = 100), % [12, 13]



in 2009, and mining industry production grew by 14%. Production and distribution of electricity, gas and water remained at the level of 2005. For comparison: during this period the industry in China has grown by 2.4 times [9]. According to leading scientists [15], growth rate of industrial production in developed and newly industrialized countries reached 7–8.5% per year. Thus, we can say that Russian industrial complex is not developing actively enough.

The analysis of its structure shows that more than 65% of products is produced by manufacturing enterprises *(tab. 1)*. In 2013, every fifth ruble of shipped products came from chemical production, production of coke and oil products, rubber and plastic products. At the same time, there is an upward trend in this industry: its share has increased by 4.6 percentage points (up to 21.5%) over the period under consideration.

Positive aspects include a slight growth (by 1.6 p.p.) in the production of machines, vehicles and equipment, electrical equipment, electronic and optical equipment – up to 14.6% in 2013. This indicator reaches 50% in the structure of industrial production in leading world economies. The share of machine building in China and France is 35–40% in the U.S. – 46%, in Japan and Germany – 51–54%) [8]. Thus, in general, the dynamics of values in Russia shows no deterioration in the structural proportions of industrial complex, but the main indicators

Table 1. Structure of Russian industrial complex in 2005–2013, %*

Groups of industries	Year					Absolute deviation 2013–2005
	2005	2010	2011	2012	2013	
Manufacturing industries Including:	65.1	65.6	65.1	65.7	65.6	0.5
- chemical production, production of coke and petroleum, rubber and plastic products	16.9	19.3	19.7	20.3	21.5	4.6
- production of machinery, vehicles and equipment, electrical equipment, electronic and optical equipment	13.0	12.9	14.0	14.7	14.6	1.6
- production of food products, beverages and tobacco	10.9	11.5	10.3	10.5	10.3	-0.6
- metallurgical production and production of finished metal products	13.9	12.1	11.5	10.5	9.6	-4.3
- other types of production	3.1	3.2	3.1	3.2	3.2	0.1
- production of other non-metallic mineral products	3.1	2.9	2.9	3.0	3.0	-0.1
- pulp and paper production; publishing and printing	2.3	2.1	2.0	2.0	1.8	-0.5
- processing of wood and manufacture of wood products	1.0	0.9	0.9	0.9	0.9	-0.1
- textile, garment manufacture, manufacture of leather, leather goods and footwear	0.9	0.8	0.7	0.7	0.7	-0.2
Extraction of minerals	22.5	21.7	22.9	23.4	23.5	1.0
Production and distribution of electricity, gas and water	12.4	12.7	12.0	10.9	10.9	-1.5
* Calculated by the author on the basis of the data [12, 13].						

do not match international trends and prove that the level of development of leading industries is insufficient.

Note that main development indicators of industrial complex in 2005–2013 do not show any significant changes *(tab. 2)*. For instance, depreciation of fixed assets is still very high (45.7%). The number of employees at industrial enterprises has an insignificant but steady downward trend: their share in the total economically active population is only 17.3%, which is below the level of 2005 by 2.4 p.p.

The volume of investments in the fixed capital of industrial enterprises (calculated per enterprise) is one of the few indicators of growth. The indicator has increased by 8.7 million rubles over the analyzed period and reached 11.2 million rubles per industrial enterprise in 2013.

The level of innovation activity at the enterprises of industrial complex is about 10%, whish is much lower than in leading countries. For instance, in Germany the share of industrial organizations involved in innovative activities in the total number

Table 2. Key performance indicators of Russian industrial complex in 2005–2013*

Indicator	Year					Absolute deviation 2013–2005
	2005	2010	2011	2012	2013	
Level of depreciation of fixed assets, %	48.0	43.9	44.6	44.5	45.7	-2.3
Share of people employed in industry in the total economically active population, %	19.7	17.6	17.5	17.4	17.3	-2.4
Investments in fixed assets of industrial enterprises per industrial enterprise, million rubles.	2.5	8.0	8.8	10.2	11.2	8.7
Level of innovation activity, %	9.7	9.5	10.4	10.3	10.1	0.4
Amount of used production technologies as calculated per industrial enterprise	0.3	0.5	0.4	0.4	0.4	0.1

* Calculated by the author on the basis of the data [12, 13].

of organizations reaches 80%, in Finland – 52% in France – 50% [4, 7]. Besides, the number of advanced production technologies, as calculated per industrial enterprise, remained at the level of 2005, which is, undoubtedly, a negative result.

In order to address the imbalances in the development of industrial complex, it is necessary to create conditions for active operation of new high-tech industries. This will increase the efficiency of industrial complex in general, and stimulate investment processes. The existing problems are largely systemic, many subjects of the Russian Federation face them. In this regard, the identification of general patterns and negative trends in their development and also the identification of leading regions is possible only on the basis of classification of subjects and their further grouping.

The present research into existing approaches to assessing the status and level of development of the region's industrial complex [2, 3, 6, 11, 14] shows that they do not comply fully with criteria such as availability and objectivity of the source data; simplicity of calculations; representativeness of results; consideration of an innovative component of development; quantitative and qualitative indicators, which does not make it possible to assess adequately the condition of industrial complex in a given region.

Taking into consideration all of the above, we propose a methodology for assessing the level of development of industrial complex on the basis of calculation of the integral indicator based on the main factors of its development, quantitative and qualitative characteristics, taking into account the innovative aspect and performance results.

In accordance with the problem to be solved, the first stage was to develop a system of indicators for assessing the level of development of the regional industrial complex on the basis of an integrated approach. The system contains two blocks of indicators: factor indicators and resulting indicators. One block characterizes the main factors: main production assets, labor, investment

and the use of innovation-technological resources in the manufacturing process. Another block shows performance results of industrial complex. We selected two types of indicators: quantitative and qualitative in order to assess each of the resources more objectively and comprehensively.

In the second stage we determined the index of the status of all the factors promoting industrial development that we selected and also industrial performance results; the index represents the mean square value of the standardized coefficients of the two constituent indicators.

In the third stage we formed the integrated indicator. In order to reflect the significance of each allocated block that characterizes the current state of the main factors promoting industrial development, it is reasonable to use the mean square value of the indices that are included in the integral indicator.

In the fourth stage we made the classification and correlation of the integral assessment of the state of industry in the regions by groups characterizing opportunities for the development of production. The threshold values of the integral assessment indicator are in the range from 0 to 1 *(tab. 3)*. Thus, we can distinguish five levels of development of industry in the region.

It should be noted that the results obtained in the framework of this methodology can be used in the grouping of regions by level of industrial development, thereby creating their typology and distinguishing similar subjects.

The calculations show that in 2013 the Vologda Oblast was on the 9th place in the ranking of Russian regions by level of development of industrial complex *(tab. 4)*. The Sakhalin Oblast, Primorsky Krai, the Tyumen Oblast were leaders (through the implementation of major investment projects in the industry of the Far East, development of oil production, promotion of innovation processes in the regions) as well as Moscow (many enterprises located in other regions were registered there). The top ten also includes the Leningrad, Magadan, Kaluga, Kemerovo oblasts and Chukotka Autonomous Okrug.

The bottom ten regions include those with agricultural economy, and the regions of the North Caucasian Federal District.

Table 3. Classification of the integral assessment of the level of development of the region's industry*

Interval No.	Level of development of industry	Interval borders
1	High	0.8 < I < 1.0
2	Above median	0.6 < I < 0.8
3	Median	0.4 < I < 0.6
4	Below median	0.2 < I < 0.4
5	low	0 < I < 0.2

* Compiled by the author.

Table 4. Ranking of the Russian Federation subjects in terms of development of their industrial complex in 2013* (the top ten and bottom ten regions)

RF subject	Ip	Ranking position	RF subject	Ip	Ranking position
Sakhalin Oblast	0.790	1	Astrakhan Oblast	0.287	71
Primorsky Krai	0.605	2	Kurgan Oblast	0.287	72
Tyumen Oblast	0.552	3	Republic of Adygea	0.286	73
Moscow	0.502	4	Chechen Republic	0.282	74
Leningrad Oblast	0.464	5	Krasnodar Krai	0.264	75
Magadan Oblast	0.461	6	Stavropol Krai	0.249	76
Chukotka	0.460	7	Jewish Autonomous Oblast	0.220	77
Kaluga Oblast	0.460	8	Republic of Ingushetia	0.208	78
Vologda Oblast	0.447	9	Republic of Dagestan	0.202	79
Kemerovo Oblast	0.443	10	Republic of North Ossetia–Alania	0.197	80

* Calculated according to the data of the Federal State Statistics Service [12, 13].

Thus, according to the data obtained, in 2013 there were no regions that belonged to the group with a high level of industrial development, and only two regions belonged to the group with the value "above average". The Vologda Oblast, along with 24 regions, had a "median" level of development of industrial complex.

Indicators calculated in the framework of the regions' typology were used in a correlation analysis for determining the influence of the main factors promoting the development of industrial complex on the resulting factor. According to the analysis, the greatest impact on the state of industrial sector is caused by the innovation-and-technological factor (correlation coefficient is 0.446); this factor is followed by the labor resources factor (0.371), investment factor (0.305) and production (0.215) resources factor. The dependence was identified on the basis of analyzing the indicators chosen through the methodology of assessing the level of development of industrial complex for 2005–2013 in 80 subjects of the Russian Federation.

It is advisable to carry out mathematical modeling of innovation processes in order to assess the most important components of the innovation-and-technological factor. Based on the typology of Russian regions by level of development of industrial complex we selected 24 regions that belong to the same group as the Vologda Oblast. Next, we made an array of 41 indicators for 2005–2013. Thus, the number of observations amounted to 225 units. Correlation analysis identified in the factors in this set that correlate to the greatest extent with the resulting indicator "the volume of shipped products by enterprises of the industry". Having carried out the correlation and regression analysis and evaluation of multicollinearity of factor variables, we selected the most informative indicators, on the basis of which the regression equation was calculated *(tab. 5)*.

Table 5. Mathematical model and its characteristics

Factors	Characteristic of mathematical model
$V = 171300.9 + 107.6 \times X_1 + 32.5 \times X_2 + 19.5 \times X_3 + \varepsilon$	
V – volume of shipped products by industrial enterprises, mln. rub.; X_1 – the number of patents issued in Russia, units; X_2 – the number of advanced production technologies applied, ed.; X_3 – expenditure on technological innovation, mln. rub.	$R_{correlation\ coefficient} = 0.74$ $R_{determination\ coefficient} = 0.561$; $F_{test}\ (3,221) = 94.21$; $p\text{-}_{level} < 0.00001$.

Validity of the obtained mathematical model is confirmed by the high value of correlation (0.74), the significant coefficient of determination (above 0.561), and the high F-test. The dependence revealed has allowed us to establish that the increase in the number of patents issued in Russia, the number of advanced production technologies, and the expenses on technological innovation have the greatest impact on the growth in the volume of shipped products of industrial enterprises. As a consequence, the implementation of activities contributing to the increase of these indicators, will contribute to the growth of the volume of shipped products. At that, the interaction of selected factors will help achieve maximum economic benefit from the resources expended.

It is possible to achieve the growth of the indicators listed above only if the approach to the management of regional industrial complex is improved.

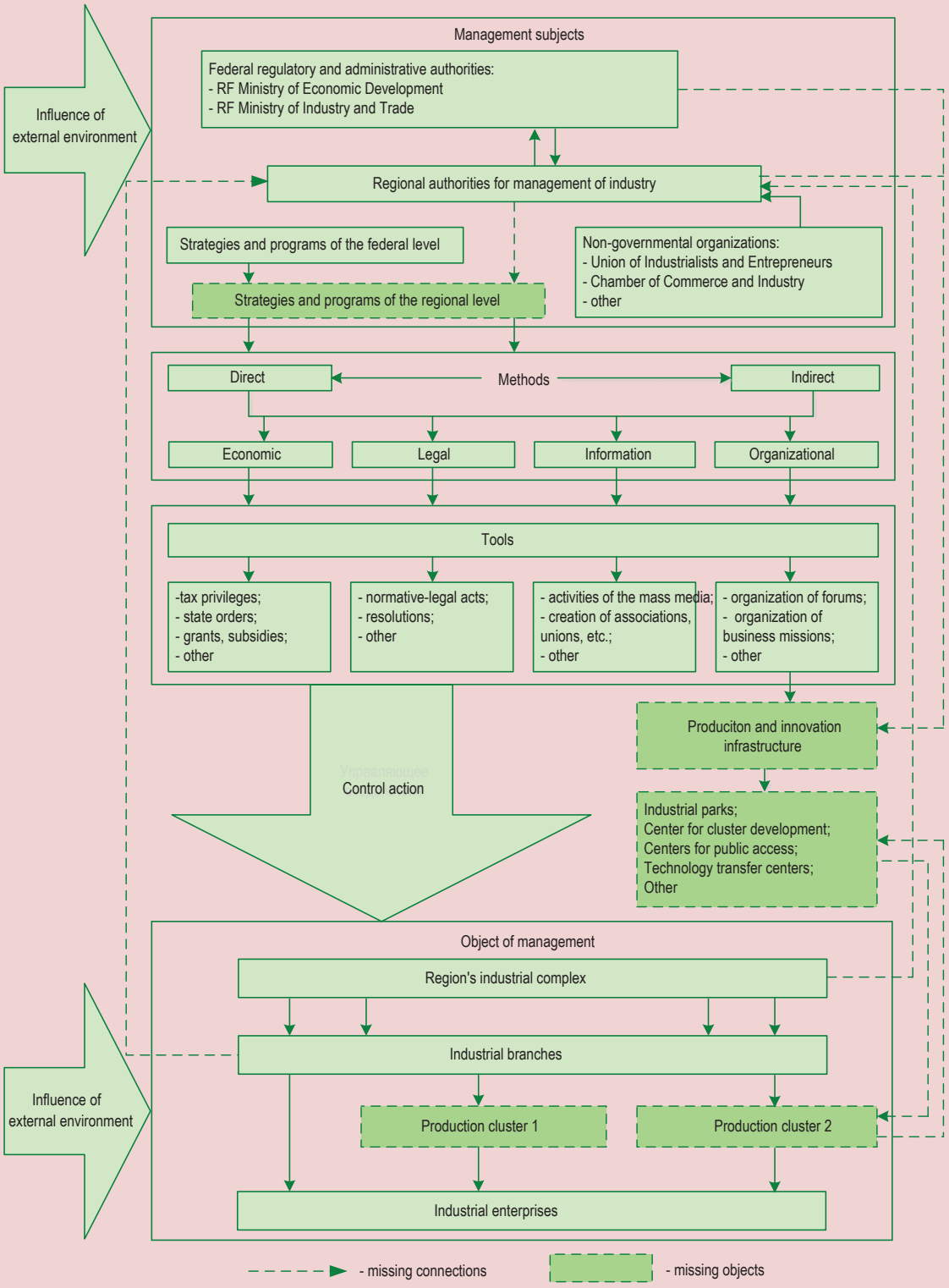
The proposed structure of the organizational-economic mechanism of management is based on the system of management of the regional industrial complex, formed in the Vologda Oblast[1]; the system also provides for the adjustment of existing relationships and formation of new objects, subjects, methods and management tools *(fig. 3)*. The presented mechanism is created and driven by regional governments, which are guided by their regional policy based on innovation development priorities, defined by the federal government and outlined in the basic documents on the country's socio-economic development. At the same time, this management mechanism is based on the principles of regional governance, inherent functions, specifics of building intra-regional interaction, available resources and modern management technology.

The organizational-economic mechanism of the regional industrial complex management consists of three blocks.

The first block is a system that controls the operation of the region's industrial complex. The block consists of state authorities that govern the activities of industrial complex, it also comprises public organizations and councils that govern the relationships between organizations within individual branches and carry out representational functions of business in the government and management authorities. In addition, the goal of this block is to shape the institutional framework promoting

[1] The author studied the system of management of the Vologda Oblast industrial complex in the following works: the article "Industrial Policy as a Mechanism of Regional Development" [1] and the research report "A Study of Methods for Increasing the Innovativeness of the Region's Economy" [10].

Figure 3. Organizational-economic mechanism for the regional industrial complex management



innovation processes in the regional industrial complex. The block is based on the concept and strategy of development of industrial complex, sectoral policies, federal target programs, target regional and municipal programs and projects.

The second block, which represents a set of methods and tools, is fundamental in the management mechanism. Methods may vary depending on the assigned tasks, regional resource base, management practices and other aspects. As for the impact on the control object, methods that form the basis of the mechanism of industry management can be divided into direct and indirect ones, and by functional orientation they fall into the following groups: economic, legal, informational, and organizational. A wide range of methods allows for a differentiated approach to their choice depending on specific features of the stages of innovation development of industrial complex.

As for the other component of this block – a set of tools, their number and possible combinations – the degree of their use can vary depending on specific tasks, decisions and situations. Therefore, it is always necessary to consider a certain complexity of influence of different tools, the combination of which forms a comprehensive tool set of the mechanism. A set of concrete tools is constantly affected and undergoes changes under the influence of external and internal factors. At the same time, new tools emerge, and elements of the regional management system are improving (management authorities, structures, resources, technology, etc.).

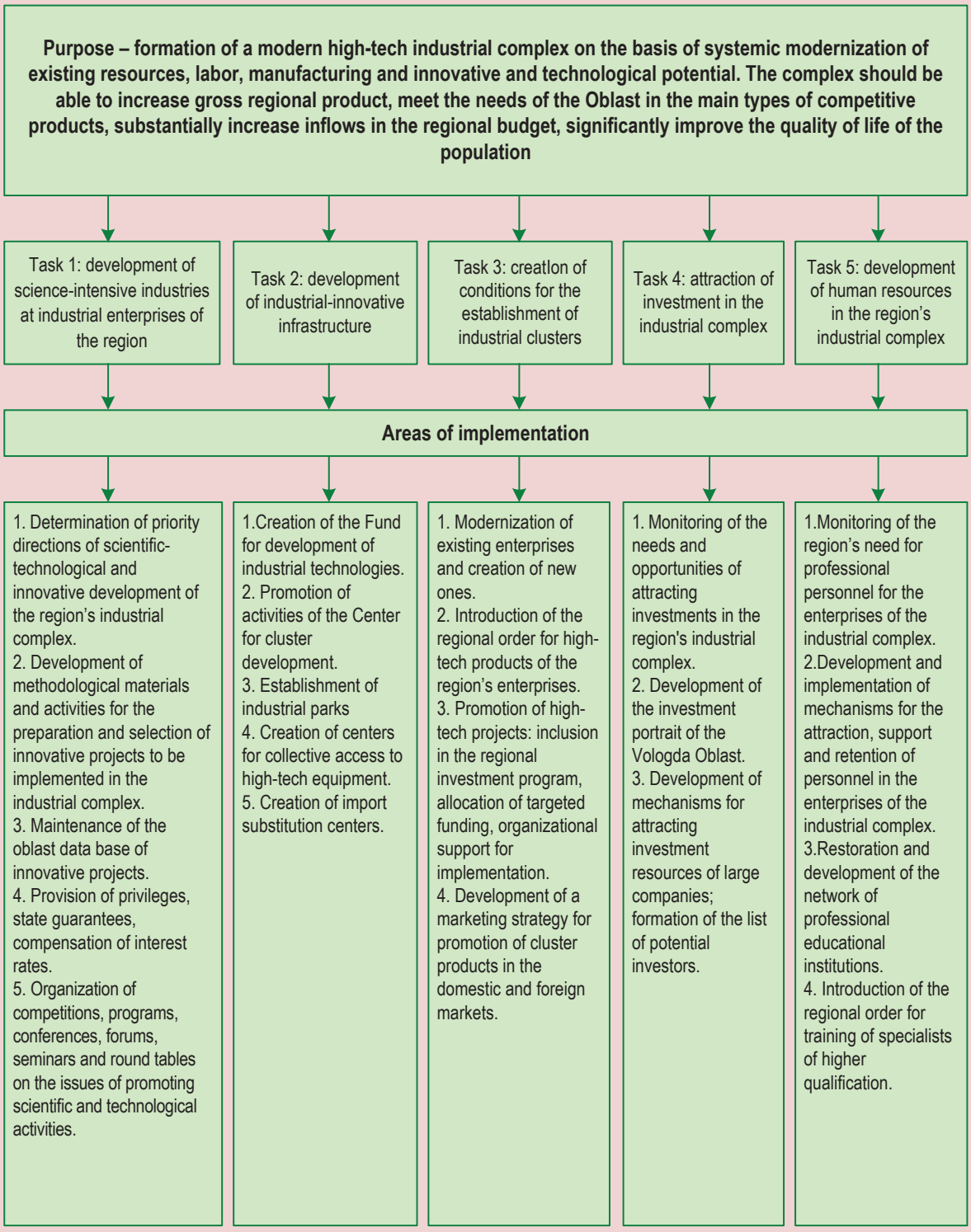
It should be emphasized that the use of a number of methods cannot be predetermined and remain unchanged for different stages of transition to an innovative path in industrial complex, because, as it develops, these methods have to change (expediency of their application has to be revised). This, in turn, requires a flexible and mobile system to manage industry as a whole.

The third block represents the object of management. This includes both the region's traditional industries and enterprises of its industrial complex, and industrial clusters recommended for construction.

In addition to the main blocks, the diagram (see fig. 3) reflects the processes of interaction and communication between individual components of the mechanism. Thus, first of all, it is necessary to restore the damaged connections between individual industries and management authorities. In addition, it is necessary to stimulate innovation processes, to build and improve production clusters and also the manufacturing and innovation infrastructure, which is one of the most effective tools in the development of these processes. And most importantly, it is necessary to enhance the development of relevant strategic documents.

In this regard, at the present stage of development of industrial complex in the Vologda Oblast the main goal can be the formation of a modern high-tech industrial complex on the basis of system modernization of existing resources, labor, manufacturing and innovative and

Figure 4. Areas of modernization of the Vologda Oblast industrial complex



technological potential. This industrial complex should be able to increase gross regional product twofold, to meet the needs of the Oblast in the main types of competitive products, to promote a substantial increase of the regional budget revenues, and to improve the quality of life of the population.

This goal can be achieved through the stage-by-stage development of industrial complex. In our opinion, it is expedient to distinguish two main stages of its modernization *(fig. 4)*.

The first stage involves the following tasks:

1. Development of science-intensive industries at industrial enterprises in the region.

2. Development of industrial infrastructure for attracting unique and progressive technology in industrial sector and promoting innovative products in the market.

3. Formation of conditions for creation of machine-building cluster.

4. Funding of industrial complex and attraction of investments there.

5. Development of human resources in industrial complex.

Successful implementation of the first stage will make it possible to stabilize the situation in the region, to create industrial clusters aimed at the production of new high-tech products.

In the framework of the second stage that is characterized by stable development of the region's industrial complex and further growth of production efficiency, the vigorous development of high-tech industries and industrial clusters will continue, and innovative enterprises will be established. In addition, investment attractiveness of industry will increase, and regional production and innovation infrastructure will develop successfully.

The completion of the second stage will result in a steady increase in the efficiency of industrial production and competitiveness of products.

Implementation of these areas will promote the diversification of the structure of industrial complex and the development of technological capabilities in the region; all this will increase the competitiveness of regional economy. In addition, it will entail a growth in the pace of industrial production up to 7–8% per year by 2020 (to the level of developed and newly industrialized countries), and it will also increase the level of innovation activity at enterprises to 25–30% and the number of advanced production technologies as calculated per industrial enterprise up to 1–1.5 units.

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Strategic Framework for Implementing the Potential of Import Substitution on the Example of Railway Engineering*

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Abstract. At present, Russia's economy is dependent on import in some of its strategically important sectors. The recent economic and political developments such as the aggravation of geopolitical situation and termination of economic partnership between Russia and a number of countries and entities, and also the Government's policy that aims to reduce import dependence determine the need to expand the interaction between domestic producers and the need to use domestic resources, materials and equipment in economic activities. Import substitution in Russia can become a driving force of its industrial growth. The paper presents different interpretations of the term "import substitution" contained in several publications of recent years; it also reveals a common approach of the authors to this problem. The article summarizes existing proposals on priority areas of import substitution such as the shift towards import-substituting production and technology in strategically important industries. Mechanical engineering is seen as a most

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important industry in this respect. Russia's machine-building complex is a highly diversified industry, therefore the policy of import substitution implies that it will be implemented efficiently in various sectors of mechanical engineering on the basis of the differentiated approach, with regard to industry and sectoral specifics. The article considers a strategic framework for the implementation of the import substitution potential on the example of railway engineering. The authors reveal trends in the development of the internal market of railway engineering products; they determine the degree of import dependence for individual sectors of the industry on the basis of statistical data. The article substantiates priorities and possibilities of import substitution in different sectors, and in high-tech sectors of railway engineering. The authors point out a goal of import substitution in these sectors, the goal is to create qualitatively new types of products that provide technological parity between Russia and developed countries in the development of transport, and active influence on the development of the world market of technologies and science-intensive products. Effective implementation of import substitution policy is possible only on the basis of interaction of all the participants of technological chain, including designers of products and technologies, suppliers, and customers. The best way to organize such interaction is to form cluster associations. The article shows the role of clusters in the implementation of import substitution policy at the regional level on the example of the railway engineering cluster in the Sverdlovsk Oblast.

Key words: dependence on import, import substitution, high-tech products, production localization, cluster associations.

In the modern geopolitical environment characterized by aggravation of the external political and economic situation, import substitution is viewed as one of the priority directions of state economic policy in Russia. Speaking at the plenary session of the Saint Petersburg International Economic Forum on May 23, 2014 Russian President Vladimir Putin pointed out: "I'm confident that by upgrading industry, building new enterprises and localizing competitive production in Russia we'll be able to considerably reduce imports of many goods and return our market to our national producers. I believe it's necessary to promptly analyze opportunities for competitive import substitution in industry" [15].

Currently, the subject of import substitution and dependence on import is being more and more widely discussed both in the public and political periodicals and scientific journals [1, 2, 3, 4; 6, 9, 10, 16, 18, etc.]. Despite the differences in approaches, the general conclusion is as follows: public policy, including industrial policy, should take into account specific historical conditions and meet the global challenges of our time [1], when under the foreign economic and military-political pressure on Russia there is no effective alternative to development without the use of this mechanism. Thus, as O.A. Frolova notes, in modern Russia there emerged a necessity of import substitution, which is a new "shock" factor that promotes industrial development [19].

At the same time, the term "substitution" has no clear definition, which creates contradictions in the development of sectoral and regional strategies and programs for import substitution. For instance, V.V. Ivanov formulates the goal

of import substitution as "creation of own industry that makes it possible to ensure the country's technological independence from external suppliers with regard to the products that are necessary for ensuring a minimum level of life and safety". However, as the author notes, such a solution to the problem of import substitution will ensure minimal technological security and independence, but will not lead to technological parity between Russia and developed countries. The problem is that according to this scheme the substitution is implemented according to the pattern of catch-up development, i.e. the products and technologies will basically repeat those already existing, although some of them can be better than the known analogues [5]. In our view, this interpretation of the problem of import substitution preserves the existing state of domestic economy, because it does not imply accelerated innovation development. The analysis of trends in the development of modern economic systems shows that the main trend is the transition to innovation economy, which is a new model of economic development, and we believe that the problem of import substitution should be considered with regard to this trend; and in this respect we agree with the position of V.K. Fal'tsman: "Innovation economy is formed through the import substitution of innovative products in the domestic market and focus on its exports at the foreign market" [17, 18]. This position is shared by V.A. Plotnikov and Yu.A. Vertakova, who formulate the goal of the import substitution strategy as a policy of modernization of domestic production, which contributes to the development of industrial sector, its technological re-equipment, improvement of the quality of manufactured goods, and development of innovation activity. The viewpoint of these authors is of interest, they propose to interpret import substitution, on the one hand, as an opportunity, and on the other hand, as practical activity of substitution of foreign goods in the domestic market. In our view, this definition is sufficiently comprehensive, as this term simultaneously denotes the potential of development of national production, and the process of displacement of foreign goods from the market [3].

When substantiating the priority directions of import substitution, the authors have the following opinion.

In the context of globalization Russia will not be able to avoid completely its dependence on import of many types of innovation products and components for their production. In the framework of the national strategy for economic and military security, the key sectors of economy should be self-sufficient and independent from the external environment. That is why today a strategy aimed at restructuring the economic development model by shifting to import-substituting production and technology in strategic sectors is crucial for Russia [3, 5, 17]. These industries include, first of all, mechanical engineering. The analysis of statistical data presented in the works of the above authors has demonstrated that mechanical engineering should be a priority area for the implementation of import substitution policy.

Machine-building complex in Russia is a highly diversified industry, therefore the policy of import substitution assumes its effective and economically efficient implementation in various sectors of mechanical engineering on the basis of the differentiated approach, when branch-wise and sectoral specifics are taken into consideration.

Import substitution in the mechanical engineering complex also concerns those economic segments, which ensure the stability of Russia's socio-economic system. One of these segments is *railway transport,* which forms the infrastructure basis of dynamic development of national economy, improvement of the quality of life and economic activity of the population. Railway transport provides over 40% of passenger traffic, more than 80% of cargo transportation (excluding pipeline transport), about 98% of military and special transportation[1]; in emergency situations it is most suited for mass transportation of goods and passengers; for certain regions and a significant portion of the population it is the only form of passenger transport in interregional traffic.

In recent years, there emerged an urgent need to find a quick solution to many problems of the railway transport development and its transition to innovation development[2], including, in particular, the replacement of worn and outdated rolling stock, as well as the creation of new progressive machines to organize high-speed traffic. In these conditions the importance of railway engineering has significantly increased.

The policy of import substitution for railway engineering is defined by two components, which form the main objectives of import substitution for the industry:

- import substitution in the production of rolling stock, similar to imported products in quality and price;
- import substitution in related industries to provide the railway industry with the necessary resources (components, materials, modern technology).

The internal market of railway rolling stock in Russia is characterized by the dominance of domestic manufacturers and by a significant share of import. The proportion of import of railway equipment in the Russian market amounted to 30.8% in 2012, 26.0% in 2013, and 22.5% for 7 months of 2014. Until recently, Ukraine was the main importer of railway engineering products (freight cars and locomotives)[3], but the supply from this country declined sharply in the last three years. If in 2012 the share of Ukrainian producers in the total import volume amounted to 80.4%, then in 2013 it was 64.2%; and for 7 months of 2014 it has dropped to 50%. The share of imports from foreign countries, excluding former Soviet republics, (high-speed rolling stock) has increased over the same period

[1] Strategy for Development of Transport Engineering in the Russian Federation in 2007–2010 and for the Period up to 2015.

[2] Innovation development of the transport system is defined as a priority area in the main current strategic policy documents on the development of the industry: Transport Strategy of the Russian Federation for the Period up to 2030; Strategy for Development of Railway Transport of the Russian Federation for the Period up to 2030.

[3] Ukrainian products meet Russian products in terms of quality; competitive advantage of Ukrainian products on the Russian market is provides by their low, dumping prices.

from 20 to 50%, the share of products from the CIS countries (freight cars) remains at a low level (1–1.5% of total imports). To date, the situation on the domestic market of rolling stock has changed significantly with regard to freight cars. In this segment the share of imported products was 30.4% in 2012 (including 29.3% from Ukraine), in 2013 it was 23.3% (including 22% from Ukraine); according to the results for seven months of 2014, it amounted to only 7.9% (including 6.9% from Ukraine) [11, 12, 14].

Significant decline in import was accompanied by decrease in the supply of domestic freight cars. These changes are associated primarily with the slowdown of growth rate of Russia's economy which has led to a reduction in demand for freight cars. In addition, in the conditions of reduced demand and a surplus of existing facilities[4], freight car-building enterprises also faced the need to change their model line-up, expanding the range of manufactured products, and in some cases – converting production. The change of the market structure is due to the change in consumer demand, the decline in the volume of cargo intended for carriage in the universal rolling stock, and the growing need for specialized cars, formerly supplied by Ukraine.

Thus, the overall reduction in the demand for wagons, accompanied by the change in the structure of the car fleet, shifts the priorities in the import substitution of Ukrainian wagons: it is necessary to reorient Russian car-builders on the construction of new models, including the models that were previously imported.

Starting conditions of import substitution of modern transport vehicles from foreign countries excluding former Soviet republics was determined on the basis of specifics of Russian railway transport and, accordingly, on specifics of the Russian market of railway equipment with its pronounced limited competition. The Russian market of railway machinery is somewhat isolated from the world market because of the differences in track gauge in Russia (1,520 mm) and most European countries[5] (1,435 mm). The difference in track gauge, the fact that Russia has a developed service infrastructure (repair depots) oriented maintain and service the stock produced in the factories of the former USSR republics, low prices and a complex system of certification under the complete control of Russian Railways and the Government of the Russian Federation – these are the factors that hamper the access of products from foreign countries to Russian market. Western manufacturers have occupied a certain position in the segments of the delivery of rolling stock and locomotives for high-speed traffic, where Russian technology lags behind them for decades, and also the delivery of some components.

Experts note that despite the fact that in many cases domestic technology lags behind the best foreign analogues, the

[4] In 2012–2013, due to the influence of several factors, there was a reduction in demand for rolling stock, which reduced production volumes. As a result, rail car production (about 80 thousand pieces per year) exceeds the needs of the market, and the demand in the amount of 40–50 thousand pieces will remain for the near future.

[5] The railways of the CIS countries and a number of neighboring countries, such as Mongolia, Afghanistan and, partly, China have the track gauge of 1,520 mm.

technological level of some big companies in the industry in general is high, allowing to produce the rolling stock of any level of complexity [12].

Locomotive engineering. In the recent years, in Russia there emerged several new series of traction rolling stock: locomotives, electric locomotives and electric trains. The production of new innovation products in the domestic locomotive engineering was carried out largely within the framework of joint ventures with foreign manufacturers, with the use of diesel engines and some other components of foreign production. Domestic locomotives were equipped with foreign diesel engines of different companies; several locomotives were constructed with the diesels produced by Wartsila, Caterpillar, General Electric, and MTU Friedrichshafen. Thus, customers could choose from a fairly large number of series of locomotives, equipped with engines of various manufacturers with different characteristics.

Electric trains. In recent years types there emerged new types of these products in Russia's domestic market, in particular high-speed train "Lastochka" on the platform of Desiro train, which by its technical characteristics (including its design speed of 160 km/h) can compete with products of leading manufacturers. The production of this type of rolling stock was launched in 2013 at the facilities of LLC Ural Locomotives, joint venture ZAO Sinara Group and German company Siemens; beginning from 2014, "Lastochka" trains are used on the route Sochi – Krasnaya Polyana. Siemens, ZAO Sinara Group and Russian Railways signed an agreement on the main conditions of cars supply and localization of their production. Under this agreement the level of localization by 2017 will have reached 80%.

The Velaro high-speed rolling stock produced by Siemens AG was purchased for *high-speed* railway traffic between Moscow and Saint Petersburg, and Moscow and Nizhny Novgorod. But in the near future Russia plans to launch production of its own high-speed train at the Tver Carriage Works according to Western technology with the localization of production in Russia.

Thus, the technical and technological level of a significant part of the production equipment at railway engineering enterprises, in particular, the production of locomotives and electric trains, corresponds to promising quality requirements of Russian consumers[6] to the rolling stock; the existing facilities are able to meet the needs of Russian consumers to update and expand the rolling stock. At that, it should be noted that the production of new innovation products in domestic transport engineering was carried out largely within the framework of joint ventures with foreign manufacturers with the use of foreign technology and localization of production in Russia. On this basis, ***the main goal of import substitution in this sector of railway engineering for the near future consists in the further localization of production of rolling stock at joint ventures and organization of production of domestic components instead of imported ones.***

[6] The track gauge of 1,520 mm limits the expansion of major manufacturers of railway equipment from abroad to the Russian market.

Organization of production of domestic components is the most important task of import substitution for the production of innovative rolling stock, because the creation of competitive products is possible only with the development of new materials and their coatings, modern engines, high-performance control systems for rolling stock and other innovative technological solutions. The increased importance of components is determined by industry-related specifics of railway engineering – technological complexity of products (for example, the cost of purchased materials and products accounts for about 70% in the self-cost of traction units) and significant metal consumption[7]. Import substitution in the production of components will make it possible to solve current serious problems related to the localization of production of high-tech products at the domestic industrial railway facilities. Currently, more than two-thirds of high-tech components for new products come from abroad, because Russia does not produce a significant number of components, without which it is impossible to create machinery that meets world standards. Besides, in Russia there is no serial production of the following units:

• diesel engines of new generation that meet prospective standards on emissions, consumption of fuel and oil, and other characteristics, and their components;

• traction converters for brushless traction drives of electric rolling stock;

• modern brake systems for railway rolling stock;

• hydrodynamic and hydromechanical transmissions for diesel rolling stock with a yield up to one million kilometers;

• diagnostics and control systems for rolling stock, which interact as a single entity in the overall system of traffic control of railway transport.

Serial production of these components in Russia cannot be established due to the absence of appropriate technology, including the technology for the production of asynchronous traction equipment on IGBT-transistors, aluminum car bodies for passenger rolling stock, bogies for high-speed (over 200 km/h) passenger cars and locomotives *(tab. 1)*.

Due to the fact that certain types of components are not produced in Russia, companies have to import necessary parts; due to this fact, the cost of production increases, and the main advantage of localization – the reduction of production costs – is reduced to nothing. As a result, the domestic market becomes less attractive for foreign companies, and access to modern technology for the needs of domestic companies is limited.

Technological complexity in the manufacture of rolling stock determines the high level of cooperation both within the industry and with companies in other industries; this raises issues of *quality*

[7] Thus, in 2011 the share of transport engineering in the total consumption of metal amounted to 2.75%, or 1.62 million tons, while in 2009 it was 1.25%, or 0.66 million tons (Source: *Strategiya razvitiya transportnogo mashinostroeniya Rossiiskoi Federatsii na period do 2030 goda. Proekt. 2013 god* [The Strategy for Development of Transport Engineering until 2030. Draft. 2013]. Institut problem estestvennykh monopolii [Institute of Natural Monopolies Research]).

Table 1. Foreign technology for production of components, which are not applied in Russia

Components	Technical parameters	Advantages
Aluminum body of the car	• Length – 24.175m • Width – 3,265 mm • Height above railhead – 3,990 mm • Floor height – 1,360 mm	• Extended service life • Light weight • Smooth surface • Modern method of painting • High degree of corrosion resistance
Truck V_{max} = 300 km/h	• Space between axes of the wheelset – 2,600 mm • Wheel rim diameter – 920/860 mm • Rail gauge – 1,520 mm	• Comfortable primary and secondary level of spring suspension • High driving stability due to the rods of the wheelset and vibration dampers • High pulling power • High braking power
Traction converter (TC)	• Pulling power output, max – about 2,100 kW • Output voltage (linear), max – about 2,800 V • Output frequency, max – 210 Hz • Weight – about 3.4 t (double-system)	• Water cooling • Connection directly to the overhead system • Use of IGBT technology

of domestic components produced in the line of intra-industry cooperation and at enterprises of other industries. The quality of components has an impact on the quality of the final product and, consequently, on the reliability and durability of vehicles. More than 85% of equipment failures are caused by the low quality of domestic components.

Despite the difficulties, Russia has a certain potential for import substitution in the production of modern rolling stock components; this potential is implemented in a number of areas:

1. There are the developments of domestic *trucks* for freight cars. They include model 18-194-1 truck produced by OJSC RPC Uralvagonzavod, model 18-9836 truck manufactured by JSC Promtractor Wagon with the participation of Amstead Rail (USA), and model 18-9855 truck developed by JSC Innovation and Research Center "Wagons" with the participation of Standard Car Truck Company (USA) and manufactured by Tikhvin Freight Car Building Plant JSC.

2. In February 2013 JSC Federal Freight and Knorr-Bremse (Germany) signed constituent documents on the creation of an enterprise for manufacturing of *modern brake equipment* for rolling stock in the Tver Oblast.

3. It is expected to launch production at the joint Russian-Finnish enterprise Wartsila TMH Diesel Engine Company LLC organized on the basis of OJSC Penzadieselmash. The creation of a modern production of diesel engines is carried out in the framework of realization of the subprogram "Transportation engineering" of

the state program of the Russian Federation "Development of industry and enhancement of its competitiveness". The structure of this sub-program includes the event "Creation and organization of production of diesel engines and new generation components in the Russian Federation"; to date, the following results have been achieved:

- twenty technologies were developed and put into production in the framework of the sub-program;
- three technologies were developed and put into production in the framework of exploratory and fundamental research;
- seven basic modifications of diesel engines were developed and put into production.

However, despite certain success in the establishment of domestic production of components for high-tech railway engineering, the problem of import substitution of components remains relevant, because the productions listed above are organized on the basis of joint ventures through the transfer of foreign advanced technology.

One of the efficient tools to solve the problem of import substitution in high-tech sectors of the railway industry is the *use of the cluster approach*. The effectiveness of the cluster approach is due to the specifics of the industry:

– considerable dependence on foreign technology transfer in the development of innovative rolling stock requires close interaction with science;

– *science intensity* of many types of rolling stock requires high-tech component base and qualified personnel;

– *technological complexity* in the manufacture of rolling stock determines the high level of cooperation both within the industry and with companies in other industries;

– state interest in import substitution *ensures active participation of state structures* in the formation of the cluster.

The cluster approach provides the integral effect of cooperative interaction between the participants, allows the country's industry to develop rapidly, taking into account the specifics of relevant goals and objectives of strategic development of industrial sector.

The cluster approach has shown its effectiveness in the railway engineering cluster in the Sverdlovsk Oblast, which was highlighted, among others, as a functioning cluster in the draft Concept of Cluster Policy of the Sverdlovsk Oblast until 2020. A prerequisite for the formation of this cluster was the cooperation that has developed in the Sverdlovsk Oblast industrial complex on the basis of development of modern electric locomotive engineering, the use of the capabilities of regional military-industrial complex, considerable innovative, scientific and personnel potential of the Middle Urals area.

The core of the cluster is LLC Ural Locomotives, which is part of the holding company SINARA Group. Partners of the parent company are the suppliers of

components (65 Russian companies, including 20 from the Ural region); industrial science of the Sverdlovsk Oblast (JSC VNIKTI (Scientific-Research and Design-Technological Institute of Rolling Stock), JSC VNIIZhT (All-Russian Research Institute of Railway Transport), university science (URGUPS (Ural State University of Railway Transport). The innovative structure of the cluster is represented by an engineering center for development of electric trains of Lastochka type (Deziro-RUS), created on the basis of an agreement between JSC Russian Railways and German company Siemens AG. In addition, agreements were concluded between Siemens AG and the Ural State University of Railway Transport on joint research on energy saving systems and automation for Railways and on training personnel for the engineering center. Participation in the development and implementation of projects of a large number of high-tech industrial enterprises, including enterprises of defense industry, scientific and design organizations ensures the competitiveness of the cluster. The level of localization will be increased from 35% at the beginning of implementation to 80% by 2017, which proves the effectiveness of the cluster approach in the implementation of the policy of import substitution in this sector of railway engineering.

The activity of the Ural cluster of railway engineering is an example of successful implementation of import substitution of the type of "catching up" with the attraction of foreign technology for the organization of production of Western machinery in Russia; initially it was an assembly production, but it was gradually localized on the basis of Russian materials, components, raw materials, energy and labor resources. However, it is necessary to remember that, although this form of import substitution is successful at this stage, it has no resources for transition to the creation of high-tech products on the basis of domestic technology. The solution to the problem of import substitution through the transfer of foreign technology with the further localization will ensure a minimum technological independence of the country from external providers, but will not lead to a technological parity between Russia and developed countries with regard to the production of high-tech products. In this case, import substitution involves the implementation of *the policy of a catching-up national development, rather than advanced development*: foreign experience is borrowed, and foreign goods and technologies that already exist (that were developed and brought to the market) are substituted. At that, domestic industry will be lagging behind, and this time the lag will not allow it to compete efficiently with imported analogues [8]. *Thus, the effective substitution should be focused not so much on copying foreign analogues, but, rather, on the development of domestic technologies, which will ultimately provide the technological modernization of the economy based on its own technological developments* [3].

On this basis, the strategic goal of import substitution in high-tech sectors of railway engineering can be formulated as the creation of qualitatively new types of products that provide technological parity between Russia and developed countries in the development of transport, and active influence on the development of the world market of technologies and science-intensive products. The difficulty of achieving the goal arises out of the fact that the requirements to modern machine-building production in developed countries are becoming increasingly complex: the number of components of the production process increases, the nature of their interaction is becoming more dynamic and diverse. World practice shows that in the past 25–30 years the complexity of the machine as an object of production increased in 4–6 times, and the requirements to accuracy of manufacturing of parts and assemblies increased by about an order of magnitude. Besides, product range expanded significantly, while the duration of release of products in one item group decreased. In these circumstances, in order to ensure the competitiveness of products it is necessary to shift to an innovative scenario of development based on the accelerated development of basic technologies of the latest technological mode, informatics and electronics, and the application of new advanced materials.

There are various mechanisms for the implementation of innovation breakthrough tasks. One of them is technology platforms (TP), when the cluster approach is linked to the formation of technological platforms in various industries that contains innovative technology. The Decision of the Commission on High Technology and Innovation under the Government of the Russian Federation of April 1, 2011 approved the list of technological platforms, which included the TP "High-Speed Smart Railway Transport". Russian Railways was the initiator of this **technology platform** that was organized with the aim of strengthening and integrating scientific research, development and commercial production of new vehicles and technologies. The main objectives of the technology platform include the development and production of a new generation of technical equipment for high-speed railways, including infrastructure and rolling stock. To solve this problem it is proposed to develop the technology of creation of new transport systems and their management. These technologies not only provide a scientific breakthrough in a particular field of knowledge, but also affect a number of different economic sectors; therefore, the organization of high-speed railway traffic will give a further impetus to scientific and technological development and improvement of technologies practically in all related industries from engineering to intelligent computing systems, providing further stimulation of scientific-technological and intellectual potential of the country primarily by

Table 2. Development projects for high-speed traffic in the countries of the "Space 1520"

County	Organization	Investment project
Azerbaijan	CJSC Azerbaijani Railways	State program on development of railways in Azerbaijan
Belarus	Belarusian Raliways	Development of high-speed interregional passenger traffic
Georgia	Georgian Railway	Construction of Tbilisi–Batumi high-speed railway
Kazakhstan	JSC "NC" Kazakhstan Temir Zholy	Development of high-speed passenger traffic
Ukraine	Ukrzaliznytsia (State Administration of Railway Transport of Ukraine)	Introduction of high-speed traffic of passenger trains on the railways of Ukraine
Latvia	SJSC Latvijas Dzelzcels	Construction of Rail Baltica international high-speed railway

Source: Otraslevoe issledovanie "Rynok lokomotivov Rossii i prostranstva 1520. Itogi 2011 g. Prognoz do 2015 goda" [Sectoral study "Locomotive Market of Russia and the Space 1520. The Results of 2011. The Forecast up to 2015]. *Informatsionnoe agentstvo "INFOLine"* [News Agency "INFOLine"]. Available at: http:infoline.spb.ru

making orders to domestic enterprises for the creation of new equipment of the world level. The organization of the domestic production of rolling stock for high-speed traffic with the increase of its production output opens up the possibility for future import substitution in the implementation of Russian infrastructure projects and for the development of export of rolling stock within the framework of realization of projects of high-speed traffic, scheduled for implementation in the countries of the "Space 1520" *(tab. 2)*.

Thus, the development of production of competitive domestic modern rolling stock will significantly strengthen the leading position of Russia in the markets of the countries of the " Space 1520" and increase the innovative element in Russia's economy.

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Socio-Economic and Environmental Challenges of Mining Industry in the Komi Republic*

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Abstract. Mineral resources of the Komi Republic and the trends and dynamics of their development determine to a great degree the level of the regions' economic development. The Republic has significant reserves of oil, gas, coal, aluminum, chromium, manganese, titanium, rare metals, gold, barite, fluorite, and quartz raw materials. However, the region's mining industry is still in the process of formation, this fact makes it possible to foresee and handle major social and environmental issues that accompany mining activities. The analysis of global trends in the implementation of mining projects substantiates the necessity to build a positive reputation of mining companies for ensuring stable production and for solving social and economic problems of territories. The paper also determines staffing requirements of prospective mining enterprises and possible social risks. The authors substantiate the necessity to redistribute taxes and payments in favor of the areas where mining companies operate, and they propose ways of attracting investment in

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mining projects on the stage of exploration with the help of a flexible fiscal policy. The main environmental problems of perspective objects of mining complex development can include the concentration of hazardous emissions, discharges and waste and the aggravation of environmental impact. The transformation of living organisms is moving toward the reduction of species diversity, simplification and changing community structure due to the disappearance of sensitive and rare species. The assessment of environmental impact intensity, based on the point estimation of the correlation between existing anthropogenic load and environmental resistance, has shown that the levels are medium and high. Taking into consideration the increased anthropogenic load, it is necessary to determine restrictions of nature management during pre-investment stage, to set out in the license the overall admissible amount of land resources usage for the purposes of industrial infrastructure, conduct environmental impact assessment for the field in general and to restore the disturbed taiga and tundra ecosystems using scientifically grounded restoration methods.

Key words: mining industry, social responsibility, human resources, income distribution, environment resistance, environmental impact assessment, restoration of disturbed ecosystems.

Introduction

Mining industry of the Komi Republic is still at an early stage of its development, so today we can talk about possible social problems and environmental impact of the future mining and processing enterprises, and their prevention.

Currently, mining industry in the Komi Republic is represented exclusively by the production of bauxite and non-metallic construction materials (building stone, gravel, sand). This field of production in the example under consideration can also include the production of crushed stone, brick and cement, because, in accordance with the current classification of types of economic activity, mining industry involves the extraction of non-combustible minerals and manufacture of non-metallic mineral products.

The current volumes of extraction of ore and non-ore mineral raw materials are insignificant. The share of mining industries in the total cost of industrial products shipped to customers is 0.5–1%, in the structure of employment it is less than 3%, in the structure of fixed assets – 0.3%.

At the same time, the Republic has considerable potential for the formation of a powerful modern mining complex – from deposits of strategic and critical minerals to various agrominerals and construction materials.

The list of investment projects includes the creation of mining and chemical complexes on the basis of titanium, bauxite and oil shale deposits, development of quartz deposits, building materials and so on [4].

With the formation of mining complex there will be an inevitable rise and exacerbation of environmental and social problems that are typical for mining industry and that are caused by domestic policy of subsurface use and regional conditions.

Several papers [3, 9, 10] describe common problems that occur in the system "mining industry – environmental services" and propose their solutions at the global and

regional levels. Social and environmental issues occupy a special place among the main problems associated with the development of mining industry in the Komi Republic.

Socio-economic aspects

1. Mining companies currently operate in the conditions of high social and environmental responsibility. Such responsibility is not limited to the implementation of commitments undertaken upon obtainment of a license for subsoil use. Companies must be prepared to put additional funds in their investment programs to satisfy the requests of local communities in fulfilling their socio-economic needs and prompt solutions of potential environmental problems. Such standards should be disseminated down from the largest companies to the smallest ones.

Local administration and population connect the possibility of solving fiscal, infrastructure and employment issues with the development of mineral deposits; on the other hand, they express concern about environmental and social risks connected with this development. The absence of coordinated action, of understanding the concerns and opinions of the local population, indigenous peoples and local governments can cause serious problems with the beginning of the works, up to the revocation of the license. Therefore, the formation of a "positive" public image of the company and awareness of the viewpoints of all interested parties are key objectives of management in mining business.

Leading mining companies have long abandoned the old approach, under which their social interests were limited to the creation of physical (transport, power grid, pipeline, etc.) infrastructure in the area of the deposit. Today, the interests of mining companies go beyond their mining allotment; companies study the interests and needs of local population, especially in the basic elements of the social sphere [7]. This does not mean, of course, that mining companies take over the functions of government administration; they are expanding their area of corporate responsibility. For instance, it is common practice in our country to sign special agreements with regional administrations – the agreements on social partnership, which define the specific forms of the company's participation in the region's socio-economic development. These contracts are attached to license agreements are their integral part.

To date, agreements on social partnership in the fuel sector of the region's economy have been signed between the Government of the Komi Republic and companies such as OAO LUKOIL, OAO Gazprom, OAO NK Rosneft, JSC Yenisey, CJSC Pechoraneftegaz, LLC Dinyelneft, ZAO Severstal-Resources, OAO Novolipetsk Steel.

Such agreements, a kind of social licenses, are of great importance in other countries as well – the weight of this parameter in the ranking of investment climate for the realization of mining projects is 5–15% (in exceptional cases

it is 30% and more) [11] and it is often as important as "infrastructure" parameter. The main thing is that the agreement should be the result of dialogue and wide consultations on all matters with the public and local administrations, rather than the result of non-transparent transactions.

Today, mining industry is one of the most highly organized and high-tech industries. Mining companies are often a driving force of economic recovery of an area, since they usually operate in remote and economically undeveloped areas and often in places where there are no other alternatives for economic development. Environmentally responsible methods of subsoil use are applied at all stages of the life cycle of a deposit, beginning with its prospecting, industrial development and ending with the reclamation of disturbed lands, and even the restoration of landscapes. Proper planning and environmental management can significantly reduce environmental impact and help maintain or restore biodiversity. Modern mining projects at all stages of the works implement "zero waste" programs. However, in the conditions of low awareness of local population, a "bad" environmental image of mining companies still exists. Therefore, mining companies should be open to the dialogue with local population.

Social aspects of mining activities can have negative sides, such as dominance in the labor market or the emergence of excessive number of working population as a result of stagnation, reduction and development of production, and similar factors.

The responsibility of enterprises can be increased through the assessment of social impact of mining projects as well as through the evaluation of environmental impact at the design stage. On the other hand, social burden that enterprises have to bear has its economic limits and, along with compulsory measures, it is necessary to introduce legislative mechanisms for the promotion of socially responsible enterprises.

2. Lack of qualified staff (mainly skilled workers and engineering and technical personnel) is virtually a global problem. It is naive to believe that in Russia or anywhere in the world there is an area with prospects of development of mining industry, which does not have this problem. The main thing is that it is impossible under current conditions to anticipate staffing requirements and be prepared by having unemployed skilled personnel. *Table 1* presents the estimated need for labor resources according to the stated mining projects [4].

Total demand for human resources in the future mining complex with regard to the projects presented in the "Main directions of development of the coal mining industry in the Komi Republic up to 2020", can be about ten thousand people. Given the nature of work in the mining and chemical production and the requirements to professional skills of employees, we can forecast that future mining enterprises will face serious staffing problem.

The solution is seen in precise distribution and managing the various flows

Table 1. Estimated projected number of employees in mining companies

Mining projects	Area of production location	Estimated number of employees, people
Construction of a bauxite-alumina complex in the Komi Republic	Sosnogorsky	1,859
Yarega Mining and Chemical Complex engaged in the mining and processing of ore with the capacity of 650 thousand tons per year	Ukhtinsky	2,500
Titan – an organization on the basis of Yarega field producing titanium coagulant	Ukhtinsky	320
Project of development of Pizhemsky deposit of titanium in the Komi Republic and creation of a vertically integrated chemical and metallurgical complex on its basis	Ust-Tsilemsky, Ukhtinsky	2,331
Reconstruction of the mine to develop the central part of Zhelannoye field	Intinsky	50
A quarry and a plant for the production of crushed stone at Tablikayuskoye freestone deposit	Usinsky	30

of specialists: top managers, workers and specialists who work in shifts, personnel from local residents who have undergone special accelerated training.

The other side of the staffing issue is the opposition of the local population to the influx of migrants, which will increase in the period of construction works. Population growth will increase a burden on local infrastructure and services, and it will change the traditional way of life in the area. This imposes additional obligations on mining companies, because they should consider and monitor these problems.

3. Equitable distribution of mining companies' revenues is also one of the key social issues. Here an important factor is the distribution of taxes and charges paid by mining companies in favor of the territories in which they operate. Under the existing system of formation of budgets, the majority of taxes and payments go to the federal and regional levels. Local budgets receive only tax on land and individual income tax in the amount of 10%. Budget revenue sources of cities and regions do not include even mineral extraction tax. The Budget Code allows for redistribution of regional taxes in favor of municipalities; however, due to rising costs and additional financial commitments, the region prefers to leave most of the tax revenues in the budget of the Republic. In these circumstances, local authorities may not be sufficiently interested in the promotion of mining projects, in the development of mineral resources in their territories, and in the creation of conditions for attracting investment.

4. Attraction of investment in new mining projects is, in fact, the key problem in the development of resource base in the region. Under the current taxation of profits at an average rate of return, mining companies have virtually no funds available for exploration with the purpose of development of mineral resources from their own funds. Therefore, such work is

carried out within vertically integrated companies at the expense of funds of the parent company and outside sources. To encourage exploration in new areas (up to the stage of working exploration) it is expedient to abolish value added tax, to exclude from taxation a portion of the profit reinvested in exploration, to establish a system of reduction factors applied to the existing rates of taxes and fees when funding the early stages of works (exploration and prospecting) by enterprises from their own resources.

5. Problems of small and medium mining business. The development of small and medium-sized mineral deposits, which form the main part of the mineral resource base, is virtually inaccessible for the majority of potential investors in the country. The costs associated with obtaining access to the subsurface, exploration and getting permits are significantly higher than in other countries. Investors lack their own funds to carry out exploration; possibilities to attract bank loans are limited by the need for collateral and by extremely high rates of lending; in addition, the sector of risk capital in the securities market in Russia has not yet been formed. So far, there is no foundation for a possible consolidation of mining companies into industrial clusters for distributing the costs for transport, social, engineering and network infrastructure, and human resources issues.

Environmental aspects

The negative environmental impact of almost every mining project is comprehensive *(tab. 2)*.

The main environmental problems can include the concentration of harmful emissions, discharges and wastes in the territories of Sosnogorsky and Ukhtinsky districts and the aggravation of already existing negative environmental condition. Research carried out in the Pechora basin (Kolva, Usa, Pechora rivers) shows the change in the forage base, deterioration of physiological condition of salmon and whitefish (swelling, bleeding, changes in blood vessel walls) [5]. The reason lies in the deteriorating conditions of natural reproduction, and accumulation of petroleum products and heavy metals in internal organs. It should also be noted that the Zhelannoye deposit is located in the vicinity of the National Park, due to which it is necessary to follow particular rules of organization of transport roads in order to minimize the impact on fishery resources and wildlife.

The graveness of environmental situation in the territories of the specified areas is different. A previous assessment, based on the interconnection between the sustainability of natural environment and the level of anthropogenic load, makes it possible to reveal the degree of environmental impact [8]. The value of the impact under the unit characterizes the reserve of environmental capacity in these areas; the deviation in the opposite direction indicates a poor environmental condition and the reduction of resistance of natural environment to anthropogenic impact *(tab. 3)*. As the table shows, the gravest environmental situation is observed in the territory of Usinsky District.

Table 2. Possible environmental threats due to the development of mining complex

Project /district	Purpose of the project	Environmental impact
A quarry and a plant for the production of crushed stone at Tablikayuskoye freestone deposit/ Usinsky District	Construction of a quarry Construction of a plant for the production of crushed stone of various fractions –50 thousand cubic meters	Destruction of landscape Emission of pollutants from mechanisms and vehicles Discharge of pollutants into water bodies Waste generation Negative impact of noise on the fauna of adjacent territories
Construction of Sosnogorsky bauxite-alumina complex/ Sosnogorsky District	Production of alumina from raw materials of the Middle Timan Bauxite Mine (volume of processed raw materials – 4.8 million tons/year)	Destruction of landscape Emission of pollutants from the production of alumina Water consumption in the amount of 5.3 million cubic meters/year for technological and household needs Discharge of pollutants in the Ayuva River (tributary of the Izhma River) Storm sewers (the wash of dispersed particles from industrial sites) Wastes of red mud (1.7 tons per one ton of alumina/year; the area of slime depository is 370 ha) Generation of hazardous waste of sulfuric acid Pollutant emissions from road transport and railway transport Dust emissions (bauxite, limestone, burnt lime), carbon monoxide, sulfur dioxide, nitrogen oxide Emissions of greenhouse gases in the atmosphere (0.9 tons of CO2 per one ton of alumina) Possible leak of sodium hydroxide, sulfuric acid, fuel and chemicals Negative impact of noise on the fauna of adjacent territories
Construction of Yarega Mining and Chemical Complex/ Ukhtinsky District	Mining and processing of multicomponent titanium ore on the basis of Yarega high-viscosity oil fields	Destruction of landscape Highly toxic pollutant emissions from production Pollutant emissions from vehicles Discharges of hazardous pollutants containing oil and other elements in the small streams of the district (Ukhta River) Negative impact of noise on the fauna of adjacent territories
Development of Pizhemsky deposit of placer titanium/ Ust-Tsilemsky District	Mining of placer titanium	Destruction of landscape Emission of pollutants from mechanisms and vehicles Negative impact of noise on the fauna and fishery resources of adjacent territories and water areas
Production of titanium coagulant on the basis of Yarega field/ Ukhtinsky District	Production of titanium coagulant	Emission of pollutants from vehicles Discharges of pollutants in small streams of the area (Ukhta River)
Reconstruction of the mine to develop raw quartz at Zhelannoye field/ Intinsky District	Quartz mining (25 thousand tons of ore)	Destruction of landscape Emission of pollutants from mechanisms and vehicles Negative impact of noise on the fauna and fishery resources of adjacent territories and water areas (including the areas of the National Park)

Table 3. Estimation of degree of environmental impact in the areas of development

District	Environmental impact		
	Consolidated score of the natural environment sustainability	Consolidated score of the level of anthropogenic load	Environmental impact indicator
*Territories with the **high degree** of environmental impact*			
Usinsky	4.11	18.50	4.5
*Territories with the **median degree** of environmental impact*			
Intinsky	2.33	6.05	2.6
Ukhtinsky	3.59	6.89	1.9
Sosnogorsky	3.39	5.43	1.6
*Territories with the **low degree** of environmental impact*			
Ust-Tsilemsky	5.80	0.30	0.10

The median level of impact is observed in Intinsky, Ukhtinsky, and Sosnogorsky districts. Natural systems of Ust-Tsilemsky District have a more significant margin of resistance to anthropogenic load.

Transformation of living organisms goes towards reducing their biodiversity, simplification of and changes in the structure of their groups due to the disappearance of sensitive and rare species. Natural recovery of land is going on very slowly (about 40 years). Numerous studies in forest and tundra zones of the Komi Republic show that the traditional reclamation by planting shrubs and trees without applying fertilizers is not effective (their survivability after 12 years is no more than 20%) [1]. Given the fact of development, it is necessary to implement methods that have been already developed in order to restore the disturbed taiga and tundra ecosystems. The essence is to speed up the period of self-regeneration with the help of introducing fertilizers, planting *local species of perennial grasses* adapted to severe climatic conditions, and organizing the *care of the plants for 3–4 years*. Thereby an herbaceous community is created, technogenic substrate is fixed by the roots of the grasses, and a sod layer is formed. Then, the herbaceous community gradually transforms and it is replaced by ecosystems, close to the typical zonal ones [2].

Taking into account the inevitability of resource development and the increase of anthropogenic pressure on the natural environment, it is necessary to introduce the following measures in the upcoming decades:

– at the pre-investment stage of territorial planning it is necessary to define limits to nature management that would take into account environmental and social functions of the territory, and not only its economic functions [6];

– when issuing licenses for the use of resources it is required to specify the total admissible volume of land resources to be

used for the purposes of industrial infrastructure, thereby the degree of preservation of territorial resources will be defined;

– it is advisable to resume the principle of mandatory environmental impact assessment for the deposit in general and not only for some of its objects;

– if the surface suffers mechanical disturbance and chemical contamination, it is necessary to implement science-based environmental remediation that will reduce the period of restoration of original geo-systems.

Conclusion

The mining sector in the region is just being formed, so today there is an opportunity to foresee the main social and environmental issues that inevitably accompany industrial development and try to minimize them, or to mitigate their consequences and be ready to address them.

Due to growing environmental constraints and social inequality, an increasing importance is attached to the necessity to go through the procedures of approval with the local authorities and the public in order to get access to the subsurface. It is not enough that mining companies declare their intent to establish a new production, they have to carry out a thorough preparatory work and present all the positive aspects of development of resource potential in the area and assess the related social and environmental impact.

In order to promote the interest of the local population and regional authorities in the implementation of mining projects, and in order to establish partnership relation between participants and interested parties, it is necessary to decentralize the management of natural resources through the transfer of management functions from the central government to the regions, and through a more equitable distribution of payments for subsoil use. When making managerial decisions in the sphere of natural resources usage, it is necessary to take into account the degree of environmental impact and the experience gained from the development of the northern territories.

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SOCIAL DEVELOPMENT

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Typology of Regions by Level and Dynamics of the Quality of Life

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Abstract. The paper considers the methodology and algorithm for the construction of typologies of regions in a two-dimensional space "level of development – dynamics of development" taking into account the quality of life, which is one of the most relevant competitiveness factors at the present stage of Russia's development. The authors analyze the concept of "quality of life" and propose their own variant of the concept, on the basis of which they make a list of indicators for measuring and assessing the "quality of life" factor. In the implementation of the algorithm it is proposed to transform specific indicators, which assess the level and dynamics of the quality of life, into nonmetric numerical scores, normalized to the weighted average values of indicators for the Russian regions. The method of transformation of indicators into scores was tested on the example of the Northwestern Federal District regions, and the typologies in a two-dimensional space "level – dynamics" of the quality of life were made for 80 regions of Russia; the level of the quality of life was assessed according to official statistics for 2013, and the dynamics of the quality of life was assessed with the use of official statistics for 2011–2013. A detailed analysis is provided for each of the proposed typological groups and characteristics of this typology are highlighted. The proposed

methodology and algorithm make it possible to compare and analyze not only the level and dynamics of development of different factors promoting competitive attractiveness, but also the interaction between the factors, for example, such as economy and the quality of life, economy and innovation, innovation and human resources, quality of life and innovation, etc. The typology provides a better understanding of advantages and disadvantages of both federal and local social policy for regional strategic development and helps justify the need and the focus of territorial development programs and projects taking into account the necessity to ensure competitive attractiveness of regions by the quality of life.

Key words: typology of regions, competitive potential, quality of life, dynamics of the quality of life.

The regions are developing in the complex macro system of the country and the world and the degree of competitive attractiveness of a region depends not only on positive changes in the socio-economic environment, but also on the speed and vectors of change in the totality of regions participating in competitive interaction.

This work is aimed at:

• proposing methods to assess the development and construction of typologies of regions in function of two interdependent variables – level of development and growth dynamics;

• testing the method and identify patterns in the spatial development of Russian regions in terms of their competitive attractiveness for residents on the example of the life quality factor.

In accordance with the given objectives the study tries to solve the following tasks:

1. Offer the algorithm for two-dimensional analysis and construction of typologies of regions by life quality in the function of two variables – level of life quality and dynamics of its change;

2. Create the system of indicators to assess the life quality level and dynamics in the regions, which is adequate to social development vectors in Russia;

3. Offer the method to translate different private indicators of life quality into generalized assessments;

4. Assess the feasibility and practical value of constructing typologies of regions in terms of their competitive attractiveness on the example of life quality.

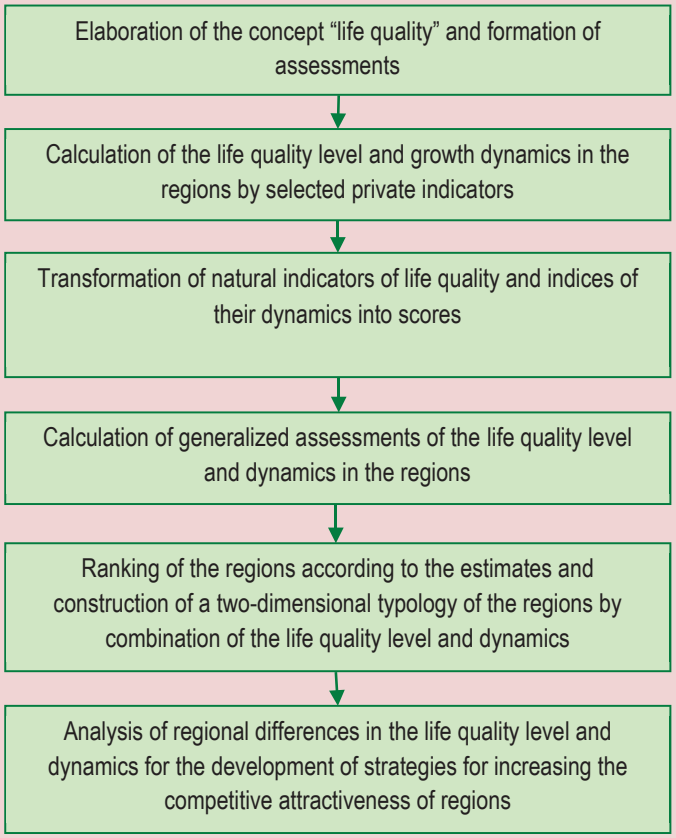
Most often the economy dynamics is estimated by the index method applied to private and general indicators. However, it considers only the dynamics of development, but ignores the achieved level of economic indicators and their interactions. When the index method is used, the objects with lower more dynamic values of the initial indicators look more attractive. For example, developing countries have an advantage over developed ones by growth indices. "The index number is a widely prevalent disease in modern life... Many of...index numbers... lose their practical value immediately after calculation", the well-known researcher of economic indices R. Allen quotes the statement of M.D. Maroki [1, p. 9].

Our model to measure the properties of competitive attractiveness of the territorial space takes into account changes in primary and general indicators of regions' competitive potential by level and dynamics

of life quality. The dynamics of regions' competitive potential changes over time both by absolute values of private generalized assessments and relative to other regions. These changes depend on the growth rate of competitive properties indicators in the region and the average dynamics of analyzed indicators of Russia's competitive attractiveness [4, 5, 9, 13]. The general algorithm of the two-dimensional analysis method and the construction of typologies of regions by a competitive potential factor are presented below (*fig. 1*).

The starting point of the algorithm to evaluate and analyze the increase in the attractiveness of regions by life quality is to define the term "life quality" relative to current time and identify the indicators. Enhancement of life quality is a critical challenge and a key goal of the strategic development of Russia and many foreign countries. The most common definition of "life quality" is given in the Encyclopedic sociological dictionary: this is a category that expresses the quality of satisfaction of material and cultural needs of people

Figure 1. Algorithm of the two-dimensional analysis method and construction of typologies of regions by quality of life



(quality of food, clothing, comfort of home, quality of health, education, service sector, environment, etc.) [14, p. 265].

According to I.I. Sigova, the category of life quality is rather vague and this complicates its use in the practice of social management [11, p. 117]. V.E. Rokhchin and S.F. Zhilkin interpret this category as comprehensively characterizing the level and degree of well-being, freedoms, social and spiritual development [12, c. 35]. But this definition is also wide enough and does not take into account the differences in priorities with respect to countries at different levels of economic development. Considering the latter, we believe that in relation to the Russian regions' development this category should be currently interpreted in the narrower sense of satisfaction of human needs in food, housing, safety, education, sustainable heat, power and water supply, operation of housing and utilities services. These requirements are obvious priorities in the strategic development of most regions; the degree of their satisfaction is still insufficient for most population [8, 10]. It can be confirmed by the fact that many strategic plans of Russian cities define the quality of life as a set of most urgent needs of the residents: wages exceeding the subsistence minimum, social security for the disabled population, quality housing and utilities services and protection from violence, corruption, extortion, etc. As for more developed countries, such as the European Union, people's needs are a bit different: operation and security of public and private transport, a new level of infrastructure, energy and water saving and minimization of the harmful effects of waste. This caused by fact that many of the tasks concerning welfare and housing sectors are solved in these countries and the priorities are shifted to new problems and challenges. At the same time, there are many countries where the standard of living is much lower than in Russia. The assessment of life quality is focused on the satisfaction of most urgent necessities (food availability, protection from epidemics, primary education, reduction in child mortality, etc.).

With that said, we believe that the competitive attractiveness of Russian regions by life quality can be evaluated quite satisfactorily by the following partial indices (*tab. 1*) [3, p. 115-119]. These figures are provided by official statistics in the Russian regions or easily calculated by means of interrelated statistical data [7]. This is equally true both for the assessment of the level of indicators and indicators of growth.

To obtain a generalized assessment of life quality it is necessary to reduce private indicators (for example, wages in rubles, construction of housing in meters per year per 1000 inhabitants, population per doctor, etc.) to a dimensionless form. The same is true for the assessment of life quality by the index of particular indicators. Due to the fact that by one set of indicators indices vary by 1–2%, by another – 8–15%, by the third – they can even be lower, simple averaging out of these indices decreases the value of the final assessment. As these indicators values are significantly uneven, we propose to divide the operational range of each level

Table 1. Private indicators of the life quality factor

Symbolic notation	Indicators
I_{lqf1}	Accrued salary, thousand rubles per month per person employed in the economy
I_{lqf2}	Average per capita incomes, commensurate with subsistence minimum
I_{lqf3}	Decline in the share of population with incomes below subsistence minimum (index of effectiveness in reducing the share of population with incomes below subsistence minimum), %
I_{lqf4}	Improvement of the housing stock
I_{lqf5}	Construction of housing per 1,000 population
I_{lqf6}	Population number per doctor
I_{lqf7}	Theatre spectators number per 1000 urban population
I_{lqf8}	Reduction of wastewater discharge, m^3 per person per year (index of effectiveness in reducing wastewater discharge, m^3 per person per year)
I_{lqf9}	Reduction of pollutants emissions into the air, commensurate with the number of urban population (index of effectiveness in reducing pollutants emissions into the air, commensurate with the number of urban population)
I_{lqf10}	Decline in the number of crimes involving violence against person, per million people per year (index of effectiveness in reducing the number of crimes involving violence against person, per million people per year)

and index indicator by 100 sub-ranges, with each being equal to 1 point. The scoring of life quality by a selected indicator depends on the i-th indicator for the j-th region. The conversion of natural indicators into scores is carried out according to the following formulas:

$$LQ_{ij}^{p} = \frac{LQ_{i}^{n} - LQ_{i\text{avr}}^{n}}{LQ_{i\max}^{n} - LQ_{iavr}^{n}} \times 50 + 50, \quad \text{if } LQ_{ij}^{n} > LQ_{i\text{avr}}^{n} \qquad (1)$$

$$LQ_{ij}^{p} = \frac{LQ_{i}^{n} - LQ_{i\text{avr}}^{n}}{LQ_{iavr}^{n} - LQ_{i\min}^{n}} \times 50, \quad \text{if } LQ_{ij}^{n} < LQ_{i\text{avr}}^{n} \qquad (2)$$

where LQ_{ij}^{p} – is a scoring value of the *i*-th indicator of life quality for the j-th region;

LQ_{ij}^{n} – is a natural value of the *i*-th indicator of life quality for the *j*-th region;

$LQ_{i\text{avr}}^{n}$ – weighted average estimation of the *i*-th indicator of life quality all regions;

$LQ_{i\max}^{n}$; $LQ_{i\min}^{n}$ – maximum and minimum natural values of the *i*-th indicator of life quality for all regions;

50 – a reference point of the scale to the weighted average estimation of a natural value for all regions.

The use of both formulas (1) and (2) allows us to divide the total 100-point range of the estimates by each indicator into two sub-ranges by 50 points. This is caused by the fact that the overall 100-point range scale is non-linear for most indicators, as the upper part of the scale in relation to the national average includes major developed regions, which number is substantially less than in the lower sub-range of the scale. We propose to approximate the nonlinearity of the scale by 2 linear sections below and above average values of the indicator. This improves the accuracy of the calculations both for individual indicators and when they are totaled to obtain a generalized

assessment. According to the same formulas converted index estimates of the dynamics [6] improve the quality of life. Generalized measurement of quality of life we offer to carry out on the basis of aggregated point estimates of the dynamics of particular indices. This is due to the fact that the average percentage increase or decrease in private indicators is not entirely correct, as some indicators can vary by 5–10% or more per year, others –only by 1–2% or less. Hence, the average value of the life quality indicator shifts towards most dynamic indicators, artificially raising their importance. The use of scores helps avoid it.

To make the situation clear, let us consider the calculation results for 10 regions of the Northwestern Federal district (*tab. 2*). For each region of the district we present 2 summative assessments – by level and dynamics of life quality growth. As already noted, the average values of both estimates (level and dynamics) are equal to 50 points. Saint Petersburg and the Kaliningrad Oblast were characterized by a higher life quality in 2013, comparing with other regions. Eight regions of the NWFD have the level of life quality below 50 points, with the lowers values being observed in the Vologda Oblast (30.2 points) and the Arkhangelsk Oblast (31.3 points), the Komi Republic (33.1 points), the Republic of Karelia (34.5 points) and the Pskov Oblast (34.7 points). The generalized assessments can be compared with private indicators for each region. For example, in 2013 of 10 private indicators Saint Petersburg had only one indicator less than the Russian average – 32 points by wastewater discharge. By this indicator 3 regions of the Northwestern Federal district (the Republic of Karelia, the Arkhangelsk Oblast and the Murmansk Oblast) have the lowest scoring[1]. If, for example, we do not include an environmental indicator in the generalized assessment, these regions receive significantly higher scores. However, this factor is becoming more relevant every day, that is why it is taken into account along with other indicators of well-being of the population. The second row in *Table 2* describes the adjustment of life quality in each region for three years – from 2011 to 2013. By this indicator only one region in the Northwestern Federal district (the Arkhangelsk Oblast) received a score above the national average (56.6 points). Other regions, including Saint Petersburg, were characterized by lower dynamics of improving the quality of life than in Russia on average. It is especially evident in the Pskov Oblast, where of 10 private indicators only by 2 – housing improvements and wastewater treatment – the situation was bettering faster than in other regions.

According to the method of conversion of natural values into points and calculation of generalized assessments, we perform calculations of the level and dynamics of life qualitys for all regions of Russia. For this work we use the statistical data for 80 Russian regions, did not separate Nenets, Khanty-Mansi and Yamal-Nenets

[1] In 2014 Saint Petersburg launched a new stage of treatment facilities. Now 98% of wastewater is treated.

Table 2. Scoring of the level and growth dynamics of private and generalized assessments of life quality in the NWFD regions*

Region		Generalized assessment	I_{lqf1}	I_{lqf2}	I_{lqf3}	I_{lqf4}	I_{lqf5}	I_{lqf6}	I_{lqf7}	I_{lqf8}	I_{lqf9}	I_{lqf10}
Saint Petersburg	level	**81.9**	81	100	94	100	53	100	100	32	98	62
	dynamics	**47.4**	28	62	44	43	25	63	59	52	45	53
Kaliningrad Oblast	level	**54.2**	33	35	45	83	75	40	33	52	94	52
	dynamics	**41.7**	38	53	26	46	51	1	36	37	80	48
Murmansk Oblast	level	**46.1**	71	46	50	100	1	72	21	1	36	62
	dynamics	**47.6**	24	75	63	54	47	39	12	43	41	79
Arkhangelsk Oblast	level	**31.3**	32	13	39	22	22	66	32	1	43	43
	dynamics	**56.6**	63	нд	26	60	52	47	57	51	100	53
Leningrad Oblast	level	**43.1**	48	32	55	36	91	12	13	28	47	69
	dynamics	**40.9**	38	54	59	31	54	32	13	32	35	62
Novgorod Oblast	level	**39.4**	27	29	46	21	54	36	15	45	71	51
	dynamics	**42.3**	38	28	60	44	52	23	35	59	38	47
Komi Republic	level	**33.1**	47	30	40	39	8	50	30	47	1	39
	dynamics	**44.6**	59	53	53	41	55	27	50	57	36	15
Vologda Oblast	level	**30.2**	21	22	43	17	47	13	29	43	21	47
	dynamics	**45.2**	22	58	71	1	56	35	58	50	40	62
Republic of Karelia	level	**34.5**	24	15	39	37	31	59	42	1	46	50
	dynamics	**38.8**	21	39	40	53	54	24	41	28	27	60
Pskov Oblast	level	**34.7**	13	10	33	24	23	16	14	72	84	59
	dynamics	**36.3**	34	32	29	54	41	34	2	54	47	36

* The average value of each indicator is equal to 50 points. The life quality level is given for 2013. The growth dynamics is given for 2013 relative to 2011.
The regions are ranked by half-sum of generalized assessments of the level and growth dynamics of life quality.

Autonomous okrugs, as some statistical data were absent. The results are presented in *Table 3*, where the regions are simply ranked by the half-sum of assessments of these two indicators. According to the table, Saint Petersburg and Moscow are in the lead by life quality level. The gap between these regions and the Republic of Tatarstan, the Belgorod Oblast and the Moscow Oblast amounts to almost 20 points. Then we single out a group of regions (the Kursk Oblast, the Voronezh Oblast and the Nizhny Novgorod Oblast), characterized by the high life quality level and dynamics. This is followed by the regions, where either the level or dynamics of life quality is higher than 50 points. Exceptions occur in five areas – the Ryazan Oblast, the Astrakhan Oblast, the Penza Oblast, the Yaroslavl Oblast and the Samara Oblast.

It is necessary to find a tool that would allow us to build a typology of regions on the basis of a more interesting indicator than, for example, the sum of level and dynamics estimates. We suggest carrying out graphic construction of typologies, corresponding to the four squares in the coordinate system where the life quality dynamics is indicated by the abscissa axis and the life quality level – by the ordinate

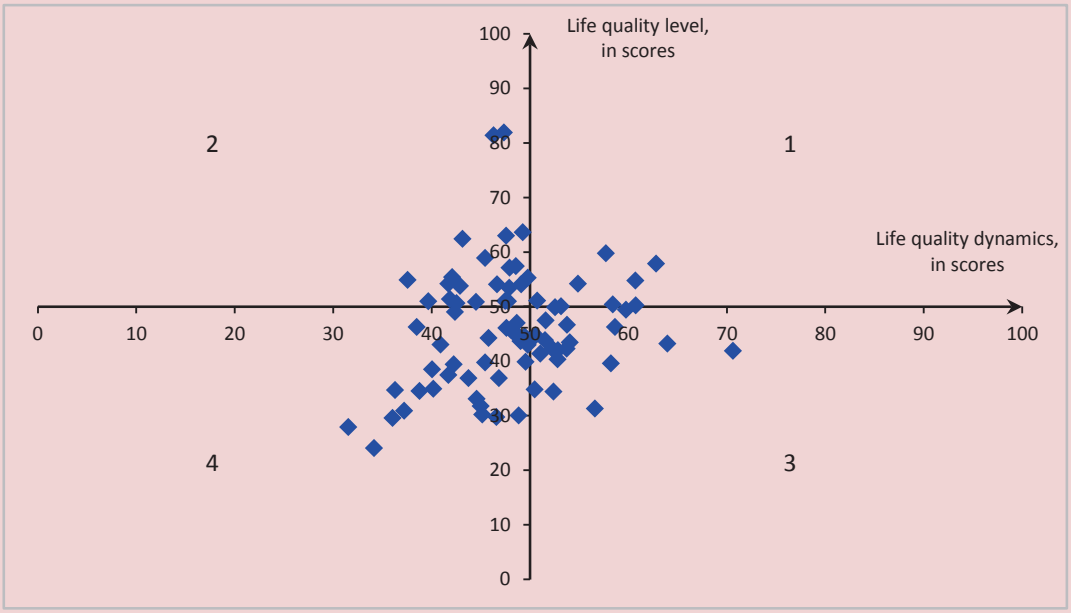
Table 3. Scoring of generalized assessments of the life quality level and dynamics in Russian regions (the regions are ranked by half-sum of assessments)

Regions of Russia	Scoring of life quality (2013.)	Scoring of life quality dynamics (2013/2011)	Half-sum of assessments
Saint Petersburg	81.9	47.4	64.6
Moscow	81.4	46.3	63.9
Kursk Oblast	57.9	62.8	60.3
Voronezh Oblast	59.7	57.7	58.7
Nizhny Novgorod Oblast	54.8	60.7	57.7
Republic of Tatarstan	63.6	49.3	56.4
Chechen Republic	41.9	70.6	56.3
Ryazan Oblast	50.2	60.7	55.5
Belgorod Oblast	63.0	47.6	55.3
Stavropol Krai	49.4	59.7	54.6
Astrakhan Oblast	54.2	54.9	54.6
Penza Oblast	50.4	58.4	54.4
Ivanovo Oblast	43.2	64.0	53.6
Tyumen Oblast	57.4	48.6	53.0
Moscow Oblast	62.4	43.2	52.8
Novosibirsk Oblast	55.3	49.8	52.5
Tambov Oblast	57.1	47.9	52.5
Tver Oblast	46.2	58.7	52.4
Republic of North Ossetia–Alania	58.9	45.4	52.2
Yaroslavl Oblast	50.0	53.2	51.6
Lipetsk Oblast	54.1	49.1	51.6
Krasnodar Oblast	49.9	52.6	51.2
Samara Oblast	51.1	50.7	50.9
Sakhalin Oblast	53.5	47.9	50.7
Chuvash Republic	54.1	46.6	50.4
Tomsk Oblast	46.7	53.8	50.2
Kabardino-Balkar Republic	47.5	51.6	49.5
Republic of Ingushetia	51.0	47.8	49.4
Omsk Oblast	51.0	47.5	49.3
Altai Krai	39.6	58.2	48.9
Kaluga Oblast	55.4	42.1	48.8
Perm	43.5	54.0	48.8
Saratov Oblast	53.8	42.9	48.3
Kostroma Oblast	42.3	53.7	48.0
Kaliningrad Oblast	54.2	41.7	47.9
Republic of Mordovia	47.0	48.7	47.8
Sverdlovsk Oblast	50.9	44.5	47.7
Ulyanovsk Oblast	43.8	51.5	47.7
Udmurt Republic	44.7	50.6	47.6

Continuation of the table 3

Sakha (Yakutia) Republic	42.0	52.8	47.4
Orenburg Oblast	42.2	52.3	47.3
Volgograd Oblast	44.5	49.5	47.0
Tula Oblast	45.4	48.4	46.9
Rostov Oblast	45.6	48.1	46.9
Murmansk Oblast	46.1	47.6	46.8
Bryansk Oblast	45.0	48.5	46.8
Republic of Dagestan	51.4	41.9	46.6
Republic of Bashkortostan	50.6	42.6	46.6
Vladimir Oblast	40.4	52.8	46.6
Republic of Adygea	43.0	49.8	46.4
Smolensk Oblast	43.7	49.1	46.4
Chukotka Autonomous Okrug	54.9	37.6	46.2
Mari El Republic	41.4	51.0	46.2
Orel Oblast	49.0	42.4	45.7
Magadan Oblast	51.0	39.7	45.3
Khabarovsk Krai	44.3	45.8	45.0
Amur Oblast	39.9	49.6	44.7
Arkhangelsk Oblast	31.3	56.6	44.0
Zabaykalsky Krai	34.4	52.4	43.4
Republic of Kalmykia	34.8	50.5	42.6
Chelyabinsk Oblast	39.7	45.5	42.6
Kamchatka Krai	46.3	38.5	42.4
Leningrad Oblast	43.1	40.9	42.0
Republic of Khakassia	36.9	46.9	41.9
Novgorod Oblast	39.4	42.3	40.8
Krasnoyarsk Krai	36.9	43.8	40.3
Kirov Oblast	37.5	41.7	39.6
Karachay-Cherkess Republic	30.0	48.9	39.5
Primorsky Krai	38.5	40.1	39.3
Komi Republic	33.1	44.6	38.8
Kurgan Oblast	31.8	45.0	38.4
Irkutsk Oblast	29.8	46.6	38.2
Vologda Oblast	30.2	45.2	37.7
Republic of Buryatia	34.9	40.2	37.6
Republic of Karelia	34.5	38.8	36.6
Pskov Oblast	34.7	36.3	35.5
Altai Republic	30.9	37.2	34.1
Kemerovo Oblast	29.6	36.0	32.8
Jewish Autonomous Oblast	27.9	31.5	29.7
Tyva Republic	24.1	34.2	29.1

Figure 2. Typological division of Russian regions by the life quality factor by the coordinate system squares



axis. The intersection of the coordinate axes corresponds to average values of these estimates for all Russian regions, i.e. 50 points (*fig. 2*).

In the figure the Russian regions are shown by points in the coordinate system of the two-dimensional mathematical space. The typological group of regions based on graphical interpretation of the estimates of life quality level and dynamics:

- Group 1 – developed and developing regions;
- Group 2 – developed regions, but characterized by retarded development;
- Group 3 – regions with a lower level of life quality, but which are rapidly developing;
- Group 4 – regions with a lower level and dynamics of life quality.

The upper right square includes Group 1 regions, where the dynamics and the level of life quality are higher than the national average (*tab. 4*). They are the Kursk Oblast, the Voronezh Oblast, the Nizhny Novgorod Oblast, the Ryazan Oblast, the Astrakhan Oblast, the Penza Oblast, the Yaroslavl Oblast and the Samara Oblast. This is a slightly different perspective for the assessment of the quality of social development of regions, as it estimates not only the success of the preceding period of development, but also the efficiency of current management. The more above and the more to the right in this square the

Table 4. Group 1 regions that have the higher level and dynamics of life quality compared to the national average

Region	Life quality level	Life quality growth dynamics	Region	Life quality level	Life quality growth dynamics
Kursk Oblast	57.9	62.8	Astrakhan Oblast	54.2	54.9
Voronezh Oblast	59.7	57.7	Penza Oblast	50.4	58.4
Nizhny Novgorod Oblast	54.8	60.7	Yaroslavl Oblast	50.0	53.2
Ryazan Oblast	50.2	60.7	Samara Oblast	51.1	50.7

Table 5. Group 2 regions that have a higher level and lower growth of life quality compared to the national average

Region	Life quality level	Life quality growth dynamics	Region	Life quality level	Life quality growth dynamics
Saint Petersburg	81.9	47.4	Chuvash Republic	54.1	46.6
Moscow	81.4	46.3	Republic of Ingushetia	51.0	47.8
Republic of Tatarstan	63.6	49.3	Omsk Oblast	51.0	47.5
Belgorod Oblast	63.0	47.6	Kaluga Oblast	55.4	42.1
Tyumen Oblast	57.4	48.6	Saratov Oblast	53.8	42.9
Moscow Oblast	62.4	43.2	Kaliningrad Oblast	54.2	41.7
Novosibirsk Oblast	55.3	49.8	Sverdlovsk Oblast	50.9	44.5
Tambov Oblast	57.1	47.9	Republic of Dagestan	51.4	41.9
Republic of North Ossetia–Alania	58.9	45.4	Chukotka Autonomous Okrug	54.9	37.6
Lipetsk Oblast	54.1	49.1	Republic of Bashkortostan	50.6	42.6
Sakhalin Oblast	53.5	47.9	Magadan Oblast	51.0	39.7

region is located, the more successful the policy to improve life quality is. Though relative to some other regions, such as Saint Petersburg and Moscow, they have a bit reduced standard of living, but the high dynamics of this indicator forecasts optimistic future.

Another group of regions (upper left square) with a higher level of life quality and lower growth dynamics consists of 22 regions, including Moscow and Saint Petersburg that have the highest level of life quality, but a bit lower growth dynamics (*tab. 5*). As for these regions, we can say that their separation from others by the life quality level will be decreased annually, thus reducing their competitive advantages. In relation to this group of regions there also is a dual evaluation of past successes and shortcomings of today's delayed development.

The Group 3 regions (bottom right square), on the contrary, try to catch up with other regions by life quality level due to high rates of growth, increasing their competitive features by this factor (*tab. 6*).

Table 6. Group 2 regions that have a lower level and higher dynamics of life quality compared to the national average

Region	Life quality level	Life quality growth dynamics	Region	Life quality level	Life quality growth dynamics
Chechen Republic	41.9	70.6	Udmurt Republic	44.7	50.6
Stavropol Krai	49.4	59.7	Sakha (Yakutia) Republic	42.0	52.8
Ivanovo Oblast	43.2	64.0	Orenburg Oblast	42.2	52.3
Tver Oblast	46.2	58.7	Vladimir Oblast	40.4	52.8
Krasnodar Oblast	49.9	52.6	Mari El Republic	41.4	51.0
Tomsk Oblast	46.7	53.8	Arkhangelsk Oblast	31.3	56.6
Altai Krai	39.6	58.2	Zabaykalsky Krai	34.4	52.4
Perm Krai	43.5	54.0	Republic of Kalmykia	34.8	50.5
Kostroma Oblast	42.3	53.7	Kabardino-Balkar Republic	47.5	51.6
Ulyanovsk Oblast	43.8	51.5			

Table 7. Group 2 regions that have a lower level and dynamics of life quality compared to the national average

Region	Life quality level	Life quality growth dynamics	Region	Life quality level	Life quality growth dynamics
Republic of Mordovia	47.0	48.7	Krasnoyarsk Krai	36.9	43.8
Volgograd Oblast	44.5	49.5	Kirov Oblast	37.5	41.7
Tula Oblast	45.4	48.4	Karachay-Cherkess Republic	30.0	48.9
Rostov Oblast	45.6	48.1	Primorsky Krai	38.5	40.1
Murmansk Oblast	46.1	47.6	Komi Republic	33.1	44.6
Bryansk Oblast	45.0	48.5	Kurgan Oblast	31.8	45.0
Republic of Adygea	43.0	49.8	Irkutsk Oblast	29.8	46.6
Smolensk Oblast	43.7	49.1	Vologda Oblast	30.2	45.2
Orel Oblast	49.0	42.4	Republic of Buryatia	34.9	40.2
Khabarovsk Krai	44.3	45.8	Republic of Karelia	34.5	38.8
Amur Oblast	39.9	49.6	Pskov Oblast	34.7	36.3
Chelyabinsk Oblast	39.7	45.5	Altai Republic	30.9	37.2
Kamchatka Krai	46.3	38.5	Kemerovo Oblast	29.6	36.0
Leningrad Oblast	43.1	40.9	Tyva Republic	24.1	34.2
Republic of Khakassia	36.9	46.9	Jewish Autonomous Oblast	27.9	31.5
Novgorod Oblast	39.4	42.3			

Such dynamic regions include the Chechen Republic, the Ivanovo Oblast and the Tver Oblast, Altai Krai and other areas, where the life quality dynamics is by 20–25% higher than the average increase of life quality indicators in Russia. The group comprises 19 regions, nearly a quarter of all Russian regions.

The fourth group of regions – with a lower level and dynamics of life quality – has 31 regions, with eight of them being located in the Northwestern Federal district (*tab. 7*). This group includes 7 regions of the Siberian Federal district and 5 regions of the Far Eastern Federal district. The unfavorable situation there is confirmed by a systematic outflow of the resident population.

In general, the regional social policy to regulate and align the quality of life in Russia can be considered quite positive, as most regions are located in the square of the two-dimensional space with coordinates from 40 to 60 points. Of 80 it includes 44 regions and 8 regions, where the level or dynamics of life quality are higher than in the specified square. It seems to us that only 10 regions (the Tyva Republic, Jewish Autonomous Oblast, Altai Republic, the Irkutsk Oblast and several others) have very a low level and growth dynamics. These regions require measures for accelerated social development.

The presented typology provides a better understanding of advantages and disadvantages of both federal and local social policies of regions' strategic development and helps justify the need in programs and projects focused on territorial development, taking into account the need to ensure competitive attractiveness of regions.

The method and algorithm can be applied for the analysis of regional development and relevant factors of competitive attractiveness: economic, innovation and infrastructural development, human potential. The two-dimensional space of analysis allows us to identify regional development factors, such as economy and innovation, economy and life quality, education and innovation development.

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Demographic Transformations of the Russian Regional Space

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Abstract. The paper considers the transformations of the quantitative components of human capital, which is the main driver of economic growth in the material, institutional and mental space. According to the author's concept of stratified space, the processes of self-reproduction and self-renewal of a system are carried out in the material space. This can be determined by the indicators of fertility, mortality and migration in the demographic subsystem. The process of self-regulation of a system on the basis of legislative acts and behavior patterns is carried out in the institutional space. Institutional transformations are also manifested in the implementation of federal target programs for socio-economic development, affecting the state of the demographic subsystem. The processes of self-reflection, self-determination and self-development are carried out in the mental space. Mental transformations in the demographic subsystem are manifested in the change of value orientations. In accordance with the system of values that are conceptualized in modern development strategies the authors define the following models of Man: Economic Man, Socio-Economic Man (who lives in agglomeration centers and at the periphery), Socio-Natural Man (Environmental Man

and Householder Man) and Innovative Man. Demographic shifts are investigated in 83 Russian regions on the determinants of birth rate and mortality. The analyzed period of transformation covers 2005 and 2012. Methods of matrix analysis are used to visualize the process of demographic shifts. The assessment of transformation of the stratified regional space spheres is given on the basis of the multifactor models of the population natural growth rate. The paper reveals the reduction in the level and variation of mortality rate, the increasing importance and differentiation of regions according to fertility rate, and the effectiveness of introducing the institution of maternity capital from a perspective of the wide coverage of mentality types of Russia's population. When developing regional policy, the proposed research format takes into account not only the differentiation of socio-economic development of territories, but also the differences in the mentality of people, who live in large metropolitan areas and in the periphery.

Key words: transformation, natural population growth, institutional and mental space, model of Man, regions of Russia.

Human capital is the main driving force of economic growth under the current economic paradigm. Population size, as a quantitative characteristic of human capital, depends on the intensity of demographic changes and their trends, such as natural population increase, migration outflow and inflow.

The term "demographic transition" is more succinct as compared to "demographic change". The term "transformation" in its first meaning denotes "change" and "conversion" [17]. Transformation of biological (living) system involves the conversion (appearance of new traits in a transformant) resulting from the introduction of information. In accordance with the author's concept of stratified space, formed on the basis of the modern system and spatial paradigms, *demographic transformations of a regional system occur in the interrelated spheres of material, institutional and mental spaces* [9], while demographic changes are registered only in the material sphere. The structuring of space has been made in accordance with the types of communications developed by E. Jantsch [20] and system processes *(tab. 1)*.

Table 1. Characteristics of the concept of stratified space of a self-developing system

Types of communication	Authors' concept of stratified space		
	Spheres of space	Systemic processes	Processes of demographic subsystem
1. substance and energy exchangce	Material space	Self-production, self-renewal	Processes of fertility, mortality and migration
2. Information exchange	Institutional space	Self-regulation	Regulation of demographic processes on the basis of legislative acts and behavior patterns
3. Neuronic communications	Mental space	Self-reflection, self-determination, self-development	Formation of value orientations, strategic goals and motives

The study presented in the paper is relevant due to the fact the issue concerning the transformation of the multidimensional space of a self-organizing system is not developed enough, since it requires a synthesis of the knowledge of economics, management, sociology and other sciences.

Institutional transformations involves changing "the rules of the game" (D. North) by structuring the space and creating the field of motivation [10]. The paper considers institutional changes in the context of changes in the legislative regulation of the socio-economic situation, including the processes of natural population increase.

Mental transformations (in the demographic subsystem) are understood by the authors as a change of value orientations and motives by type of mentality of Man [12] with respect to the processes of fertility, mortality and migration of the population associated with changes in living conditions in the regions and their legal regulation.

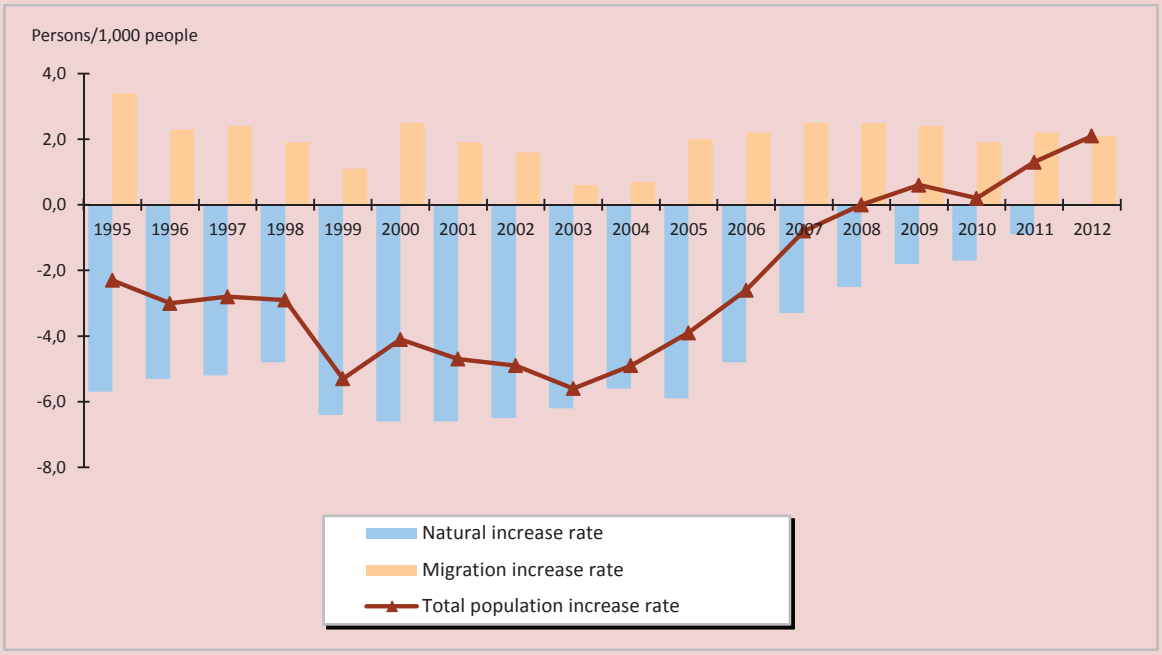
The change of value orientations is reflected in the concepts of development, theories and models of Man. Adam Smith studied "human motive, leading to the development of economy", based on the desire to "improve living conditions" [7, p. 725], that is why the concept of "Homo economicus" (economic Man) is associated with the name of the classic of economic theory. The authors consider that when studying mental transformations in the context of self-development of a system, the models of Man should be classified according to a system of values conceptualized in modern development strategies *(tab. 2)*.

Using official data of regional statistics [13, 15, 16], the paper considers demographic transformations in the ***material*** space (demographic changes). The diagram *(fig. 1)* shows that since 2005 the upward trend in the rate of natural increase has determined the general dynamics of population increase in Russia.

Table 2. System of values of models of Man

Model of Man	Values			
	economic	social	environmental	innovative
	Development concept			
	economic growth	human development	environmentally-oriented development	innovation development
	sustainable development			
1. Economic Man	+	-	-	-
2. Socio-Economic Man, who lives on the territory of	+	+	-	-
2.1. agglomeration centers	++	++	-	-
2.2. periphery	+	+	-	-
3. Socio-Natural Man	-	+	+	-
3.1. Environmental Man	-	-	+	-
3.2. Householder Man	-	+	-	-
4. Innovative Man	-	-	-	+

Figure 1. Dynamics of the rates of natural, migration and general population increase in 1995–2012



Source: Federal State Statistics Service [13, 16].

The study of the dynamics of population increase rates allows us to state that natural population decline was observed during the whole period under analysis. In 2000–2003 it was more than 6 people per 1,000 residents. In 1995–2012 the average value of mortality rate (14.8) exceeded birth rate (10.4) by 4.4 per mille.

Since the mid-2000s there has been a clear decreasing trend in natural population decline; this trend determined similar changes in the total population growth rate. If in 2005 the population of Russia decreased due to natural causes by 5.9 people (per 1,000 population), the by 2008 this figure has amounted to only 2.5 persons, which is equal to the level of migration increase. By 2012, the rate of natural population increase, or rather, decline, has reached the zero threshold for the first time during the study period. The gap between mortality and fertility formed in Russia in the 1990s was overcome in 2005, fertility rate was 10.2 children per 1,000 population and mortality rate was 16.1 people, and by 2012 it had risen to 13.3 people (given the reduction in the level of mortality to the same level). In 1995–2012 the average annual growth rate of fertility was 2.5%, and the average annual growth rate of mortality was 0.7%. Since 2005 the average annual growth rate of fertility has increased twofold and amounted to more than 5%. The number of deaths per 1,000

population in this period declines annually by 2.9%, which is four times higher than the average rate of change over the analyzed period.

Positive growth trends in birth rate in the Russian regions resulted from the transformation of ***institutional*** space. The field of motivations of the natural increase of human capital was formed after the Federal Law "On additional measures of state support of families with children" of December 29, 2006 No. 256-FZ entered into force. The impact of the institution of maternity capital was evident in the increase of birth rate. If in 2006 the growth of birth rate in Russia was less than 1%, then in 2007 and 2008 it increased to 16.5%, which is more than 8% annually. According to the authors, the motivational factors that increase birth rate and associated with the possibility of increasing the retirement savings of mother, improvement of housing conditions, obtaining education at the expense of maternity capital correspond to the mentality of a *Socio-Natural Man* [12].

The period for studying transformations in the format of a comparison of 2005 and 2012 was chosen mainly due to significant institutional changes in the social sphere, since in 2006 the federal target programs (FTP) for the development of education, social support of disabled people, etc., were launched. In addition, since the mid-2000s there have been changes in the direction and pace of demographic transformations in the material space (see fig. 1); this fact served as an additional point in favor of choosing 2005 as the starting point of this research. In 2012 the federal target programs "Prevention and control of socially significant diseases", "Improvement of road safety", "Social development of the village" and other programs were finished; this fact explains the logic of the analyzed period at the end of the next phase of institutional transformations.

The purpose of the study was to identify demographic transformations in the stratified regional space of Russia during the seven-year period. Methodological basis for the study of mental transformations was the research by the authors of the present article on justification of motive systems [11] according to the content theories of motivation by A. Maslow, K. Alderfer, D. McClelland, F. Herzberg and other scholars [8, 14, 19]. The demographic change determinants, such as fertility and mortality were studied with the help of multifactor models that were constructed for 83 subjects of the Russian Federation, and also with the help of matrix analysis methods. *Table 3* contains a set of indicators for creating parametric models of the coefficients of natural population increase.

The regression model of fertility rate (R_f) before institutional change (2005), which was obtained in the procedure "Regression/Linear" of the package IBM SPSS by eliminating 16 selected variables insignificant factors, included only eight factor characteristics that are the most significant from the point of view of statistical criteria of their importance:

Table 3. Factors-indicators of dependence of the coefficients of natural population increase in the regions

Need	Motivation factor	Factor-indicator
1. *Existence* 1.1. *Physiological:* food, clothes; housing; life environment. 1.2. *Safety and security:* social security; life safety.	Standard of living	Real average wages in % to subsistence level (X_1)
		Provision of population with new housing, m^2/person (X_2)
	Favorableness of life environment	Number of children per 100 places in children's pre-school institutions (X_{14})
		Morbidity per 1,000 population (X_3)
	Social security	Man-days of unemployment in % to economically active population (X_4)
		Real size of pensions in % to subsistence level (X_5)
	Physical safety	Number of registered crimes per 100 thousand people (X_6)
		Number of doctors per 10,000 population (X_{13})
1. *Communication:* relationship, being part of a social group	Opportunities of a society	Population density, persons/ km^2 (X_7)
		Number of theatre visitors per 1,000 population (X_{16})
	Infrastructure security	Motor road density, km/1,000 km^2 (X_8)
		Provision of population with communication services, thousand rubles/ person (X_9)
2. *Achievements* respect, self-expression, growth.	Competitiveness of productions	Export per capita, US dollars/person (X_{10})
		Proportion of Innovative enterprises, % (X_{11})
	Entrepreneurial environment	Proportion of workers of small enterprises in total employment, % (X_{12})
	Educational environment	Number of university students per 10,000 population (X_{15})

$$R_f^{2005} = 22.668 - 0.003x_3 + 0.12x_4 - $$
$$- 0.023x_5 - 0.011x_8 + 0.190x_{10} - 1.52x_{12} -$$
$$- 0.039x_{13} - 0.037x_{14}. \quad (1)$$

Based on the model obtained, we can state that independent variables correlate with the value system of a *socio-natural Man* who lives in *peripheral areas*, the main feature of which is remoteness from centers of socio-economic development. The level of development is characterized, as a rule, by the presence of good production infrastructure (X_8) and social infrastructure (x_{14}), by the degree of favorability of business environment (X_{12}) and the development of the services sector (X_{13}). Inverse relationship between birth rate and the observed factors in the model (1), the factors that have high standardized coefficients ($\beta(X_8)$ = -0.358; $\beta(X_{12})$ = -0.264; $\beta(x_{14})$ = -0.193; $\beta(X_{13})$ = -0.172), indicates the most intensive reproductive processes in peripheral areas. For instance, in 2005 birth rate in Chukotka was 15.3 per 1,000 population; in the Republic of Tyva – 19.7; in Moscow and in Saint Petersburg this figure was twice as low: 8.5 and 8.4, respectively.

Judging by the presence of a direct and close enough ($\beta(X_4)$=0.319) correlation between fertility rate and employment rate in the regions with high unemployment rate (X_4), against the background of

unfavorable business environment (X_{12}), the increase in fertility acts as an alternative to employment, which corresponds to the mentality of a *Householder Man*. The variable of person-days of unemployment as a percentage of economically active population is among the indicators that characterize the state and functioning of the labor market [4, 5]; this variable also takes into account the number of unemployed and the duration of job search in the regions. Elasticity coefficient for this feature makes up 0.72%. Real pension (X_5) also refers to the mentality of a Householder Man, but only for a pensioner (person past childbearing age). Naturally, pensioners choose to live in the regions where the level of social protection is high. Birth rate is lower in Russia's regions with high proportion of pensioners, that is why the relationship between the factor feature X_5 and the final variable in the model (1) is reverse.

There is a direct relationship between the mentality of an *Environmental Man* and fertility. Lower rates of natural population growth were observed in 2005 in the regions with unfavorable ecological environment and high level of morbidity (X_3).

The mentality of an *Economic Man,* whose rationality is manifested in an increased birth rate in the territories of competitive regions with a high share of exports per capita (X_{10}), had, judging by the β-coefficient (0.244), an average impact on the resulting indicator.

Table 4. Statistical criteria of quality and characteristics of multifactor dependencies of the natural growth rate of population in Russia's regions

Indicator	Acceptable value	Multifactor dependence of the coefficient			
		of fertility		of mortality	
		2005	2012	2005	2012
1. Criterion for assessing the quality of the model					
1.1. Regression coefficient (R)	≥ 0.7	0.759	0.798	0.827	0.840
1.2. Determination coefficient (R^2)	≥ 0.7	0.576	0.637	0.683	0.706
1.3. F-statistics	> 3.920 (when the number of degrees of freedom is 1 and (72–73) and significance rate is 0.05)	4.521	6.2421	7.335	9.006
1.4. Durbin–Watson statistic	≈ 2	1.809	1.704	1.359	1.440
2. Factor characteristics		(X_1, X_2, …, X_{16})			
2.1. Continuity of factors		X_4, X_5, X_8, X_{12}, X_{14}		X_4, X_6, X_8, X_9, X_{12}, X_{14}	
2.2. Transformations in factor characteristics		X_3, X_{10}, X_{13}	X_7, X_9, X_{11}, X_{15}	X_1, X_{10}, X_{13}, X_{15}	X_3, X_7

In general, the correlation (1) is adequate from the viewpoint of the quality criteria of the model. Multicollinearity of the variables is eliminated with the use of analysis procedure "Regression/Linear" in the package IBM SPSS. The value of the multiple regression coefficient (R=0.759) is close to unity, indicating a close relationship between fertility rate and the factors included in the model *(tab. 4)*.

This model, judging by the level of determination coefficient ($R^2 = 0.576$) explains 58% of the variation of the dependent variable. The calculated value of F-statistics (4.521) exceeds the critical value (3.9) when the number of degrees of freedom is 1 and 73. The value of the Durbin–Watson statistic (1.809) is close to 2.

Institutional change in Russia, which began in 2006–2007 and promoted the childbearing through the introduction of maternity capital, influenced demographic processes. The obtained multivariate dependence for 2012 is adequate from the viewpoint of all the quality criteria discussed above, and is comparable with the analogous dependence for the conditions of 2005 (1):

$$K_p^{2012} = 4.373 + 0.008x_4 - 0.015x_5 + \\ + 0.003x_7 - 0.007x_8 - 0.268x_9 + 0.157x_{11} - \\ - 0.228x_{12} + 0.170x_{14} - 0.006x_{15}. \quad (2)$$

The continuity of the multivariate dependencies of birth rate is provided by the factors X_4, X_5, X_8, X_{12} and X_{14}. "New information" is associated with the emergence of independent variables X_9 (provision with communication services) and X_{15} (educational services), which (along with X_8 and X_{12}) are the characteristics of socio-economic development. A marked increase in birth rate in the territories of the *peripheral type* is confirmed by an increase of the standardized coefficients of inverse influence factors (development of infrastructure in the territory X_8 and development of entrepreneurial environment X_{12}) to the level of 2012: β-coefficients of the mentioned indicators increased in modulus from 0.358 to 0.714 and from 0.264 to 0.325, respectively.

In general, with the introduction of the institution of maternity capital, the regional space of Russia experienced the following transformations.

First, as noted above, fertility increases in the regions with "production" periphery, where the network of roads is poor and the services sector is underdeveloped, etc. This trend is confirmed by the disappearance from the model of the factor (X_{10}) that reflects the competitiveness of the territory in the external market.

Secondly, there is a direct correlation between birth rate and "social" agglomeration factors. The standardized β-coefficient of the "new" population density factor (X_7) is 0.672 according to the model of 2012. Furthermore, there is a drift of social infrastructure factor (X_{14}) from the sphere of reverse influence to the sphere of direct and stronger influence on fertility (β-coefficient is 0.468).

Thirdly, the introduction of the institution of maternity capital had a positive impact on fertility in the regions with high level of innovation activity (X_{11}), which is of special interest. These regions include the Magadan Oblast, where the share of enterprises that implement innovations is 24.6%, and Kamchatka Krai (23.5%). This factor has a sufficient degree of influence, because the value of the standardized coefficient $\beta(X_{11})$ is 0.220.

This allows us to conclude that the impact of the mechanism of providing support to families under the Federal Law No. 256 introduced in 2007 was manifested in a wide range of types of mentality – from a *Household Man* to an *Innovative Man*. Regions with favorable entrepreneurial climate (X_{12}) and infrastructure ($X_{8,}$ $X_{9)}$, which are intellectual and educational centers (X_{15}), as the study has shown, are less susceptible to demographic transformations due to the introduction of the institute of maternity capital.

The growth of birth rate provided 70% of demographic change due to natural causes and more than 57% of the total growth of Russia's population for 1995–2012. The impact of mortality decrease was, respectively, 30% by rate of natural increase and more than 24% by total rate.

A research into demographic transformations that are connected with the natural decrease of the population was carried out by the authors on the basis of constructing a parametric model of mortality rate (R_m) according to the range of the above factor features ($X_{1,}$ $X_{2,}$ ..., X_{16}). The multifactor dependence for Russia's regions under consideration and for the conditions of 2005 is as follows:

$$R_m^{2005} = 18.171 - 0.023x_1 - 0.035x_4 + 0.001x_6 + 0.007x_8 - 0.825x_9 - - 0.257x_{10} + + 0.254x_{12} + 0.075x_{13} + + 0.048x_{14} - 0.012x_{15}. \quad (3)$$

There is a close relationship between the factor characteristics and the resulting indicator in the model under consideration (R=0.827); the model explains 68.3% of the total variance of mortality rates across Russia's regions in 2005. The calculated value of F-statistics (7.335) almost twice exceeds the critical value if the number of degrees of freedom is 1 and 72. Comparison of the calculated values of the quality criteria of the model (3) with critical values shows that the model can be assessed as adequate. Interpretation of the obtained dependence allows us to draw conclusions that natural population decrease is less in the regions that are centers of economic development and that have high real wages ($X_{1)}$, developed service sector (X_9), high level of exports per capita (X_{10}) and accumulation of intellectual capital with a high proportion of students (X_{15}). Such conditions shape mentality (and, as a consequence, lifestyle) of a *Socio-Economic Man, who lives in agglomerations* with low crime rate.

The rating of positive impact of agglomeration on reduction of mortality in Russia's regions in 2005 was as follows: 1) $\beta(X_{15}) = -0.456$; 2) $\beta(X_1) = -0.363$; 3) $\beta(X_9) = -0.251$; 4) $\beta(X_{10}) = -0.226$.

Economic development does not only have a positive influence on life expectancy, but it also has its negative consequences, as evidenced by the values of regression coefficients of the factors X_4, X_8 and X_{12} in the model (3).

First, negative impact of economic development is manifested in the increase of labor intensity. This, according to the authors, can explain the inverse relationship between the level of employment (X_4) and mortality rate. Many researchers point out the relationship between nature of work and the physical state of an individual [18]. The negative impact of life in regions with a high employment rate in 2005 was strong enough, because the standardized coefficient of the factor (X_4) was (-0.625). The fact that the indicator of availability of medical care (X_{13}) does not have a positive impact on reducing mortality in the regions and has, according to the dependence (3), an opposite sign of influence, proves the inadequate performance of the healthcare system in 2005 and it is an additional argument in favor of the necessity to reform the system. A positive correlation between the factor (x_{14}) and the resulting feature in the context of child mortality should be interpreted from the same standpoint.

Second, areas with a high level of socio-economic development are characterized by the high density of motor roads (X_8), which leads to increased mortality due to road accidents. The standardized factor coefficient ($\beta(X_8) = 0.142$) indicates a negative effect of density of roads on the dependent variable. It is no coincidence that it was necessary to develop and implement a Federal Target Program "Improvement of road traffic safety in 2006–2012".

Thirdly, regions with a high concentration of capital and the level of life have high crime rate (X_6). The significant influence of the factor ($\beta(X_6) = 0.244$) on mortality rate was caused not only by the proportion of serious crimes with fatal outcome, but also by the infliction of harm to the health of the regions' population. In 2005, the highest growth rate in the number of crimes were registered by the following types: robbery (137%), theft (123.2%), drug trafficking (116.8%) and economic crime (116.5%). In regions where small business develops successfully (X_{12}), there was an increased level of mortality with a high degree of influence of the factor ($\beta(X_{12}) = 0.302$). This situation demanded the improvement of the system of the institutions involved. The Federal Target Program "Development of judicial system of Russia" has been launched since 2007 for the purpose of crime reduction.

The multivariate dependence of mortality rate across the subjects of the Russian Federation for 2012 is as follows:

$$R_m^{2012} = 25.644 - 0.003x_3 - 0.007x_4 + 0.001x_6 - 0.002x_7 + 0.003x_8 - 0.487x_9 + 0.311x_{12} - 0.135x_{14}. \quad (4)$$

The obtained model with a multiple regression coefficient R=0.840 shows the close relationship between the mortality rate and factors included in the model and explainы 70.6% of the total variance of mortality rate in Russia's regions in 2012.

Continuity in the dependence (4) with relation to the dependence (3) is ensured by the inclusion of seven factors into it: X_4, X_6, X_8, X_7, X_9, X_{12} and X_{14}. In both models there is a multidirectional influence of the regions' socio-economic development indicators on mortality rate. This can be explained by the fact that, on the one hand, the development of the territory contributes to the formation of a lifestyle of a *Man living in agglomeration centers* (X_7) with a high share of the services sector (X_9, X_{14}), which has a positive impact on life expectancy and reduces mortality rate; on the other hand, in economically prosperous regions with a developed business environment (X_{12}) there is more crime (X_6), a greater number of victims of road accidents due to high density of roads (X_8), which leads to increased mortality in these areas. The negative impact of these factors on life expectancy during the study period (2005/2012) is not reduced, but even increased by a number of variables ($\beta(X_{12})$ = 0.302 / 0.467; $\beta(X_8)$ = 0.142 / 0.467, $\beta(X_6)$ = 0.244 / 0.244).

It should be noted that, in general for 2005–2012 the crime situation has improved: according to Rosstat, the total number of crimes has decreased by 35%. The proportion of thefts remained almost at the same level, having decreased for seven years from 44.2 to 43.1%. However, there has been an increase in the number and proportion of crimes related to drug trafficking. If in 2005, 175.2 thousand of such crimes (4.9% of the total) were registered, then in 2012 their number was 219 thousand (9.5%). The decrease in the absolute number of crimes, while maintaining the degree of their influence on reducing life expectancy indicates the inadequacy of the measures taken in relation to the pace of development of adverse trends.

Mental transformations of the demographic subsystem can be observed through the changes in the factors that determine the types of mentality, and the extent of their influence. First, the disappearance of the factors that reflect economic values (standard of living according to average wages X_1 and the level of competitiveness of industries by export X_{10}), given the emergence in the model (4) of a factor associated with an environment favorable for living (as measured by morbidity X_3), indicates the change in the value orientations that define the way of life and influence mortality. The mentality of a *Socio-Natural Man*, who represents the values of sustainable development, is embedded into the mentality of a *Socio-Economic Man*. The emergence of "new features" in a transformant can be attributed to the implementation of programs that promote healthy lifestyles and favorable environment (for example, the Federal Target Program "Reduction of risks and mitigation of consequences of emergency situations of natural and man-made nature in the Russian Federation up to 2010"). The reduction of adverse effects of high labor intensity on life expectancy (β-coefficient of the factor X_4 changes from (-0.625) in 2005 to (-0.158) in 2012) is interpreted by the authors as a result of raising the level of social standards in the society.

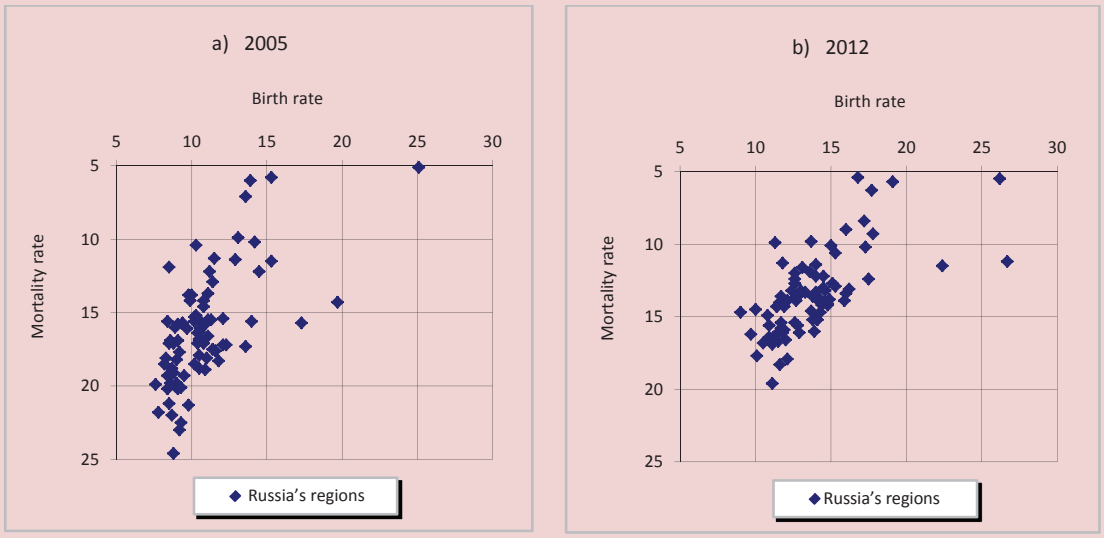
The study of demographic transformations involves the study not only of the changes in the level of fertility and mortality, but also an assessment of their convergence. The problem of regional differences related to the heterogeneity of the socio-economic environment of Russia's regions is the subject of many studies [2, 3, 6]. The study shows that the set of implemented measures aimed at improving the system of institutions did not eliminate the differentiation of the rates of natural population increase across the regions, which is due to considerable differences in mentality, conditions and way of life o f people living in agglomeration centers and peripheral areas *(fig. 2a, 2b)*.

The positioning of regions in the "Fertility–mortality" matrix makes it possible to observe favorable demographic shifts in RF subjects during the period under analysis the shifts are visible on both determinants of natural population increase. The variation of natural population growth rate reduces from 35.8 to 29.2 persons per 1,000 population. The mean square deviation of the parameter under study decreases from 6.1 to 5.6 per mille. As for mortality rate for 2005–2012, not only its average value across Russia's regions reduces by 16.3%, but also the variation coefficient – from 24.8 to 18.5% (to the basic values of 2005). According to the indicator of birth rate, which has increased by almost a third during the study period, the coefficient variation increases from 25.0% to 28.8%.

The study shows that demographic transformations that happened in 2005–2012 are characterized by the following:

1) *positive shifts* that manifested in the increase in the average rate of natural population increase from -5.9 people per 1,000 population of Russia to zero;

Figure 2. Determinants of natural population growth in Russia's regions



Source: Federal State Statistics Service [16].

2) *increase in the significance of fertility determinant* that provided 57% of change in total population increase and 70% of change in natural population increase;

3) *reduction in the variation of the rate of natural increase* for RF subjects by 18.4%, and reduction in the standard deviation by 8.1%;

4) *growth of regions' differentiation by fertility*, the variation coefficient of which has increased by 15.2%, and the standardized deviation has increased by 14.8%;

5) *efficiency of introducing the institution of maternity capital* from the standpoint of wide coverage of types of mentality of Russia's population, especially characteristic of peripheral areas;

6) *decrease in mortality* and *its variation coefficient* by 25.4% in *Russia's regions;*

7) *increasing importance of the influence that socio-economic development of RF subjects and mentality of Man living in peripheral areas* has on fertility; and increasing importance of the influence of the *mentality of Man living in agglomeration centers* – on mortality (including positive and negative effects).

Since modern regional policy is a complex mixture of different approaches, taking into account economic, social, demographic and other processes [1], the results obtained in the present study may be used by administrative agencies to assess more comprehensively the effectiveness of institutional transformations. In order to increase the growth rate of human capital as a criterion of successful management on the basis of self-development, it is necessary in the development of regional policy to consider not only the differentiation of socio-economic development of territories, but also the differences in mentality of the population living in large urban areas and in the periphery.

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Assessing the Level of Happiness: a Review of Russian and Foreign Research

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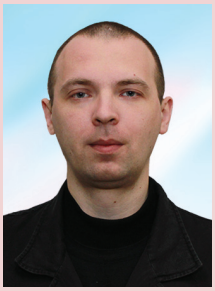

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Abstract. The article presents the main results of the first phase of the study launched in 2015 by ISEDT RAS researchers and aimed at assessing subjective satisfaction with the quality of life and its impact on social development. The article shows that subjective assessment of quality of life is a criterion for assessing the efficiency of public administration, an indicator of people's attitude toward economic, social and political decisions. The generalization of domestic and international experience serves as the basis proving that in the post-industrial economy the phenomenon of happiness is important as a goal of public administration and criterion for evaluating its effectiveness from the viewpoint of politicians, economists, sociologists and psychologists. The authors consider the main international and national indicators and ratings of happiness that help to carry out cross-country comparisons, and discuss their advantages and disadvantages. The disadvantages of index methodologies for assessing the level of happiness are as follows: the use of national averages without taking into account the uneven distribution of benefits and driving forces of spiritual and moral development of individuals; lack of opportunity to make prompt and regular calculations of the indices and to take into account the specifics of countries, cultural and ethnic differences. The integral indicator

does not even reflect problems highlighted by partial indices. The article also substantiates the necessity of using self-representative questionnaire methods as the most reliable sources of information about the level of people's subjective satisfaction with the quality of life, and highlights several methodological features of their application. The authors provide research findings by VTsIOM, RAS Institute of Sociology, and ISEDT RAS, which not only assess the level of happiness, but also identify a set of conditions affecting its formation: financial well-being, family relationships, satisfaction with one's profession.

Key words: happiness economics, subjective life satisfaction, well-being, methods of assessing the level of happiness, assessment of public administration efficiency, non-economic driving forces of economic growth.

Introduction

A common trend in the development of contemporary social science is its commitment to accuracy, to the quantitative expression of characteristics of the society and, at the same time, appeal to those sides of its life that have been usually ignored because they supposedly made an accurate quantitative analysis impossible. Happiness, which is an object of interest in a variety of socio-humanitarian disciplines, is one of such characteristics of social life.

Economics has even developed a research direction known as happiness economics. This trend largely overthrows the traditional logic of economic and social assessments, and places emphasis on subjective well-being, using it for evaluating the quality of objective conditions of people's lives, and the economy is considered from humanistic standpoint – as a tool to establish prosperity for society as a whole and for each person individually [20].

Happiness is a social and cultural phenomenon that combines a variety of aspects of social reality, each of which is important both for an individual and for society as a whole. Currently the world is forming a powerful intellectual movement associated with attempts to study happiness using scientific methods. The urgency of the problem is determined by the particular significance of the concept under consideration as a criterion for assessing the effectiveness of state decisions, as well as the demands of society arising out of the natural desire of every person to be happy and the necessity to improve social health and the quality of life.

If the policy pursued is ineffective, some groups of population feel social deprivation, and the level of their emotional comfort and happiness declines. Therefore, the main goal of social policy at both the state and municipal levels is to eliminate negative moments for different population groups.

In connection with the relevance of studying and using subjective assessments of the quality of life in research and managerial practice, ISEDT RAS begins a study of the issue of happiness. The study proposes to develop a scientifically grounded methodological approach to assessing the level of happiness, and to study the factors affecting it, to define the role of subjective life satisfaction in the social perception of socio-economic processes and public administration efficiency. The present article contains the main results of the first phase of the research, the purpose of which was to study and generalize the experience of foreign and domestic research on the subjective assessment of the quality of life.

The goal stated in the article, requires solving the following **tasks:**

✓ to consider the degree of scientific elaboration of the problems of using the happiness index as a criterion of the effectiveness of state decisions;

✓ to study methodological aspects and the application experience of various methods of assessing the level of happiness, to analyze their advantages and disadvantages for the purpose of development and scientific substantiation of the author's approach, which will subsequently be applied to further stages of the research;

In order to solve the tasks, let us consider the following.

1. Formation of a comprehensive scientific notion about the level of happiness as an indicator of social development and public administration efficiency.

Scientific understanding of happiness and its indicative capabilities

Back in 1968 Robert Kennedy said in his famous speech during a presidential election campaign: "Our Gross National Product counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwood and the loss of our natural wonder in chaotic sprawl... Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything in short, except that which makes life worthwhile" [31, p. 61].

Ruut Veenhoven, a Dutch sociologist and a pioneer and world authority on the scientific study of happiness, has contributed to a renewed interest in happiness as an aim for public policy. In his opinion, the level of happiness that people demonstrate, along with the level of health and well-being, is an important measurable indicator that shows the extent, to which a particular society is suitable and comfortable for human life [49]. He has shown that happiness can be used as a reliable measure to assess progress in societies [36]. Veenhoven is the founding director of the World Database of Happiness and a founding editor of the Journal of Happiness Studies. He has been described as "the godfather of happiness studies"[7] and "a leading authority on worldwide levels of happiness from country to country" [50].

According to Russian sociologist Pitirim Sorokin, it is inadmissible to ignore happiness and, at the same time, to exaggerate its significance: "All the criteria of progress, no matter how varied they are, imply and should include the principle of happiness" [25, p. 511].

Richard Layard, Professor at the London School of Economics, believes that the state should consider the pursuit of happiness to be the gold standard and the basis of all political decisions [10]. According to R. Layard, the happiness of citizens is the only performance indicator that the governments should consider when planning their policy; and to multiply wealth only makes sense if it helps increase people's happiness [10].

Psychologists support the opinions of economists and sociologists on the subject. M. Seligman argues that we are entering an

"economy of life satisfaction" that business success depends directly on the meaning of life and interpersonal relationships [23], and government policy should seek to multiply general well-being, and well-being can be used for evaluating its success and failure [ibidem, p. 122]. However, M. Seligman, like Kennedy, says ironically that GDP, the traditional performance indicator of economic policy, grows when a new prison is built, when people divorce, when there is a car accident or a suicide is committed, i.e. GDP growth is achieved by "multiplying misery".

Numerous studies confirm the fact that the greater welfare, the greater happiness – no matter what we compare: different countries or the population within a country, this fact will be evident. However, it turned out that the growth of life satisfaction is not always connected directly with the growth of welfare. This can be proved by the well-known Easterlin Paradox, named for the economist Richard Easterlin, who found that the growth of per capita income leads to increased happiness only up to a certain level and not more [41]. Here, the principle of "hedonistic wheel" works: "Demands are growing along with the growth of income and after the basic needs for well-being are satisfied, it is not absolute, but relative income level that is of great importance" [ibidem]. R. Layard believes that this threshold is 20,000 U.S. dollars of GDP per capita per year. In the countries that have passed this level, life satisfaction no longer grows, and sometimes even decreases [10].

The interest in this paradox has not been diminishing so far. In 2003 R. Veenhoven and M. Hagerty published a study refuting the Easterlin Paradox [44]. In 2008 B. Stevenson and J. Wolfers found that an increase in absolute income is clearly linked to a higher self-assessment of happiness. Cross-national studies, as well as national surveys, show that there is an almost linear dependence between happiness and the logarithm of income – and it is the same for the rich and the poor. E. Diener has also conducted extensive research, which resulted in the conclusion that the growth of income causes the growth of happiness, if the needs are growing slower than the income [40]. However, in 2010 Easterlin published a new study that involved 37 countries and confirmed his previous findings [42]. Thus, the question concerning the relationship between happiness and well-being remains open.

The insufficiency of economic factors, their ambiguous relationship with life satisfaction is manifested, for example, in the fact that, although the people in Western countries are on average four times better off than they were 40 years ago, their level of subjective well-being remains virtually unchanged, and the feeling of happiness in 37% of wealthy Americans is below average [39]. M. Argyle points out that so far the scientists "have been unable to understand why the great historical shifts in the mean level of income did not cause the increase in the degree of satisfaction and happiness. Probably, this fact can be explained by the growth of demands: if earlier people dreamed of having their own bike, then now they already want two cars" [1, p. 177].

We agree with the assertion that "subjective perception of life satisfaction objectively affects the social situation to a much greater extent than the actual state of affairs" [28, p. 136]; therefore, as S. V. Stepashin notes, "the satisfaction or

dissatisfaction of the population with their lives is an important indicator of internal stability of the society, of the level of public support of the government and institutions of power in general" [ibidem, p. 137]. Gradually, there comes an understanding that "surveys on happiness can serve as an important auxiliary tool for the formation of public policy" [ibidem]. Currently, according to a widespread opinion, the main difference between the so-called secondary modernization and primary modernization lies in the fact that its main task is no longer just the development of economy for satisfying people's needs, but the improvement of the quality of life for the satisfaction of their needs for happiness and self-expression [14].

Income growth cannot be directly converted into happiness. According to Alexander Dolgin, Professor at the Moscow Higher School of Economics, "the indicators such as the volume of GDP are being overemphasized. At the same time, the fact that intensive economic growth leads to emotional exhaustion is completely disregarded. Moreover, such growth deprives the next generation of some of its happiness by raising the bar of expectations. It is necessary to establish a system that can capture a subtle self-awareness of people, and capture it in dynamics, without averaging, in relation to the current situation and taking into account different social strata" [3].

Scientists in different fields of research tried to interpret the content of the phenomenon of happiness. P.S. Gurevich, A.F. Losev, Yu.M. Lotman, K. Neshev, V. Tatarkevich, S. S. Horuzhii studied the social and philosophical characteristics of the phenomenon of happiness.

S.G. Vorkachev, I.S. Gavrilova, A.A. Zaliznyak, I.B. Levontina, S.S. Neretina, B.A. Rybakov, I.V. Sidorenko, A.D. Shmelev, M. Fasmer considered the phenomenon of happiness from the sociolinguistic point of view.

The United States has been actively developing a research field of "positive psychology", the leading representatives of which are E. Diener, M. Csikszentmihalyi, M. Seligman, M. Argyle, D. Vaillant, D. Kahneman, D. Keltner, S. Murray, A. Recesky, M. Finchman, S. Hazan, L. Harker, G. Howard, and others.

One of the significant factors that determine an individual self-perception as a happy person is the developed "social intelligence" as an ability to manage and plan one's behavior adequately, to understand properly the assessment of one's own actions by other people. The idea of social intelligence (F. Vernon, J. Guilford, O.V. Luneva, A.I. Savenkov, M. Sullivan, E. Thorndike, D.V. Ushakov, M. Hendriks) is closely related to the concepts of emotional intelligence, developed by H. Eysenck, R. Baron, D. Goleman, D.V. Lusin, D. Mayer, P. Salovey.

Socio-economic research often associates happiness with the concept of "quality of life", which was studied by I.V. Bestuzhev-Lada, D. Bell, D. Gabor, J. Galbraith, L.A. Krivonosova, O. Toffler, and others.

Economists S.M. Guriev and E.V. Zhuravskaya considered happiness through the prism of life satisfaction and material needs, but the phenomenon of happiness is not reduced to these indicators only. Many researchers draw attention to the fact that the indicators of the level of happiness in different countries weakly correlate with

indicators of GDP level (R. Ammons, J. Horwitz, etc.).

Modern Russian researchers who study the phenomenon of happiness include I.A. Dzhidar'yan, E.L. Dubko, V.G. Ivanov, M. Mamardashvili, O.V. Mitina, V.F. Petrenko, B.I. Popov, I.V. Sidorenko, E.L. Smirnova, E.P. Pavlova, V.L. Titov, A.V. Yurevich, A.L. Zhuravlev. The latter two substantiated a view on the meaning of life (also in collective sense, "national idea") as one of the fundamental components of life satisfaction and happiness.

Thus, the problem of happiness, its measurement and use is developed in the works of researchers in various fields of social and humanitarian science. This determines the complex nature of the phenomenon under consideration, which is the key to any indicator of public administration efficiency. The relevance of studying happiness is connected with the need to improve the methodology of assessing the effectiveness of public administration and social development as a whole. Macroeconomic indicators that showed the performance efficiency of the policy pursued might work well in the industrial economy, but they are not enough in the postindustrial economy. Mathematical abstractions of economic theories, which are traditionally used by governments of most countries have little in common with the lives of real people; and today more and more scientists are beginning to think that countries should be compared not only by their strength and richness, but also by the happiness of their residents. Of course, GDP should not be abandoned when making cross-country comparisons and assessing the effectiveness of government decisions; but it is necessary to supplement this criterion with the subjective assessment of life quality satisfaction, since it will contribute to a more objective evaluation of the results of performance of public administration authorities and the country's readiness to transition to a new stage of modernization development.

Government initiatives in the use of the subjective well-being indicator as an alternative to GDP

No doubt, happiness is too ephemeral and difficult to assess; nevertheless, currently, the attempts are being made more often. A small kingdom of Bhutan is a pioneer in this respect: it replaced the conventional notion of gross domestic product with the so-called "gross national happiness" (GNH). The concept of gross national happiness involves measuring the quality of life in the balance between the material and the spiritual. This concept was introduced in 1972 by the king of Bhutan Jigme Dorji Wangchuk.

The government of Bhutan declared as its prime goal the pursuit of happiness of its every citizen; this principle is even enshrined in the Constitution: "The State shall strive to promote those conditions that will enable the pursuit of Gross National Happiness" [8]. Moreover, the government of Bhutan has requested assistance from Western economists to create a methodology for calculating GNH.

In 1998 the government of Bhutan adopted a new plan known as The Four Pillars of Gross National Happiness. Such "pillars" are: sustainable and equitable socio-economic development, conservation of the environment, preservation and promotion of culture, and good governance. According to the plan, these are the conditions, under

which it is possible to achieve happiness for every citizen of the country. These "four pillars" are divided into nine "domains of happiness": psychological well-being, ecological diversity and resilience, health, education, cultural diversity and resilience, standard of living, time use, community vitality, and good governance. The pillars and domains of happiness are measured by 72 indicators. For example, the domain of psychological well-being is analyzed by the following indicators: frequency of prayer and meditation; level of selfishness, envy, jealousy, composure, compassion, generosity, despair, thoughts of suicide. Once every two years all the indicators are revaluated by the method of a national survey [16].

July 19, 2011 the UN General Assembly, on the initiative of Bhutan and co-authored with more than 50 countries including France, the UK and Japan, adopted a resolution on "Happiness: a holistic approach to development", which recommends to use happiness as an indicator of development of every country [18]. At that, the UN Resolution encourages countries to undertake activities to develop their own methods to measure happiness, to represent them in the UN for the purpose of sharing experiences and creating a universal system for assessing the level of happiness.

One more attempt to find an alternative to GDP was undertaken in **France** in 2008. President Nicolas Sarkozy has established a special commission for assessing economic achievements and social progress chaired by Nobel Prize winners Amartya Sen (India) and Joseph Stiglitz (USA) well-known for their critical attitude toward conventional methods of economic management. The commission proposed to use the indicators of the quality of life such as development sustainability, security, political rights of people, condition of the environment, etc.

In 2009 Stiglitz and Sen published an article, in which they argued that the overestimation of the value of GDP dynamics has become one of the causes of the global financial crisis. Governments and economists have overlooked other equally important factors such as the social cost of unemployment or the uncontrolled lending, which increased the current growth rate of the economy to the detriment of tomorrow. According to the results of the work of the commission, President Sarkozy has proposed to introduce parameters such as happiness and accessibility of health services to assess the country's development and encouraged other countries to adopt the experience of France.

Currently there are several national indices calculated in the framework of one country according to specific methodologies [22]. In late 2010 the **UK** government allocated two million pounds for the assessment of the happiness index, which, according to David Cameron, should complement traditional statistical indicators. The happiness index in the UK was measured with the use of an opinion poll, during which the respondents were to answer a series of questions, including the following: "To what extent are you happy with your life, how happy were you yesterday, how big is the feeling that your life is not meaningless?", etc. Assessing the results of the initial surveys, The Independent newspaper has come to the conclusion that the basis of a positive sense of self-sentiment, from the viewpoint of the British, regardless of age, is good health, harmonious relationships and job satisfaction [11].

The government of **China** decided to introduce its own happiness index in 2011. It is calculated on the basis of 16 indicators that include traditional economic indicators and also some very unusual indicators. The index takes into account expenditures on research, education, culture and sport. In addition, it considers the amount of floor space per person, the number of doctors per thousand inhabitants, the area of green space and even the ratio of carbon emissions to GDP. According to Chinese Prime Minister Wen Jiabao, the performance efficiency of an official should be assessed by the degree of happiness of the people under his/her control rather than by the number of skyscrapers built. The happiness index is already used in Henan Province for evaluating the work of officials, and several of them have even been demonstratively dismissed. [30].

Thus, we see that the study and use of phenomenon such as happiness, is of interest not only to representatives of fundamental science, but also to public administration officials. Numerous attempts of governments of various countries to find a universal way to measure happiness and use the results to evaluate public administration efficiency form a separate area of theoretical and practical activity, which is becoming increasingly difficult to ignore due to the evolution of social development and complexity of social structure. There is no or, perhaps, should not be any uniform methodology for measuring happiness, but we think that the effort to create such a methodology is an important factor in enhancing the efficiency of interaction between the society and the government in any country.

2. Methods for subjective assessment of satisfaction with the quality of life.

Index methods for assessing the level of happiness

Various happiness indices are calculated by many international organizations and research centers that use a wide range of methodologies. The **Human Development Index** (HDI) has become the most famous and most widely recognized alternative to GDP. The HDI includes GDP per capita as its integral part, and also other indicators such as access to education, life expectancy and so on.

Analysts from the United Nations Development Program (UNDP) annually calculate the HDI in collaboration with a group of independent international experts. Statistical data of national institutions and international organizations are used along with analytical developments to determine the index. The UNDP reports on the research findings have been published since 1990 [19].

Many factors are taken into consideration when the rating is compiled: in particular, the situation in the field of human rights and civil liberties, the opportunity to participate in public life, social security, the degree of territorial and social mobility of the population, the indicators of the level of cultural development, access to information, health, crime, etc.

According to the results of the study carried out in 2011, Norway ranks first, followed by Australia, and then – the Netherlands. Russia ranks 66th.

For all its advantages, the HDI has a number of disadvantages: for example, it relies on national average indicators that do not reflect the asymmetry in the distribution

of benefits; in addition, environmental factors and spiritual and moral development issues are not taken into account. Therefore, despite the comprehensive approach, taking into account many indicators used in calculating the HDI, the attempts are made to improve this methodology and find the optimal and universal method of measuring happiness.

Another such attempt was made in 2006. The New Economics Foundation, the UK's leading think tank, has developed a global index of happiness (**the Happy Planet Index**) in cooperation with some international organizations and independent experts. It is a combined indicator that measures the achievements of individual countries and regions from the viewpoint of their ability to provide a happy life for their citizens. The index is based on the assumptions that an individual a priori desires to live a long life, free from suffering and deprivation, and that the government focuses on maximizing the welfare of its citizens, including the reasonable use and protection of the environment. These assumptions produce three main components used in calculating the index: subjective life satisfaction, life expectancy, and environmental condition assessed by the size of biologically productive areas per person. In other words, the main purpose of compiling this index lies in evaluating the effectiveness of government policy that concerns the country's natural resources and the welfare of its people [37].

The main goal pursued by the creators of the Happy Planet Index was to determine the efficiency with which countries use economic growth and natural resources to ensure a happy life for their citizens [18].

Costa Rica, a small country in Central America was considered the happiest country in 2012: its Happy Planet Index was 64 points. It is interesting to note that nine out of the top ten countries in the ranking are representatives of Latin America. Major developed countries are much lower on the list, primarily due to the negative impact on the environment. Russia ranks 122 (its Happy Planet Index is 34 points). Botswana is at the bottom of the list with the index of 22 points.

According to Saamah Abdallah, Senior Researcher at NEF, "countries like Costa Rica outstripped the UK by the Happy Planet Index because their people live happily using only a small share of resources that we consume" [26].

The authors of the study recognize that the Happy Planet Index has its shortcomings. Countries that are at the top of the rankings can experience some problems. In particular, the index does not take into account human rights violations. Moreover, the people whose rights are violated to the greatest extent, are in the minority, and this has almost no influence on average indicators [37].

The Organization for Economic Cooperation and Development calculates its own **"Better Life Index"** since 2011. The ranking of countries is compiled on the basis of official statistics and the Gallup Institute surveys according to 11 parameters: income, housing, jobs, environment, education, work-life balance, safety, life satisfaction, civic engagement, health, and community. Each of the sub-indices was given equal weight in the basic model [36]. Initially the index covered only the OECD countries, but since 2012 it includes Russia

and Brazil. According to the latest data, the top of the rating is occupied by Norway, the USA, Denmark, Canada, Switzerland, the Netherlands, New Zealand, and Luxembourg, and Australia ranks first. The unemployment rate in this country in April 2012 was around 5% (in Europe – 10.9% in the U.S. – 8.1%). Besides, Australia's economy is developing rapidly, largely due to the growth in demand for iron ore and coal. The Australians have no serious health problems – 85% of the respondents said that they felt excellent. The Australians have enough free time for leisure and family – about 3 hours a day; this is a relatively high indicator [24].

Russia scored less than 50 points out of 110. The Russians are less satisfied with their lives (60%) than an average resident of an OECD member state (72%), the indicator is lower only in Portugal and Hungary. Life expectancy in Russia at the time of the study was 69 years, which was the lowest indicator among all the participants [9]. It is noteworthy that when defining conditions for "better life", most Russians give priority to education and work, civil rights turned out on one of the last places. Meanwhile, people in the West are currently concerned, primarily, with life satisfaction; they put education on the second place, and health – on the third [5].

We can also point out numerous rankings of happy countries based on the results of population surveys and compiled with the use of a wide variety of methodologies. The **Well-Being Index** is the most famous of them; its methodology was developed by Nobel laureate, psychologist and sociologist Daniel Kahneman. The index uses the Gallup World Poll data as a source. Several indices are used in the calculation: indices of personal health, optimism, basic needs of society, civic engagement, trust in national institutions, youth development, corruption, and several others. The study is based on national surveys that have a basic set of questions common to all countries. People answered a number of questions on the issues related to accommodation, food, law and order, personal economic situation, health, trust in national institutions, etc. Three groups were defined as a result of the survey: "the suffering" (whose level of satisfaction is low), "the struggling" (whose level of satisfaction is average) and "the thriving" (who are highly satisfied with their life). The percentage ratio of these groups forms the basis for ranking the countries [32]. About a thousand people aged over 15 were interviewed in each country. According to the results of 2011, the rating was headed by the Danish – it is Denmark that has 74% of the representatives of the first group ("the thriving") [ibidem].

In general, the Nordic countries are usually at the top of the rankings compiled on the basis of many similar studies. According to some experts, this is due primarily to the fact that life in these countries is built on the principles of social democracy, community, and engagement in the processes of government and social administration. For example, 78% of the respondents in Denmark consider social inequality the greatest evil (in Russia this figure is only 30%). Denmark with its population of 5.5 million people has more than 300 thousand various unions and associations [21].

The level of well-being is sufficient in Canada, Sweden, the Netherlands, and

Israel. As for the unhappiest country in the world, according to this ranking, it is Cambodia, where "the thriving" comprise only 2%, and "the suffering" – 26%. Not more than 5% of the residents in Laos, Afghanistan, Nepal and Tajikistan feel happy. The share of "the thriving" in Russia is slightly below the world average and comprises 22% [17].

The survey data, which were obtained during the calculation of the Well-Being Index and other similar studies, can be an effective tool for modelling forecasts. For instance, in 2008–2010 the share of "the thriving" in Egypt declined from 29 to 11%, and in Tunisia – from 24 to 14%. The situation in Algeria was about the same. These indicators were clear signs of the problems in the country, calling on the Egyptian and Tunisian authorities to undertake urgent efforts. But the government is usually concerned primarily with GDP, and in this respect, everything was going on well: the GDP of Egypt in 2009–2010 grew on average by 5%, in Tunisia – by 3–3.5%. However, the level of life satisfaction was declining so dramatically that both countries had to face a social explosion [2].

In January 2012 the Gallup Research Center published the Happy Planet Index 2012 [19]. The residents of Latin America turned out to be the happiest (eight countries out of the top ten); as for Russia, it ranked 121st.

About 1,000 people were interviewed in each of the 148 countries. It has turned out that the happiest people live in Panama, Paraguay and El Salvador – these three countries topped the rating. The share of happy people in Singapore was only 46%, in Armenia – 49%, and in Iraq – 50%.

The researchers were surprised by the results of the survey: it is not unusual that the standard of living in Panama, a developed country, is comparable to that in Europe; but the standard of living in El Salvador, Uruguay and Venezuela is very far from international standards. Scientists explain this by the people's mentality that was formed historically in these countries: the people are able to find joy not in material benefits, but in moral satisfaction.

However, according to another poll, the Global Barometer of Hope and Despair, conducted annually by Gallup in 58–65 countries in the same period of time, the top five happiest countries included Fiji, Nigeria, the Netherlands, Switzerland, and Ghana (82 to 89% of the population of these countries consider themselves happy). Fifty-three percent of people around the world consider themselves happy and 13% – unhappy. Many people were not ready to say whether they were happy or unhappy and they answered "neither happy nor unhappy". The proportion of such respondents in Russia is 42%, the proportion of happy residents is 39%, and the share of those who consider themselves unhappy is 8%. In 2011 Russia ranked 40th among the 58 countries participating in the survey [6]. At the end of 2014 Russia was already on the 16th place, next to Brazil and Poland [7]. Obviously, these striking changes were associated with the events that took place in the country in the past year: the Olympic Games, the accession of the Republic of Crimea to the Russian Federation, and the general rise of patriotism.

In the summer of 2012 the monitoring agency NewsEffector and the Fund for Regional Studies "Regions of Russia"

carried out a joint research **"The Happiness Index of Russian Cities"**. The survey involved 26,900 people from 100 largest Russian cities. The research shows that the happiest people live in Grozny, Tyumen, Kazan, Surgut, Krasnodar, Sochi, Nizhnevartovsk, Novorossiysk and Belgorod. Moscow ranks 52nd, Saint Petersburg – 16th, Yekaterinburg – 49th [15].

The analysts have concluded that the level of material well-being is a significant, but not a decisive factor influencing the happiness of Russian people. The environment, the level of security and the feeling of change for the better are no less important. It is the feeling of change that has put Grozny at the top of the ranking. But as for Moscow, despite its high level of income and a good level of urban development, the city showed very poor results according to parameters such as ecology and the sense of security, which, in general, had a negative impact on the final index of happiness.

There are hundreds of different studies of happiness indices in the world. Each of them has its advantages and disadvantages, but no method can be considered absolutely reliable. Different ratings of the "happiest countries", compiled at the same time, have different states on top: from Paraguay to Norway. According to E.N. Strizhakova, Ph.D. in Economics, the index methodologies for assessing the level of happiness can be divided into two large groups: the first group considers welfare as one of the main indicators and at the same time does not consider the opinion of people; the second group is based on the self-awareness of people and on objective indicators. The first group includes the Human Development Index, the Inequality-adjusted Human Development Index, the Gender Inequality Index, the Gender-related Development Index, the Multidimensional Poverty Index, V. G. Sadikov and G. M. Samostroenko's index of harmonious development, the Modified Human Development Index, the index of socialization of human capital, the crisis index of the quality of life, the index of the harmonious development of regions proposed by N.A. Shibaeva. The author includes the following indicators in the second group: S. A. Ayvazyan's index of the quality of life, Better Life Index, Gross National Happiness, the Satisfaction with Life Index, the quality-of-life index, the index of happy life years and the Happy Planet Index [29].

Both groups of methods have a common drawback: the final integral indicator does not reflect the problems highlighted by particular indices; therefore, in our opinion, none of the indices taken separately can be used for evaluating the current status of a country in the world.

We add that the index method of assessing the level of happiness has two serious drawbacks besides the ones mentioned above. First, it does not take into account specific features of the country, its cultural and ethnic differences that have a significant impact on public consciousness and on the level of happiness. Moreover, the characteristics that appear to be universal, can in fact be very relative in different countries, they can be perceived differently depending on historical and cultural experience, current socio-economic situation and so on.

Another problem is that all these alternative indices cannot be calculated as promptly and regularly as GDP. So far there

is no single and generally accepted methodology for studying happiness, and the question of what happiness is and how to measure it is still open. Currently there are only 15 scientific definitions of the term "happiness" [34]; such a conclusion has been made after analyzing the sections "happiness economics" in the journal "Science and life" and analyzing the reports in publications such as "New Scientist" (UK), "Geo", "Natur + Kosmos" and "VDI-Nachrichten" (Germany), "American Scientist", "Discover" and "Popular Science" (USA), "Recherche", "Science et Vie" and "Sciences et Avenir" (France).

We consider the very idea of compiling the indexes out of several components to be another significant disadvantage. There is no reliable enough reason to believe that one or another component of the index has the value assigned to it by the researchers. The same applies to various kinds of proportions and relations of fractions. In fact, all this dramatically reduces the validity of the results obtained and provides good opportunities for manipulating the totals. The result obtained on the same data may vary diametrically depending on the input characteristics for the calculation of the index.

As we see, the above disadvantages of the index methods of measuring happiness are sufficient to ensure that the study be based primarily on the results of sociological surveys, which are successfully used in the Russian and world practice of scientific research into life satisfaction.

Survey methods for assessing the level of happiness

Survey methodologies are considered the most effective in the assessment of happiness. The earliest questionnaire survey devoted to happiness was conducted by American psychologist J.B. Watson back in the early 20th century. Later the subject was developed by E.L. Thorndike (1940s), Andrews and Withey (1976), Campbell and co-authors (1976). Fordyce developed the Happiness Measure in 1988; Brandtstädter created the questionnaire "Affective balance" in 1991; and Diener created the Satisfaction with Life Scale (SWLS) in 1996. These methodologies, according to Argyle, are the most representative and valid methods of assessing the level of happiness along with the Oxford Happiness Inventory; Argyle et al., 1989) [1].

Russia also has its own methods of measuring happiness. **VTsIOM** (the Russian Public Opinion Research Center) has published the latest data: 1,600 persons in 138 settlements of 46 regions of the Russian Federation were questioned in November 2014 [12]. It is interesting to compare this data with the results of a similar survey conducted in 1992.

Seventy-six percent of our fellow citizens consider themselves to be generally happy. The happiness index[1] is 59 points. Young people (88% aged 18–24) and those who study in universities (86%) usually assess their spiritual condition more positively than the people of retirement age (64%) and the poorly educated (61%). The social happiness

[1] The happiness index shows how happy the Russians feel. The index is based on the question: "Good and bad things happen in life. But generally speaking, are you happy or unhappy?» It is calculated as the difference between the sum of positive answers ("definitely yes", "probably yes") and negative answers ("probably not", "definitely not"). The index is measured in points and can range from -100 to 100. The higher the index value, the happier the Russians feel.

index[2] is 59 points. It is mostly the family, relatives and close friends that bring joy for 40% of the respondents. Unhappiness is associated primarily with poverty, low standard of living (17%), diseases and poor health (9%).

At present, 25% of the respondents point out that they are definitely happy (the figure was 2% 20 years ago), and 51% admitted that they are sooner happy than unhappy. In 1992 there were only 40% of those who thought that way.

Three percent of the Russians consider themselves very unhappy; 20 years ago only 5% of the respondents chose this answer. Those who consider themselves sooner unhappy than happy comprise 14% in Russia today; it is two times less than in the early 1990s.

The Institute of Sociology of the Russian Academy of Sciences in its study "Social inequality and value orientations of the Russians" [27] also addresses the issue of happiness. It has been revealed that under the current conditions of total expansion of "market" values the Russians see the meaning of life not as much in enrichment as in harmony, family and good education. A truly universal purpose in life for the Russians is "happiness of affection", i.e. communication and mutual understanding between the loved ones (family and friends), and also the joy of having a favorite occupation, which allows an individual to "put his/her heart into it". The proportion of respondents who said they did not think about achieving such goals is very small – not more than 4–6%. In addition, the vast majority of the Russians did not want to act against their conscience (determination to "live an honest life").

ISEDT RAS in 2012 carried out a research on the level of happiness in the Vologda Oblast[3] [13, 33]. The research helped to determine the share of the region's residents, who feel happy (65%), and to identify some of the factors influencing the formation of positive emotions and feelings of happiness in people, namely, a set of conditions, including the level of financial well-being, the nature of family relationships, work satisfaction, etc.

The analysis of socio-demographic and socio-economic characteristics of the respondents has shown that the representatives of the following population groups more often consider themselves happy: people aged 30–55 (44%), urban residents (55%), people with higher or incomplete higher education (41%), employed working-age people (70%),

[2] The social happiness index shows what people – happy or unhappy - prevail in the environment of respondents. The index is based on the question: "In your opinion, are there more happy or unhappy people among your acquaintances and relatives?" The answer "probably there are more those who are happy" is assigned a coefficient of 0.9, the answer "the share of happy and unhappy people is about the same" is given a coefficient of 0.5, the answer "probably there are more those who are unhappy" is assigned a coefficient of 0.1. The index is measured in points and can take a value from 10 to 90. The higher the index value, the happier the Russians consider their fellow countrymen to be.

[3] Methodological basis of research is the mass sociological survey of the Vologda Oblast population, conducted with the use of representative regional sample. The sample consisted of 1,500 respondents aged over 18. The representativeness of sociological information was provided by the use of the model of multistage zoned sampling with the quota selection of observation units at the last stage. Zoning was carried out by constituencies – it is the first stage of sampling. The second stage included the allocation of typical subjects of the Vologda Oblast, such as the cities of Vologda and Cherepovets, Babaevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Kirillovsky, Nikolsky, Tarnogsky and Sheksninsky districts. The third stage is territorial zoning within the selected entities. The fourth stage is the direct selection of respondents according to the quotas set by sex and age. Sampling error does not exceed 5%.

married couples who live together (58%), having one child (25%). "Happy" people much more seldom identify themselves as "poor" and "extremely poor" compared to the rest of the population; and they describe their financial situation more positively, they are less concerned with economic issues, they have a higher purchasing power of income. Moreover, happy people are less prone to conflict and more tolerant than the less happy. The negative supply of patience among those who do not feel happy is three times more than among those who consider themselves happy (36 and 11% respectively). The research has shown that in order to maintain a high level of happiness, it is necessary to create conditions for improving the social status and realization of personal potential of individuals in the society.

Philosophical and scientific debate concerned not only the definition of happiness. There were heated discussions as to whether happiness could be measured at all, and if so, then in what way. Therefore, let us focus on some methodological aspects of assessing the level of happiness through a sociological survey. In particular, researchers were interested in whether it is possible to measure happiness objectively by using questionnaires, or we can get only subjective indicators. Is the questionnaire the only method of assessment? Finally, it remains unclear whether the respondents really have an idea of a certain level of satisfaction/ positive perception of their own lives, and whether their answers are an adequate reflection of this view.

According to R. Veenhoven, the great part of empirical research on these issues provides an answer to these questions [49]. First, it indicates that objective measurement in the social sciences differs from that in exact sciences, and measuring the level of happiness can never be equivalent to measuring temperature, for instance. The reason for this lies in the fact that the actual perception of life is only partly reflected in the social behavior of an individual. Moreover, the attributes of happiness such as, for example, joyful appearance, of course, are more common among happy people, but they can be found in unhappy people as well. Even body language is not the most reliable indicator [46]. Therefore, observation as a method for measuring happiness is not very reliable.

Another method is the respondent's evaluation of the level of his/her personal happiness, which is expressed in various kinds of questions, both direct and indirect, during the anonymous survey or personal interview. Although many scientists doubted the validity of this method, empirical studies have shown that it is sufficiently reliable [48]. The presence of respondents' own opinion on their perception of life in general is leveled by the fairly stable distribution of responses of people about their life satisfaction, in case if they are at least partly tied to a specific time interval (e.g. week, as in the study carried out by P. Shaver and J. Freedman [43]), as for the standard approved responses, on the contrary, they are rare. There is a quite common and stereotypical view that people consider themselves happier than they really are; however, in practice it is not confirmed [49].

The susceptibility of happiness to situational influences – the wording of the question, the mood, the weather, morning news, etc. is another important aspect to be considered when assessing happiness.

It is one of few serious shortcomings in the assessment of happiness, which has been identified and substantiated in the course of many empirical studies. However, as practice shows, these shifts in the measurements are random error and they are actually smoothed over when the sample size is big [47].

There is a more systematic measurement error. It is caused directly by the wording of a question, answer options, or a special sequence of topics in an interview – in other words, by incompetently designed research tools. On the one hand, even those who have a certain idea about their own level of happiness are not always able to correlate it with the ten-point scale; hence, their answers may vary, even if the level of happiness is stable. On the other hand, the process of analyzing the results already obtained also depends on the researcher's subjective perception. Thus, there is a risk of double distortion of the data.

An important assumption that acts a necessary condition for large-scale studies of happiness is the assumption that the indicators of level of happiness of different people are comparable, i.e. how equal we consider them to be from the viewpoint of perception and assessment of happiness. The issue is complicated; nevertheless, it is important for any research. Is it really true that a Swede or a Danish, who, ceteris paribus, consistently shows lower levels of happiness than a Greek or a Spaniard, is more unhappy? Or it is just natural for him/her to answer with reserve because of cultural or individual characteristics? It seems much more likely that the answer of the one relates to the other with a certain proportion, the exact value of which is extremely difficult to calculate.

John Harsanyi put forward this problem in 1955 in the framework of economic research on the individual utility of various benefits [45]. He described this difficulty as metaphysical and cautioned against using self-representative estimates for comparative analysis. However, many of the above-described problems recede into the background and become virtually insignificant under the transition from the individual level of comparison to the group level [32].

Thus, having analyzed the history of the formation of the opinion on subjective satisfaction with the quality of life and having studied the level of happiness as one of the criteria for assessing the efficiency of government decisions, we can draw the following conclusions.

1. GDP is still the main and most developed criterion of economic development of a country. However, according to well-known politicians, economists, sociologists and psychologists, GDP can grow at the expense of "the growth of miseries". The question about the linear dependence of happiness on welfare remains open. It is proved that the subjective perception of life satisfaction affects the social situation more objectively than the real state of affairs. In this regard, the scientific community more and more often raises the question concerning the inadequacy of the use of purely economic indicators to assess the performance efficiency and effectiveness of various social and economic activities. The significance of the level of happiness of the population, as an alternative indicator to the gross domestic product and as a criterion for assessing public administration efficiency is recognized by politicians, sociologists, economists and psychologists around the

world. Gradually comes the realization that "the surveys on happiness can be an important auxiliary tool for the formation of social policy".

2. The question of choosing a method for assessing the level of happiness remains acute. Currently there are many different indices and rankings of happiness, which are used in cross-country comparisons, and in numerous questionnaire surveys of the population, allowing for a more in-depth study of this issue.

The areas that are investigated in the framework of various index methodologies are usually as follows: economic development, environmental protection, promotion of national culture, public administration efficiency, development sustainability, security, political rights of people, the environment, access to the services of social institutions, expenditure on scientific research, education, culture and sport, people's ability to participate in public life, the degree of territorial and social mobility of population, etc.

The analysis of the experience of practical application of index methodologies for assessing the level of happiness allows us to come to a conclusion that this approach has significant drawbacks. Primarily these include the following.

• The integral indicator does not reflect the problems in the directions of particular indices, that is why none of the indices can be used on its own for assessing the status of a country in the world.

• It does not take into account the specifics of countries, cultural and ethnic differences, historical experience and the current situation in the country.

• Happiness indices cannot be calculated as promptly and regularly as GDP.

• There is no sufficiently reliable reason to believe that one or another component of the index has precisely the very value assigned to it by researchers.

• Index methods to assess the level of happiness are most often based on national averages that do not reflect the asymmetry in the distribution of benefits, and do not take into account some factors and issues of spiritual and moral development of man.

As a result of these disadvantages, different ratings of "happy countries", compiled at the same time, have different countries at the top – from Paraguay to Norway.

Consequently, the survey methods, although they have difficulties in using and interpreting the results, serve as a more reliable source of information on subjective life satisfaction than the approaches based on the creation of indices. Therefore, when carrying out further research on happiness, ISEDT RAS associates plan to focus their attention on subjective estimates that people give concerning their social well-being and social perception.

Alternative indices and happiness indicators perform a supporting function in relation to GDP, but they are yet unable to replace it completely. But the very fact that in recent years a serious intellectual movement has been formed with the aim of studying happiness using scientific methods proves the importance of this issue and the growing interest on the part of society, science and authorities.

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ECONOMICS OF THE AGRO-INDUSTRIAL COMPLEX

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Main Directions for Accelerating Modernization in the Agricultural Sector in the Rural Periphery of the North (Case Study of the Komi Republic)*

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Abstract. Agricultural production in the rural periphery of the North requires modernization because it is necessary to overcome the backwardness of its technical and technological level, to improve the provision of the population with local food products, to create competitive advantages in the local and regional markets, to use natural and human capital rationally, to raise the standard of living and quality of life of agricultural workers, to retain young people in rural areas, to reduce significant differentiation in socio-economic development of remote and suburban areas. The period of market reforms was marked by the destruction of the material-technical base of agriculture, the sharp reduction in cultivated agricultural land, number of animals, number of workers, the deterioration of their professional level and quality of life, the decline in production of all kinds of agricultural products. In the period of market reforms the facilities and infrastructure basis of agriculture was destroyed, the volume of cultivated land reduced greatly, as well as the population of livestock, and the number of employees; their professional level and quality of life deteriorated, the production of all kinds of agricultural products reduced. Agriculture was deprived of possible technological re-equipment because of prices liberalization, the drastic reduction in state support and in the amount of investments. The article proves that current views on the lack of prospects for development of agricultural production in the rural periphery and the reorientation of rural residents on other activities are not acceptable. The authors point out the need to accelerate modernization in agriculture, and they conclude that sustainable agricultural and rural development is a long-term priority for the state and municipal authorities. The article considers the possibilities and necessity of intensifying modernization processes in the agricultural production of the rural periphery for the purpose of establishing food security in the northern region. The authors suggest ways and mechanisms to modernize agriculture in the peripheral areas of the Komi Republic that are connected with the improvement of living conditions of peasants, with staffing, scientific-information and advisory support, and with the creation of an effective system of state support. The research findings presented in the paper can be used for adjusting the current State Program for Development of Agro-Food Sector, as well as the similar program for the Komi Republic for 2021–2025.

Key words: modernization, agriculture, peripheral areas, Komi Republic, factors, conditions, state regulation mechanisms.

A retrospective analysis of modernization processes in the agriculture of peripheral regions of the Komi Republic has shown that these processes were actively developing in 1960s–1980s. In the period of market reforms the facilities and infrastructure basis of agriculture was destroyed, the volume of cultivated land reduced greatly, as well as the population of livestock, and the number of employees; their professional level and quality of life deteriorated, the production of all kinds of agricultural products reduced [4, 9]. At present, the majority of agricultural enterprises and peasant (farm) enterprises in remote territories have lost their economic and social sustainability. Current trends in the agricultural sector can lead to its elimination and to the abandonment of rural areas that were inhabited for centuries.

The present article is an attempt to substantiate the main directions of promotion of modernization processes in

the agricultural production of the rural periphery in the northern region.

The need for modernization of the agricultural sector in peripheral rural areas

The peripheral position as a scientific category is versatile, that is why it is studied from the viewpoint of different concepts: developmental, rental, managerial, diffuse-innovation, and deprivation [2]. The following districts: Ust-Tsilemsky, Izhemsky, Udorsky, Troitsko-Pechorsky, Ust-Kulomsky and Koygorodsky are classified as peripheral rural territories according to the comprehensive assessment of periphery status of the Komi Republic, executed by T.E. Dmitrieva [1].

Today, the mass media and some scientists share a common opinion that there are no prospects for agricultural production in the rural periphery and that there is a need to create large agricultural enterprises in suburban areas. It is recommended to use the fly-in fly-out employment schemes to cultivate agricultural land in peripheral rural areas or to reorient local employment from agricultural to alternative activities. Of course, major agro-industrial enterprises should be developed. But if we talk about priorities, this question is debatable. First of all it is necessary to develop the relations between agriculture and the production of safe-health products.

T. G. Nefedova believes that a relatively normal agriculture outside the Back-Earth region and the North Caucasus exists only in suburban areas, and also in the territories of some non-Russian peoples of the Volga region and Siberia [6]. According to T. El'dieva, the further development of the agricultural sector in the republics of Karelia and Komi, and in the Arkhangelsk, Novgorod and Pskov oblasts has no prospects. It is advisable to reorient the employment of local population, in these areas from agricultural to alternative activities based on the use of natural resources: forests, fisheries, local mineral deposits, etc. Agriculture should receive budget support only in the municipal districts of the Leningrad and Vologda oblasts, in which human, equipment and technological potential for the development of agricultural production still exists [11]. B.B. Rodoman suggests that a great part of our country be transformed into natural parks and reserves (environmental specialization). This program does not need financing: arable lands, and pastures will be covered with forest; wild flora and fauna returns to its former habitats. Environmental specialists all over the world observe this great restoration of nature with admiration and envy [7, p. 378].

The implementation of these scenarios of functioning of peripheral areas is connected with the following factors: the inability to ensure food security in the country and its regions and to produce environmentally safe food; environmental impact on urban and suburban areas and on the health of consumers of food products; large public expenditure for providing employment of farmers in non-agricultural activities. The elimination of the northern village is not only a painful and costly process, it also weakens national security. According to V.N. Lazhentsev, if there is no

developed periphery, the center itself will sooner or later be at a disadvantage [5, p. 55].

The state should not eliminate agricultural production in peripheral areas, but rather it should accelerate its modernization. The need to intensify modernization processes is dictated by the overcoming of the backwardness of its technical and technological level, by the strengthening of positions in the provision of the population with local food, by the formation of competitive advantages in local and regional markets, by the rational use of natural and human capital, by the increase in the level and quality of life of peasants, by retaining young people in rural areas, by reducing the significant differentiation in socio-economic development of remote and suburban areas.

Remote rural areas of the Komi Republic have favorable opportunities for the development of cattle breeding (large floodplain meadows in the basins of the rivers located there). This branch has an important and multifunctional value: it provides people with fresh dairy and meat products, ensures their year-round employment, and also allows for the most efficient use of hayfields, pastures and forests. Cattle breeding should be considered a strategic direction in the development of the agricultural sector. The importance of rapid modernization of the industry is due to the fact that the Republic (the data for 2013) produces 66 kg of milk and 3.2 kg of beef in per capita terms, which is, respectively 15 and 8% of the evidence-based consumption rate. The residents of the Republic have a huge demand for fresh and wholesome dairy products, beef and veal produced in the rural periphery. The industrial nature of the development of the Republic serves as a prerequisite for technological and socio-economic development of the agrarian sector, because it allows significant funds to be allocated for the modernization of industry and integrated development of rural territories.

The areas under consideration have the potential for organic production and formation of appropriate market segment. The sales of environmentally friendly products can generate a sort of rental income. The solution of modernization and social issues of the village will turn the agriculture in the peripheral northern territories into a promising exporter of organic products. The advantages of northern agriculture for the production of organic foods have been used successfully by Scandinavian farmers. The opportunities for the development of agriculture can be implemented through a set of measures associated with the modernization of production.

Social factors that accelerate modernization

The demographic situation in peripheral rural areas of the Komi Republic is complex and it is rapidly deteriorating by individual indicators. Here the population has decreased by 47.5 thousand or 33.4% over the period of 1990–2014. Major changes have occurred in the age structure of the population due to negative natural population increase and migration decrease. Fertility rate has decreased.

The low standard of living and quality of life in the village (low incomes, poor housing conditions, unfavorable situation in the labor market and high unemployment, the insufficient level of social development and better living conditions in the cities) adversely affects migration processes in rural areas. Migration loss in peripheral rural areas was over two thousand people on average in 2011–2013. Persons of working age made up 77% of the total number of migrants, persons under working age made up 15.8%. Moreover, there were 1.6 times more migrants with higher education who left compared to those who arrived.

The worsening of the demographic situation in the rural periphery will cause a reduction in the amount of human resources and lead to their aging; in the future it will become a factor that hinders modernization in the agricultural sector.

The demographic situation in peripheral rural areas will improve only if employment and incomes increase, poverty is alleviated, living conditions are improved, transport infrastructure is developed, social situation in the settlements is improved, and the economy goes through institutional changes. The demographic situation can be improved significantly if the maternity (family) capital is paid after the birth of each child, starting with the firstborn, and if the list of options for its utilization is expanded and includes child support, parenting, and payment for housing and utilities services.

Actual average monthly nominal accrued salary of employees at agricultural organizations in 2013 was twice below the average salary in the economy of the Republic, and 3.3 times lower than in mining industries. It is equal to 1.7 subsistence levels of the able-bodied population. In all the rural areas, except for Syktyvdinsky and Priluzsky districts, wages are significantly below the subsistence level of the able-bodied population. And the average monthly wages of agricultural workers as compared to the subsistence level is only 70–78% in peripheral rural regions such as Izhemsky, Ust-Kulomsky and Udorsky districts. Low wages have a negative impact on the efficiency and quality of labor; they reduce motivation, and do not provide the rural population with the sufficient level of income.

The rise of the incomes of the rural population is connected with the following factors: the diversification of the agricultural sector; the establishment of a decent and fair remuneration, which must not be lower than the national average; the expansion of the network of receiving and procurement facilities for the purchase of agricultural products, provision of its access to retail trade and food markets of cities and regions; the changes in the principles of determining the subsistence level in accordance with the current level and structure of consumption rather than with the level of physiological survival; the differentiation of the minimum wage across the country, in the North its amount must be higher; the involvement of staff in the management of the enterprise and the extension of employee participation in solving the problems of ownership and in the distribution of income.

The most acute problems in the labor market in peripheral rural areas are as follows: the high level of unemployment; underemployment; the large number of inefficient economic and technologically equipped workplaces; the insufficient adaptability of educational system to the requirements of the labor market concerning the demand for professional and skilled labor; insufficiently developed infrastructure market.

In the years of economic reforms the situation in the social sphere of the village worsened due to the following reasons: reduction in the construction of residential housing; reduction in the construction of the facilities of healthcare, education, culture, consumer services, engineering and transport infrastructure, as well as the reduction of funding of social institutions. Many schools and kindergartens, shops, catering companies, clubs and comprehensive receiving offices were closed down. During the restructuring of the network of budgetary institutions the emphasis was placed on saving public expenditure. As a result, the rural population of peripheral areas is worse off compared to the population of cities and suburban rural areas according to all the parameters that characterize the development of social infrastructure. The improvement of the quality of life of the rural population, the development of social sphere in peripheral villages should become a priority in territorial planning and management.

Human resources in modernization

The situation with staffing in the agricultural sector in the rural periphery is a serious obstacle to the modernization of the industry. If in the 1980s there were an average of eight specialists with higher education and 40 specialists with secondary professional education per state farm, then currently an agricultural enterprise has only one specialist with higher education and five specialists with secondary professional education.

A questionnaire survey of heads and specialists of agricultural enterprises and peasant farms carried out in 2013 shows that 36.4% of specialists in rural periphery and only 8.3% of middle managers have higher professional education. The level of skill of livestock breeders is very low: only 2.8% of breeders have the title "First-class master of animal husbandry", and as for milking machine operators, they are not awarded such title at all. At that, 40% of workers did not attend retraining and advanced training courses. The proportion of specialists with higher education in other agricultural territories amounted to 41.4%, the share of specialists with secondary vocational education was 35.8%, the proportion of middle managers with higher education was 47.1% and with secondary vocational education – 23.5%. 61.1% of organizations have first-class drivers, 70.7% have the title "First-class master operator" *(tab. 1)*.

The staffing for modernization and innovation development of agriculture requires implementation of a set of measures, such as: the development of targeted programs for staffing of the agricultural sector at the level of agricultural enterprises, municipal entities and region; the

Table 1. Results of the survey assessing the level of education of staff in agricultural organizations in the peripheral regions of the Komi Republic*, %

Staff	Higher education		Secondary vocational education		I class		II class	
	Peripheral areas	The rest of the territory	Peripheral areas	The rest of the territory	Peripheral areas	The rest of the territory	Peripheral areas	The rest of the territory
Specialists	36.4	41.1	48.5	35.8	-	-	-	-
Middle managers	8.3	47.1	66.7	23.5	-	-	-	-
Tractor drivers / machine operators	-	-	-	-	40.6	37.9	37.5	33.3
Drivers	-	-	-	-	25.0	61.1	16.7	13.9
Livestock breeders	-	-	-	-	2.8	12.3	34.7	15.1
Milking machine operators	-	-	-	-	-	70.7	46.9	19.5

* Compiled using the data of the questionnaire survey.

transition to the target training, retraining and advanced training of workers and specialists; gradual transition to the system of lifelong agricultural education consisting of several educational levels for the rural youth; the expansion of the system for the training of skilled specialists at the leading agricultural universities, and for the training of workers at the district and interdistrict vocational schools; the promotion of involvement of young professionals in the agricultural sector; significant increase in the income of agricultural workers, the possibility of obtaining main social benefits, the improvement of road and transport infrastructure; the organization of advanced training of farmers, managers and specialists of agricultural companies at least once in three–five years.

Role of science in the modernization and innovation development of the agricultural sector

Agro-economic science is a crucial element in the modernization and innovation process; its results are used in production in the form of new varieties of plants, breeds and species of animals and fowls, new or improved food products, materials, new equipment, new technologies in plant cultivation, livestock breeding and in processing industries, in the new forms of organization and management, in the new approaches to social services that improve the efficiency of production.

Science, science-intensive technology, and vigorous innovation activity provide up to 80–85% of economic growth in the countries that have a well-developed

agricultural sector. As for Russia, each year up to 40–50% of its scientific and technological developments in agro-industrial production are not implemented into practice. Less than 10% of agricultural enterprises implement technological innovations, and not more than 12% of farms use modern intensive resource-saving technology [8, p. 28]. The level of implementation of scientific achievements was 65% in 1990 [10, p. 113].

The share of agro-industrial enterprises that are the most dynamic consumers of innovations is only 10% in the Komi Republic. Scientific and technological developments are implemented most poorly in the agriculture of peripheral areas. A questionnaire survey of managers and specialists of agricultural enterprises and peasant (farm) enterprises has shown that they assess the use of innovation in genetics and selection as "very poor" – 24.9%, "poor" – 33.3%, "average" – 42.1%; the use of innovation in technology and equipment is assessed as "poor" by 20.2%, "average" – by 60.7%, "good" – by 19.1%; the use of organizational- economic and managerial innovation is assessed as "very poor" by 32.6%, "poor" – by 38.3%, "average" – by 29.1% *(tab. 2)*.

For more than a hundred years agricultural science of the Republic has played an important role in the development of agriculture in the North. The progressive development of agricultural science was observed in the 1950s–1980s. Thirty-six scientists including 10 doctors of sciences and 26 associates with a Ph.D. carry out scientific research on the development of the agricultural sector. The doctors of sciences include five doctors of agricultural sciences, three doctors of economics, and

Table 2. Results of the 2013 questionnaire survey of managers and specialists of agricultural business entities concerning the use of innovations on the 5-point scale, %

Assessment	Innovation in genetics and selection			Innovation in technology and equipment			Organizational- economic and managerial innovation		
	Agricultural organizations located in peripheral areas	Agricultural organizations located in the rest of the territories	Farm enterprises	Agricultural organizations located in peripheral areas	Agricultural organizations located in the rest of the territories	Farm enterprises	Agricultural organizations located in peripheral areas	Agricultural organizations located in the rest of the territories	Farm enterprises
Very poor	24.6	4.2	-	-	-	-	32.6	8.3	-
Poor	33.3	5.9	-	20.2	-	-	38.3	10.1	-
Average	42.1	49.2	88.9	60.7	47.2	68.7	29.1	30.4	81.7
Good	-	30.5	11.1	19.1	42.6	22.2	-	40.9	18.3
Excellent	-	10.2	-	-	10.2	9.1	-	10.2	-
Compiled according to the data of the questionnaire survey.									

one doctor of veterinary sciences. The composition of the associates with a Ph.D. is as follows: ten – in agricultural sciences, eight – in economics, six – in biological sciences, and two – in engineering. In the period of market reforms, due to the reduction in funding of science and salaries of researchers, there was an outflow of young scientists and a change in the age structure of scientific personnel. Currently, in the scientific organizations involved in agricultural research in the Republic the proportion of academic staff aged over 60 is 41%, including associates with a Ph.D. – 42%, doctors of science – 100%. The average age of associates with a Ph.D. has reached 58 years, and doctors – 70 years.

At present it is especially important to promote interdisciplinary research on the integrated development of rural areas. As the experience of developed countries shows, it can be done through the establishment of a leading research (educational) institution that works in close cooperation with research institutes and universities of the Republic, with the expert community, the information and advisory service and regional and municipal authorities.

The Komi Republic lacks an integral system for scientific support of sustainable agricultural and rural development. There is no leading research institute (higher educational establishment) involved in scientific research on the sustainable development of rural areas; there is no expert community of scholars, professionals, who would evaluate the efforts of the state and municipal authorities aimed to develop rural economy and infrastructure. The attitudes of the public and of all the branches of government toward science should be changed radically. The coordination of research and its orientation on commercialization will help to form a social order to science for the conceptual development of different scenarios of technological and socio-economic development in the agricultural sector and rural territories in the future.

The efficiency of scientific support in the agri-food sector can be improved and sustainable rural development promoted if the following measures are implemented: first, it is necessary to determine the leading research institute; then – to increase state funding of basic research and the most important applied developments that are focused on quick results; then – to develop and adopt the procedure for use of scientific developments in production, the terms of their funding; to create an extra-budgetary fund for R&D based on the allocations from agribusiness companies attributed to production costs; to change the conditions of the competition for research and development, taking the novelty and expected effect, rather than the minimum price, as the basis. Government support should be allocated, as a priority, to experimental-production farms that test the practical application of scientific and technological developments in specific conditions. The former Agricultural Research Institute under the Russian Academy of Agricultural Sciences (the Institute is integrated into the Russian Academy of Sciences) can be chosen as the leading research institution on sustainable agricultural and rural development of the Republic. The priority directions of fundamental research

and major applied developments will be connected to the recovery of soil fertility, development of technology for the production of organic products, the breeding of early and medium early varieties of potato capable of tuberization in the conditions of long daylight, the breeding of forage plants that are optimally adapted to the specifics of the North, the substantiation of effective inter-sectoral linkages of agriculture and forestry, manufacturing industries, various forms of cooperation and integration, the elaboration of a science-based concept, a strategy for sustainable development of rural areas, the substantiation of modernization in all the spheres of rural economy and its infrastructure.

Development of advisory support in agriculture

Information and advisory service (IAS) is among the most important factors that promote modernization in agriculture. The role of IAS is to transfer information on research, technology and market to agricultural and agri-food enterprises, peasant farms and individuals; to implement breeding and genetic developments, to introduce efficient machinery and equipment, resource-saving technology, and advanced domestic and international production experience.

A well-organized system of information and advisory support helps to describe fully and accurately the external and internal environment of a business entity, to make the optimal management decision for each situation, to reduce the risks in the activity and to ensure sustainable development of agricultural enterprises and farms.

The analysis of the existing organization of IAS shows that the main factors hindering the development of information and advisory support of the agricultural sector are as follows: the shortage of personnel in the service; the lack of funds for payment of consulting services; insufficient relationship between information and advisory service and regional authorities for management and maintenance of regional agro-industrial complex, scientific, educational and information institutions; the absence of IAS at the municipal level.

We carried out a survey of managers and specialists of agricultural enterprises and peasant farms in 2013 for the purpose of studying the current state of affairs in the information and advisory support of the agricultural sector and improving it. The majority of respondents were managers of small and medium enterprises and farms. As for managers of large agricultural enterprises, practically all of them did not respond to the questionnaire; apparently, they do not require advisory support. The analysis of the questionnaire results has shown the following:

• customers received the main information (almost half of it) from the Ministry of Agriculture and Food, at the departments of agriculture in the districts and cities, and also at seminars, meetings and training courses. Almost two thirds of respondents did not apply for information to research and educational institutions. These organizations received suggestions concerning the improvement of the quality of rendered services;

• half of the respondents did not apply to the Information and Advisory Center at the Institute for Retraining and Advanced Training of Workers of Agro-Industrial Complex of the Komi Republic about the provision of services to solve the problems that arise in the production process;

• information about the demand for agricultural products and their prices in local and regional markets, information about the prices for material resources, about new technologies, breeding and genetic innovation and about the current normative-legal acts is of the greatest interest to agricultural producers;

• the sociological survey has shown that advisory services, which agricultural enterprises and farms provide, are most preferable; the visits by specialists of advisory services of agricultural enterprises and farms are time-consuming and require large financial expenditures;

• agricultural producers show considerable interest in advisory activities such as the introduction of innovation, development of business plans, strategies for development management, development and evaluation of innovative-investment projects, assistance in solving specific problems, and agree to pay for these consulting services;

• when studying the promising legal forms of information and advisory system, the respondents expressed a preference for advisory services that are part of the Ministry of Agriculture and Food of the Komi Republic and municipal departments of agriculture [3].

The proposed system of information and advisory support of the agricultural sector of the Republic consists of the regional and interregional levels that work in close cooperation with scientific and educational organizations, authorities and information agencies. It is expedient to extend the use of information and advisory system established to support the agro-industrial complex to other sectors of the rural economy and to the maintenance of rural residents.

Mechanisms of state regulation of modernization processes promotion

The agriculture of the northern peripheral areas cannot be considered from the viewpoint of gaining profit that would be sufficient for expanded reproduction. The agricultural sector is connected with social sphere and can only develop if it is supported by the state. Subsidies allow agricultural producers to earn income in addition to revenue from sales of products, and it does not affect the growth of food prices.

The analysis of the existing financial support shows that its significant amount is allocated to large agricultural enterprises that are have more and better resources at their disposal, and also to suburban areas. Moreover, this support is not always proportional to the volume of agricultural products produced. The existing amount of financial support does not allow the industry to be developed on the basis of innovation; moreover it does not help to curb production decline. The allocated amount of budget support does not take into account the contribution of the rural periphery in the production of organic

and whole foodstuffs, the specifics of agricultural specialization, the current state of facilities, equipment and resources in the industry, the level of development of the transport and social infrastructure. The main burden of financial support of agricultural producers falls on the regional budget. In order to increase profitability and investment opportunities, it is necessary to increase the amount of direct state support of agricultural production in 3–4 times. Government investments will be also necessary for boosting the modernization of industry and infrastructure in rural areas.

The adoption of the Federal Law "On reindeer husbandry in the Russian Federation" and the development of a similar federal program will contribute to the sustainable development of reindeer herding and employment of indigenous peoples. The federal budget funding of the program for development of reindeer husbandry will increase the animal population, improve the efficiency of reindeer skins processing and the production of endocrine-enzyme raw materials.

This sphere requires active support from the Government of the Komi Republic, in particular, it is necessary to consider the possibility to let out forest pastures on a long-term lease to reindeer farms; to introduce additional monthly payments to veterinary professionals; to create a base for the processing of products of reindeer breeding in cooperation with other regions; to organize tourism related to reindeer herding.

In the conditions of Russia's accession to the WTO and related restrictions of budget support and allocation of its subsidies to the reduction of direct government support, in 2013 there was a decline in the profitability of products (except for poultry) *(tab. 3)*.

Russia's accession to the WTO will require that the restrictions in the level of support for the "yellow basket" be removed for the northern and Arctic areas engaged in agriculture in extreme conditions. The removal of restrictions on the support of agriculture will increase profitability, the salaries of employees of agricultural production; it will also provide their employment, increase investment opportunities and accelerate the modernization of animal husbandry and reindeer herding.

It will be necessary to enhance the role of long-term preferential loans in accelerating the modernization and innovation development of the agro-food sector and to exempt agricultural companies and farms from taxes.

The regional and municipal authorities and managers of agricultural business entities should promote domestic demand in order to enhance the sales of local agricultural products, improve the competitiveness of agricultural enterprises and peasant farms. It can be achieved by establishing a contract system that makes local products a priority when purchasing products for regional and municipal funds; the products are used for providing free meals for children and schoolchildren and for providing the needy with food with the use of food ration tickets. It will be also necessary to eliminate the monopoly of procurement, intermediary and processing organizations

Table 3. Profitability, unprofitability (-) of production in the agricultural organizations of the Komi Republic in 2013, %

Indicator	2010	2011	2012	2013
Profitability of the whole products	12.5	13.3	12.7	5.2
including:				
plant cultivation	-13.5	-6.8	-7.2	-17.6
animal husbandry	15.3	15.2	14.9	2.1
Potato	11.2	-7.9	2.7	-1.4
Field vegetables	-8.7	-56.3	-38.6	-25.0
Vegetables grown under cover	-21.7	4.0	3.4	-23.2
Unprocessed livestock products				
Milk	10.1	9.0	7.6	-35.5
Beef	-28.8	-21.4	-20.7	-41.0
Pork	15.4	10.8	9.3	-26.2
Venison	51.7	62.8	61.4	19.2
Poultry	62.9	22.7	41.5	75.3
Egg	10.3	16.0	14.6	-2.1
Sales of processed products				
Dairy products	-48.3	-47.8	-41.4	-27.7
Cattle meat	-48.3	-47.8	-44.3	-53.7
Pork	6.3	9.6	9.1	0.3
Venison	9.6	9.7	9.5	-0.3
Poultry	36.6	31.1	32.6	31.1
Source: annual statements.				

by transferring the cycle of production, processing and sales to the cooperative basis.

The study of the characteristics, capabilities, main directions of acceleration of modernization in the agriculture of the northern peripheral regions in the Komi Republic allows us to draw the following conclusions.

1. Reforms in the agricultural sector were accompanied by the destruction of productive capacity, the reduction in the production of all kinds of agricultural products, the deterioration of the standard of living of the peasant community. Peripheral rural village is experiencing a systemic crisis. Current trends in the agricultural sector can lead to its deterioration and to the abandonment of rural areas that have been inhabited for centuries.

2. The existing opinions arguing that there is no prospect for the development of the agricultural sector in the rural periphery, or that it is expedient to use the fly-in fly-out employment schemes to cultivate agricultural land, or that it is necessary to return it to nature are ill-grounded and inadmissible, as well as the opinions concerning the reorientation of employment of the local population from agricultural to alternative activities.

3. The risks and threats of collapse of the agrarian sector in the rural periphery and the creation of large agricultural enterprises in urban and suburban areas are connected with the following: the inability to ensure food security in the country and its regions, to produce organic products; negative environmental impact in urban and suburban areas, and negative environmental impact on the health of consumers of food products; huge public expenditure on the employment of farmers in non-agricultural activities.

4. Peripheral rural areas have the following prerequisites for technological and socio-economic development of the agrarian sector: the availability of labor resources, natural fodder base (large floodplain meadows), the possibility of production of organic products, the demand for fresh local foods. The industrial character of economic development in the Republic allows substantial financial resources to be allocated for the modernization of the sector and integrated development of rural areas.

5. A set of measures is proposed in order to overcome the protracted crisis and shift to sustainable development of the agricultural sector in the rural periphery; these measures are connected with the improvement of living conditions of peasants; the provision of agricultural production with personnel, research, information and advisory support; the creation of economic conditions for an effective system of state support; elimination of monopolism by encouraging cooperative forms in the fields of processing and sales of products; the promotion of domestic demand for local products.

6. The state and municipal authorities of the Komi Republic should consider the recommendations concerning the balanced development of the agricultural sector, the improvement of state regulation of modernization in the peripheral Northern and Arctic territories in the new environment as the scientific basis for the development of legal acts and for the introduction of changes in the conditions and mechanisms of financial support of the State Program for development of agro-food sector in 2013–2020.

7. The integrated development of peripheral rural territories should be considered a long-term priority for the state and municipal authorities.

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Ecological Compensation Mechanism in Water Conservation Area: A Case Study of Dongjiang River

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Abstract. The appropriate economic compensation from downstream to upstream watershed is important to solve China's social and economic imbalances between regions and can potentially enhance water resources protection and ecological security. The study analyzes the implementation of ecological compensation policy and related legal basis under ecological compensation mechanism theory and practice patterns, based on current natural environment and socio-economic development of national origin in Dongjiang water conservation areas. Under the principle of "Users pay", the Dongjiang River is the subject of ecological compensation and recipient. By using the "cost-benefit analysis" and "cost method of industrial development opportunity", we estimate that the total ecological compensation amounted to 513.35 million yuan. When estimated by the indicators such as water quantity, water quality and water use efficiency, we establish the "environmental and ecological protection cost sharing model" and measure the total cost of protecting downstream watershed areas, the Guangdong Province, is about 108.61 million yuan. The implementation of the Dongjiang source region that follows the principles of ecological compensation and approaches are also designed.

Key words: ecological compensation mechanism, river source region, Dongjiang River.

Introduction

People living in most major rivers of Midwest Chinese are relatively poor since counties near to these water sources are restricted and prohibited for economic development, due to the environmental protection concerns. However, this reduces the chances for people living here to enhance their income. Because of the special geographical conditions, China's ecological sources of rivers are fragile and close to ecological conservative areas. Therefore, protection of the ecological environment and enhancement of residents' income become a difficult task since they are contradicted. The sources of rivers region have borne the task of ecological environment construction and protection for a long time that restricted the development of regional resources and economic development. Because of these restrictions, a gap of socio-economic development between upstream and downstream watershed areas emerges that is seriously affecting the enthusiasm to protect the ecological environment of the upstream region, increasing the pressure for upstream areas ecological and environmental protection. For this reason, to resolve China's regional socio-economic imbalances, the issue regarding water resource protection is important for ecological security and has urgent needs. The theory of ecological compensation mechanism based on practice patterns in China's Dongjiang Water Conservation District is one of the typical rivers that have been identified for the regional ecological compensation and compensation mechanism. By exploring the subject and object of determining compensation principles, methods, the East River source region of ecological protection and ecological compensation programs and operating mechanism design, this study aims to establish and improve the ecological compensation mechanism that can be used for potential policy making.

Literature Review

Watershed between the upstream and downstream areas upon environmental governance, ecological construction and protection of water resources development results in different utilization of the existence environmental resources. With the implementation of the ecological compensation mechanism, watershed win-win situation within the administrative and sharing, and promote watershed coordinated development among regions can be achieved [2]. Protection of ecological compensation through the administrative, legal and market means brings the benefits from ecological protection environment due to various restrictions and the loss of the opportunity to develop the upstream region preferential policies, capital, technology and other forms of physical Compensation [3]. In the theory of ecological compensation, foreign studies focused on the prospects for ecological compensation, along with ways to achieve ecological compensation process including the U.S. government's soil and water conservation compensation mechanism, the German Elbe river basin ecological compensation mechanism, as well as Costa Rica Hydro funding for afforestation upstream [4].

Domestic ecological compensation research has also made some valuable results. Zhuang provides a preliminary analysis of the externalities on the protection of ecological issues [5]. Liu Yi studies the water resources management strategy for China [6], while Qin et al. work on resources compensation in Songliao Basin [7] and Zhou et al. [3] focus on the utilization of water basin resources. Xiang et al. [8] examine thecompensation in the basin water source protection for ecological functions of forests and water conservation, Tao et al. [9] focus on water conservation on forest in Miyun Reservoir to evaluate the ecological benefits. Gao examines the water pollution damage compensation for the inter-regional compensation mechanism of river pollution [10], while Ge studied competitive compensation with water in the basin on cross-regional water transfer environmental impact studies [11] along with the competitive analysis of external water study by Zhang et al. [12]. In practice local governments have established urban drinking water protection and administrative mechanism in the small watershed ecological area including Guangdong Province Dongjiang basin ecological compensation practices, Zhejiang Province water rights trading mode and Fujian province downstream watershed ecological compensation.

For the past five years, ecological compensation mechanism for East River source in Jiangxi has aroused the concern of domestic scholars. Research focused on watershed ecosystem services on the economic value of accounting functions such as sources of forest resource value of [13] while Liu et al. estimate the total economic and ecological service value in Dongjiang River Source District [14]. In addition, few scholars have discussed the establishment of ecological compensation mechanism in Dongjiang source including Hu et al. [15], Hu and Liu [16] and Hu and Xiong [17]. These studies mainly from the value of ecosystem services in Dongjiang River based on the presumed ecological compensation standards. Their results indicate that the total amounts of compensation funds are far exceeded the benefits from regional economic development and it is difficult for the application of compensation policy. In addition, no studies and official responses on legal basis, compensation project design, compensation cost can be used to establish the compensation mechanism.

Characteristics and Establishment of Ecological Compensation Mechanism of Dongjiang River

Geographical Characteristics

Dongjiang River locates Jiangxi Province that mainly flows through Xunwu, Anyuan, Dingnan. These three counties are in the territory of southern Jiangxi (Ganzhou city) and their location are between longitude 114° 47’ to 115° 33’, latitude 24° 29’ to 25° 33’. Total land area within the watershed is estimated to 3,502 km^2. Dongjiang water district includes the Longchuan, Heyuan Zijin, Huiyang, Huizhou, Borowcounties in Guangdong Province and therefore, it provides about 70% of fresh water needs for Dongguan, Huizhou, Shenzhen and Hong Kong.

Socio-economic Development Characteristics

Dongjiang River is the Central Soviet Area during the agrarian revolution where economic development is backward; people's standard of living is low. The proportion of the poor people within these counties accounts for 42% of total population. For this reason, Xunwu and Anyuan are still the key national poverty alleviation counties and Dingnan is a key provincial poverty alleviation county.

In 2004, the total population within the river source accounts to 82.93 million, of which agricultural population is about 71.4 million. The GDP is 3.147 billion yuan, which is accounting for 0.9% of the province's GDP. Farmers' per capita net income is 1,664.46 yuan, only 56.37% and 36.7% of provincial and national farmers' per capita income. Farmers' per capita income within the three poor counties is about 6% if compared to the Pearl River Delta region.

Environmental Problems and Causes

Ecological problems in East River mainly come from the degradation of water conservation capacity that caused serious soil erosion and regional water pollution. According to the 2005 survey, a total area of 85,370 soil erosion hm^2 in East River region has been lost. Among which, 27,871 hm^2 or 32.64% is eroded seriously. In 2001, measured siltation is about 1,530,000 m^3, accounting for 86% of reservoir capacity. According to Douyan power station, the average annual runoff of the region is 1.421 billion m^3 in 2005, more than 6% of the estimated average annual runoff. According to the environmental monitoring stations in Ganzhou, water quality in some of the water body is classified as IV or low V in 2006.

Dongjiang source causes more complicated ecological problems. First one is due the inherent disadvantages of natural and geographical conditions. The area is a typical mountain for agriculture and forestry where 90% of the land is mountainous, hilly and steep mountains which is prone to soil erosion. Second ecological problem comes from the directly discharged of regional solid waste and untreated sewage into water bodies that pollute the fruit and aquaculture industry. Combined with other agricultural nonpoint pollution, the scope and extent of the contamination for agricultural and livestock products is increasing. The slag accumulation of a large number of non-treatment and sewage discharge on soil and water also cause serious pollution. Third, forest resources are severely damaged. Timber processing industry consumed a large number of forest resources, resulting in degradation of forest ecosystems and soil erosion. The erosion area increases 10 folds compared to the 1950s. The fourth ecological problem comes from the impact of large-scale mountain development. At present, fruit deforestation phenomenon tendency to expand that exacerbating soil erosion for mountains with more than 25° slope. The last ecological problem is the long-term impact of mineral development. Intensive exploitation of the minerals leads to permanent damages of local ecological environment.

Key Issues for Ecological Compensation Mechanism Several Key Issues

Recognition of Who Pays and Receives the Compensation

Ecological compensation includes the basin water conservation compensation that can be divided into national and regional downstream/upstream regions. State compensation paid to the upstream region by the central government for the watershed ecological construction is in a form of financial grants and subsidies. Construction investment in ecological environment of upstream river must pay a reasonable share of the various forms of compensation. Upstream compensation requires that local government directly engaged in ecological compensation for individuals and organizations. The current watershed protection and compensation is to compensate downstream regions by the nation.

Taking the actual compensation operation feasibility into account, Guangdong Provincial Government is the direct compensation subject while the management and the urban residents are indirect beneficiaries.

Receptors on compensation in the East River region need to sacrifice for the protection of water resources and dedication of enterprises. Units and individuals including regional governments, businesses and farmers should be compensated. In practice, the upstream businesses and individuals administrated by local governments is determined as a direct compensation object and the upstream local governments receive compensation if the upstream areas of the businesses, and farmers are determined as an indirect compensation object.

Calculation of Dongjiang River Compensation

Compensation Standard and Calculation Method

In this study, we use the cost/benefit analysis and industrial development opportunities for cost accounting to compute the impacts on Dongjiangyuan ecological construction and environmental protection. By considering the downstream region's economic development level, we can ultimately determine the compensation standards to protect water resources. Dongjiang River water resources are to be protected via human, material and financial resources. It is difficult to estimate the input costs and benefits that have already been compensated in the past. Therefore, based on Development and Reform Commission of Jiangxi, the Environmental Protection Bureau of Jiangxi and the socio-economic reality, Kong estimates that the cost of Dongjiang River environmental protection and ecological construction is about 1.42 billion yuan [19].

Costs Constitute Environmental Protection and Ecological Construction Project

In accordance with the ecological protection and construction in East River source from the "Eleventh Five-Year" project summary combined Jiangxi Statistical Yearbook 2006, the project investment arrangements and cost estimates are summarized as follows:

1. Direct investment in environmental protection: water monitoring, environ-

mental cleaning and watershed protection, soil erosion and other aspects of economic investment in Anyuan, Xunwu and Dingnan counties is about 239 million yuan. The average annual direct investment in environmental protection is 19.92 million yuan.

2. Ecological compensation for protection of forest and loss in returning farmland investment including the compensation for afforestation, forest conservation, and loss in farmland. According to the "Eleventh Five-Year" plan, the project costs 183 million yuan and the estimated average annual investment in ecological compensation for forestry and farmland protection is 15.25 million yuan.

3. The loss of the right to development. Using adjacent counties disposable per capita income of residents and compared to upstream regions disposable income, economic losses reflect the right to development restrictions. Compensation calculation formula is as follows [20]:

Annual compensation limit = (per capita disposable income of urban residents - per capita disposable income of urban residents in upstream counties) × upstream urban resident population + (per capita income of farmers – upstream farmers per capita net income) × upstream rural population.

We use the 2005 per capita income of urban residents in river regions, per capita net income for rural people, and related indicators to calculate the adequate compensation. The selected neighboring counties including Dongguan, Huizhou City, Ganzhou City, Yudu County, Long County and Xinfeng are used to set up compensation standards. The results show that all compensated counties should receive compensation amounted to 271.06 million yuan intotal while annual compensations for Anyuan, Dingnan and Xunwu are 10.78 million yuan, 35.23 million yuan and 225.05 million yuan, respectively. Total compensation within 3 years are amounted to 288.3 million yuan [19].

Cost-sharing Simulation of Environmental Protection and Ecological Construction in Dongjiang River

Dongjiang source along with Anyuan, Xunwu and Dingnan play an important role in forestry ecological construction, soil erosion, ecological agriculture, rural non-point source pollution control and ecological migration projects, constituting a zone for watershed environmental protection and ecological construction. The total cost of environmental protection and ecological construction is ultimately reflected by the current and improved water quantity, and therefore, the amount and quality of water supply must be measured from upstream to downstream areas. This study is to consider three indicators such as water quantity, water quality and water efficiency of upstream watershed areas of environmental protection and ecological construction zone for cost-sharing and compensation. Based on Liu et al.'s study in 2006[21], we establish the cost-sharing model for Dongjiang River Basin environmental protection and ecological construction:

$$C_{gd} = C_T \times K_{sl} \times (1 + K_{sz}) \times K_{xy} .$$

The formula:

C_{gd} – the cost of environmental protection and ecological construction for Guangdong;

C_T – the total cost of watershed protection and ecological construction;

K_{sl} – Water partition coefficient in Guangdong Province (the proportion of total water basin);

K_{sz} – Water quality correction factor based on river water quality monitoring sectors;

K_{xy} – Water Efficiency partition coefficient based on the water consumption in various regions.

Cost-sharing model is used to determine the parameters including: water partition coefficient. River basin area of environmental protection, soil erosion control, ecological construction requires a lot of manpower, material and financial input to not only ensure that the entire basin of water supply and water quality, especially for downstream watershed area that offers plenty of clean water, but also ensure that the entire watershed. According to the Dongjiang river basin water resources utilization, water distribution coefficient can be calculated as the proportion of total water consumption, namely:

$$K_{sl} = SL_{Downstream} / SL_{Total} .$$

The formula:

S_{lK} – Water partition coefficient;

$SL_{Downstream}$ – Dongjiang River downstream areas;

SL_{Total} – Total water consumption.

Water Efficiency distribution coefficient. Benefit-sharing model suggests that the compensation should be high for areas with high environmental protection and ecological construction costs, and should be low for areas that bear less environmental protection and ecological construction costs. Watershed areas that are not bearing environmental protection and ecological construction costs should nt receive any compensation. Therefore, environmental protection and ecological construction in the cost-sharing model introduced water efficiency sharing factor. According to water consumption per 10,000 GDP, it is calculated as:

$$K_{xy} = (1/HS_{Downstream)} / (1/HS_{Raw} + 1/HS_{Preparation}).$$

The formula:

K_{xy} – Water Efficiency partition coefficient;

$HS_{upstream}$ – Water consumption per 10,000 GDP in upstream watershed areas;

$HS_{Downstream}$ – Water consumption per 10,000 GDP in river basin region.

Water quality correction factor. Water quality affects development and utilization of water resources in the basin and also determines the water use value. If the water quality of upstream watershed areas is better, the more value it will provide to the downstream; if the upstream region has to offer low quality water, and limited value could it bring to the downstream. Therefore, environmental protection and ecological assumptions embedded in the basin cost-sharing model introduced

downstream water quality correction factor on the watershed area. COD concentration, usually used as an indicator regarding water quality in the field of environmental protection can be monitored for downstream watershed regions in Dongjiang environmental zone. Water quality standards for areas adjacent to the downstream watershed region required to monitor the BZ (mg / L), and the River Basin District has the responsibility to ensure that the water quality reaches the normal standards for downstream water.

When the actual water quality follows the standards, the downstream watershed areas only need to share the cost of environmental protection and ecological construction and when the cross-section at the provincial border is less than the actual water standard; the downstream watershed areas share the benefits when they gain from the environmental protection and ecological construction costs. Using the annual emissions reduction units COD investment TZ (ten thousand yuan/t) estimates in upstream watershed areas, the upper basin area provides better quality than the standard compared to the SP times TZ.

When the SJ in cross-sectional is higher than the actual water quality standards (that is, BZ), the upstream water quality is not qualified. Therefore, the upstream region receives the compensation from downstream areas for the cost of environmental protection and ecological construction. However, upstream region also needs to compensate the downstream for the unqualified water supply. This compensation is calculated by the difference amount of COD discharge between standards SJ and BZ, which is the SP times TZ. Thus, water correction factor is calculated by the following formula:

$$K_{ss} = SJ / BZ .$$

K_{ss} – Water quality correction factor;

SJ – The actual COD concentration;

BZ – Water quality standards for COD concentration in environmental protection zone.

The parameters are determined by data collected where the annual runoff in East River region is about 3.2 billion m^3 and the average annual water supply in Guangdong province is of 2.921 billion m^3. Planned provincial water quality is classified as type II, the 2005 estimated annual water consumption per 10,000 yuan in upstream areas is about 650 m^3 and is about 290 m^3 in Guangdong in 2004. Ratio of investment from national ecological construction and environmental protection to local investment is about 7:3 which means Guangdong Province only affords 30% of total environmental protection cost of upstream. According to the above cost-sharing model and the determined parameters calculated, the results indicate that (1) Guangdong Dongjiang source compensation annually 1.086 billion yuan, of which every year Anyuan, Xunwu and Dingnan Counties must afford the environmental protection and ecological construction cost for 21.723, 76.029 and 10.861 million yuan , respectively.

Implementation of Ecological Compensation Principles and Pathways

Ecological compensation does not refer to the upstream and downstream watershed between the various administrative units by simply compensating each other directly; instead it refers to all administrative units within the self-compensation and co-ordination basin between the various administrative compensation units. The internal administrative unit of self-compensation is a prerequisite while the co-ordination between various administrative compensation units is the goal. However, these two kinds of compensation are complementary and indispensable. Dongjiang River ecological compensation area should be a single administrative unit within the number of administrative and co-ordinary compensation because the various internal administrative units are self-compensated.

Our basic approach is to repay old debts in the beginning. Repayment of water through compensatory measures regarding past debts on ecological destruction and environmental pollution is necessary. Second, do not owe the new account. Economic development should be based on comprehensive consideration of water environment functional compliance requirements. The third step is to accelerate economic development. In compliance with the condition of environmental industry, water carrying capacity to achieve rapid development is the premise. The fourth step is to make the development harmonious. The regional aquatic ecosystems supporting force should be focused on the coordinated regional economic and residential development. Overall speaking, the goals are to (1) establish the water outflow quality standards and administrative unit within the jurisdiction of water quality standards and (2) make co-ordination between the various administrative compensation units. Water basin co-ordination between the various administrative compensation units by the administrative unit is the responsibility of the government to monitor the various administrative units directly with each compensation or damages.

Improvement of the Central Financial Compensation Mechanism

Compensation mechanism in Dongjiang river should be led by the Government. At the government level, ecological compensation mechanism for inter-provincial river basin should be established by the central government. The East River in Jiangxi and Guangdong provinces are typical watershed and the central fiscal policy is important to adjust the overall socio-economy. In China's current financial system, the special fund and fiscal transfer payment system for the establishment of ecological compensation mechanism plays an important role. In the East River source region, local government can try to establish the ecological compensation fund in Dongjiang basin and the central government can increase the regional fiscal transfer payments in Dongjiang River project for compensation. In the country to implement a proactive fiscal policy, the provinces that monitor the Dongjiang river need to set up arrangements for the implementation of the regional forest and natural forest protection project including the Pearl River

Shelterbelt Project, watershed management, agricultural development, poverty alleviation and development, food for work, rural biogas, national key ecological forest management and protection and a series of projects that support the project in the form of investment in the source region. Ecological construction is one type of the implementation projects, which greatly improve the ecological environment of the source region and to a large extent, it eases the ecological construction difficulties due to lack of funds. In the future, the central government still needs to support with a great effort in the Dongjiang River project.

Improvement of the Provincial Financial Compensation Mechanism

Dongjiang river projects are eligible for the ecological compensation and tax breaks. Compensation mechanism in regional level mainly refers to the Jiangxi Provincial Government that increases the transfer payments to the counties that are in ecological and environmental protection and increases the project budget and investment arrangements. Jiangxi has been paid much attention and funds to specific projects such as the renewable energy development, eco-industrial park projects, efficient utilization of resources projects, forestry and ecological construction projects, soil and water conservation projects, ecological agriculture and rural construction projects, mining and environmental protection, ecological restoration, urban environmental engineering investment on the East River region. Meanwhile, from the tax aspects, the counties close to Dongjiang River have less tax burdens, especially for the source area with industrial restructuring process about the development of ecological agriculture, high-tech industries and resource-saving eco-industries. Business tax and land use fees implementation is a time-limited exemption policy to help industrial restructuring and the source region.

Establishment of Ecological Compensation Mechanism in Cross-Administrative Areas

Establishment the ecological compensation mechanism for administrative regions across the East River has underlying principle. It requires the long-term compliance with the law to ensure water quality, the diversification of animals to achieve mutual benefits. Specifically, we measure the erosion in sensitive areas of Dongjiang River for the implementation of the forestation project. In 2009, Xunwu County started the forestation project with the economic compensation policy that is based on national grain subsidies which can be as long as 16 years. This trial helps local government to determine the benefits and effects from ecological compensation for the loss of fruit industry in upstream. In addition, it determines the annual reasonable burdens including the cost of ecological construction and environmental protect that the downstream region are required to bear. Guangdong Province estimates that the related expense in the East River is of 1.086 billion yuan, which will be amortized for 8 years. Among the cost, Anyuan, Xunwu and other three counties that are in the south of environmental protection and ecological construction region need to afford 21.72

million yuan, 76.03 million yuan and 10.86 million yuan, respectively. The compensation for land that is currently used in the production of grains that will be used in forestation can be compensated for a period of 16 years while the compensation for upstream ecological construction and environmental costs can be compensated for a period of 8 years. Moreover, there should be some compensation for the lost opportunity of industrial development in this region. According to the results, Guangdong Province should subsidize the annual compensation for the East River region including Anyuan, Xunwu and other counties for the loss of industrial development opportunity for 271.06 million yuan, 225.05 million yuan and 35.23 million yuan, respectively. This part of the compensation can be taken according to the compensation standard in the form of the implementation of the supported projects and the development of upstream areas. This helps the upstream regions to strengthen their ability to build a number of low pollution areas with significant economic returns while new industrial projects can help the economic development of upstream areas into a virtuous cycle and get rid of a variety of compensation programs gradually. To explore the capital, technology and management advantages in the East River region where has relatively low land rent and labor resources as well as fruit industry, vigorously development of ecological agriculture, ecological fruit industry to high-quality fruit industry group improves the ability of the these areas to establish industrial development that helps the development of upstream area into a virtuous cycle.

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The Hermeneutic-Educational Paradigm for a Training Management in a Civic and Social Sense

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Abstract. The idea that the long-life and long-life learning are preparatory to the civic-political, economic and social development of the present society of knowledge, is now a fact. Nevertheless, in the educational process, today, complaints are still heard about an insufficient ability to interpret the change, to design training programs which can affect the civic education, the sustainable development and the welfare of an area. All that requires a managerial education, based on a hermeneutic-educational paradigm, to optimize the management of public and private educational institutions to capitalize on human resources and to direct them to the acquisition of civic-social skills to use long-life in order to promote social awareness and civic competence. This managerial training will formalize real laboratories of civic-mindedness in public and private educational institutions, it will raise the awareness of cooperative learning, it will activate some practices of responsible citizenship and will urge the civic consciousness in the European dimension. In this epistemological and practical-operative frame a research project has been structured from a few months, which has been aimed at analyzing the most common models of managerial training in public and private organizations focused on the recovery and the integration of disadvantaged people in the town of Taranto, which isliving moments of deep economic crisis with alarming social implications. We will pass from the field-study to the formalization of a hermeneutic paradigm of educational management training, which will be interpreter and promoter of the change.

Key words: long life-wide learning, hermeneutic-pedagogical paradigm, management training, civic education design.

The management of educational institutions, not only schools, asks, with no doubt, a high level of professionalism with multiple skills. These last, as they concern institutions having an educational purpose, must obviously be framed in theories and pedagogical paradigms and converge towards a practice of exclusive educational nature. In short, the management of educational institutions can not be a generic management, with only the bureaucratic-administrative competences, but it must have an educational nature and purpose both in processes and in products. What makes the manager's professionalism and the management of educational institutions even more complex, is the fact that they must meet, on the one hand, the purposes of the territory and local governments and, on the other hand, they must meet the national educational goals. This means that the manager must know how to find the right balance between local, civil society, and the national institutions. Therefore, the manager must be able to engage the participants of the educational and training process, he/she must involve them and make them jointly responsible for the choices made to meet the training needs of both the institutional and social stakeholders. The lines of managerial intervention come from different theories about management[1] and leadership[2] which explain the role of a manager in different ways.

Among the possible ways of managerial and educational leadership, we introduce the theoretical frameworks below, which are based on the paradigm of interpretation, made explicit in its practical-operative consequences.

Later, in the Ionian province a field survey with school leaders will be proposed by the research group whose supervisors are the authors of this paper, in order to analyze the status quo of managerial lines, with strengths and weaknesses, and to assume a hermeneutic professional management. The research protocol will be outlined in the following pages, it is, in fact, a hypothesis because the research is still at a starting point.

1. For a hermeneutic Manageriality

To reach a hermeneutic paradigmatic frame in managerial training, it is first necessary to recall what is well known in the scientific literature, i.e. that Manage-riality and leadership are not synonymous. The two terms have not only different etymologies[3], but they also indicate different purposes and procedures in conducting a training istitution: through management, you point to a simple management activity, while through leadership you tend to manage, and at the same time, to guide while influencing. You can base management on leadership? It is not easy to answer this question for several reasons that we can not resume for a matter of space. We simply say that in the scientific literature not only the issue, as we said, is well known but the excess of management and the lack of leadership is also pointed out[4].

[1] See. F.W. Taylor (1911), *The Principles of Scientific Management,* New York, Harper&Row, trad. it. *Criteri scientifici di direzione e organizzazione aziendale*, FrancoAngeli, Milano 1976.

[2] Management from the Latin *manu agent* (lead by the hand, originally the animals and then humans); leadership form the English *to lead* (lead, guide). The first is related exclusively to management, the second also to the influence on others.

[3] See. P. Nico, *Manager migliori, leader fortunati*, FrancoAngeli, Milano 2010; D. Carnegie, *Scopri il leader che è in te*, Bompiani, Milano 1996; C. Piccardo, *Insegnare e apprendere la leadership*, Guerini e Associati, Milano 1998; L. Guidarelli, *Come essere un leader in ogni situazione,* DVE ITALY SPA, Milano 2004; M. Bruscaglioni, U. Capucci, G.F. Goeta, M. Reggiani, *Leadership. Nuove prospettive e nuovi percorsi di sviluppi*, FrancoAngeli, Milano 2004.

[4] See G. Quaglino (eds), *Leadership. Nuovi profili di leader per nuovi scenari organizzativi*, Raffaello Cortina, Milano 2005, p. 17 .

To return to the question and to outline an answer, in the hermeneutic side of manageriality you can indicate the opportunity to mediate, or better, to include leadership in management.

Then the focus shifts, more than on the action, on the person who carries out the action of management or leadership and on what features he/she must have. It is in the person of the manager/leader that the hermeneutic attitude of his/her way of being and self-understanding must be created.

Now, this hermeneutic attitude will imply particular traits which distinguish it from the main typologies of leaders, which have been identified in the most accepted literature so far.

The hermeneutic attitude as a category of being in the situation is not new, but if you take into account those that H.G Gadamer calls extra-methodical truths[5], on which we are going to focus our attention now, we can start an innovative way of conducting management, which also wants to be leadership.

According to the German philosopher it is, of course, the way to search for knowledge (and, ultimately, for truth) neither through the scientific method, nor through the methods of the human sciences (the moral sciences or Geisteswissenschaften) modelled on the scientific one, but using a reflection on experience having its strength on aesthetics. And, in order not to misunderstand, it must avoid from the start the mistake of thinking that the Gadamerian aesthetics is the road that leads to the world of appearance and form, replacing the real world, i.e. the essence. Instead, it should at most allow the manager to find out that the real world can be taken, seized and also the context in which people operate through the maturation of an "aesthetic consciousness" that has nothing to do with the romantic idea of the genius who sensed and established the kingdom of Beauty and Art. The concept of "aesthetic consciousness" is not only in relation to the art world. The "aesthetic consciousness" has, in our view, some wider horizons: it is the acquisition, by the subject, of a reflexive competence on experience, within the parameters of "beauty" as the search for meaning, form, harmony, balance[6].

The hermeneutic attitude of the Manager is, for us, exactly in this ability to interpret the experiential ego as a harmonious synthesis of subject and object, in the perspective of a subjectivity lived in search of beauty, but a kind of beauty that we could define in the Platonic / Augustinian way as *kalokagathia* and as "*aequalitas, similitudo; congruentia, convenientia, concord, pax, ordo; totum, omnia simul, unitas; distincitio, varietas, gradatio; mensura that is large, numerositas*"[7]. This involves, as you can guess, to consider the spectrum of the hermeneutic attitude of the leader in new forms, as tolerant, respectful, balanced, dialoguing.

It is a hermeneutic attitude which moves beyond the only contextualized and reductive dimension of existence itself, beyond the *hinc et nunc*.

As we know, the current late-capitalist society is homologating, it reduces the autonomy of the individuals invading their private sphere and misleading them into thinking they are free. It is precisely from this awareness of false freedom that the hermeneutic attitude, referring to the ability to interpret the individual, never separated by meaningful horizons , will play its cards focusing on a conscious act, neither

[5] See: H.G. Gadamer, *Truth and Method* , tr. it. edited by G. Vattimo, Bompiani, Milano 1983, pp. 25-211.

[6] See: E. Tizzi, *La Bellezza e la scienza. Il valore dell'estetica nella conoscenza scientifica*, Cortina, Milano 2001.

[7] See: J. Tscholl (1967), *Dio e il bello in sant'Agostino*, tr.it., Ares, Milano 1996, p. 40.

only driven by a structured rationality in logic diagrams of New Enlightenment or Neopositivism nor the ones of Neocriticism, but also taking into account the importance of the aesthetic perspective, however, adopted in the above mentioned lines, so that it becomes the choice of a conscious way of life, a relational mode aimed at understanding and at opening to the unusual, the unspoken, the unexplored, the "not yet reached".

It will involve, therefore, the identification of a hermeneutic attitude which is new, different and even without disavowing them, it would break away from the traditional behavioural paradigms tended towards some arrogant expressions and humoral manifestations, which are too harmful to the educational organization you have to manage. It is, in a final analysis, to find humanity, humility, to track down the visible in the invisible. So, the hermeneutic attitude connotes itself of behavioural traits deserving our attention and aimed at tracing the practical experience of historicized subjectivity, the ability to be tolerant, the will to dialogue and the tension to be well and comfortable in the workplace. Tolerance, dialogue and well-being are not taken, however, as absolutist paradigms, but only as "*philocalies*"[8] or as lenses through which to interpret the leadership in relation to the self and the others.

1.1. Manageriality and Tolerance

In a beautiful text[9] of a few years ago C. Magris focuses on two principles that, in his opinion, will save humanity from vulgarity and irrationalism: tolerance and secularism. Well, in our view, the hermeneutic attitude finds in tolerance its almost natural way out because it is not too disposed to a strong ideological tract, it is more open to neither weak nor debolistic perspectives of thought, but, nevertheless, ready to welcome visions related to what is temporary, to read the present through historicized lens and with the disposition to understand the facts and events beyond pure factuality to guide them towards a positive dimension. We recognize that today, when we talk about extreme decisionism, facing the issue of tolerance in relation to managers and leaders may seem hasty, risky, disturbing. But, just because we talk about hermeneutics is talked about in many ways, each of which has its dignity to exist, to consider it from the perspective of an innovative and proactive leadership will not be a theoretically incorrect operation.

Tolerance is, at least in theory, deeply rooted in Western thought. It is the rational response to the conflict between the different ways of life inspired by cultures, civilizations, religions. Today, the clash between Islam and the West is under the eyes of everybody, which, as we know, not only in the deeper aspects of a theological nature, but also in the simplest events, as for example, the veil worn by women, habits, food etc. In the past, the alternative to tolerance was the war which denied and tried to destroy the others. Now society is more mature, and it refuses, at least in principle, the war as a means to solve conflicts, and some *modus vivendi*, which are respectful of multiculturalism, are even proposed. The reflection on the managerial culture in education has also opened up to these new scenarios and it goes even beyond proposing hypotheses of leadership by developing theoretically and methodologically refined models for intercultural coexistence.

[8] The Philocalies are the interpretations of the Fathers of the Church and of the hermit monks of biblical passages collected in an anthology by a few monks of Athos , Nicodemus Hagiorite and Macarius of Corinth the second half of the eighteenth century). See: Lisa Cremaschi, *Philokalia , the love of beauty* , Qiqajon , Community of Bose, Magnano (Biella) 2006.

[9] C. Magris, *La storia non è finita. Etica, politica, laicità,* Garzanti, Milano 2006.

In the middle of Enlightenment Romilly, in the "*Enciclopedia*" states that "The man, despite his great intelligence, is so limited by his errors and passions, that there are never enough tolerance and forbearance, instilled in regard to the others, which he needs so much for himself, and without which there would be nothing on earth but troubles and divisions. " Even in the Catholic field, tolerance has its supporters. J.Guitton, the "philosopher of God" died a little while ago, in *The Book of wisdom and virtues refound* defines tolerance as a "semi-virtue", halfway between justice and love, and you don't make violence against your neighbour with it alone. But J. Guitton underlines that tolerance, while not "ideal because it is not love", is however, a first step and, as we would add, perhaps, a necessary step. It is in this dual secular and Catholic perspective that we propose tolerance as a *habitus* in the behaviour of the manager/leader.

In the relationship with others, in a society like the present one, in which "we are all mixed, as Voltaire said, with weaknesses and errors", we must learn first to put up with each other. Education for tolerance starts from this point, and this is the beginning of a training course which hasn't got tolerance as an ideal, but which recognizes its importance. Of course, we must distinguish different levels of tolerance and J. Guitton identifies at least three of them:

1) "towards the things of life, within the same group. Tolerating the others' small flaws, their character, their way of doing things differently than we do;

2) towards foreigners (i.e. not seeing them as a potential threat);

3) towards beliefs (tolerating cultural ethical, political, religious differences)"[10].

[10] J. Guitton, *The book of wisdom and virtues refound*, Piemme, Casale Monferrato (AL) 1999, pp. 267-268.

As we see, even unintentionally, it seems that Guitton has drawn a gradual learning process about tolerance. In the hermeneutic perspective, to acquire the ability to be tolerant means to strive to understand each other, respecting the others' ways of being, their convictions, beliefs and so on. The other must not be seen as a threat and, with an overused phrase, we can say that he should be considered as a resource. However, even before being a resource, the other is a living being that is as he is, and as such, he should be respected; at first, he must be, at least, tolerated. You must train the managers to overcome the foundation of selfishness that has its origins, in our view, in the belief that "I am what I am, and the others are different."

The danger of tolerance is, with no doubt, the result of indifference; the indifferent has no prospects, no expectations, he is an individual who let himself to live. For the indifferent it is as if the other doesn't exist, and he doesn't even talk about him. Tolerance, if it is considered in its proper direction and with a touch of the needed realism, is instead a stage of waiting which can prepare other moments and ways of relating. In short, knowing how to be tolerant means merging in a dynamic dimension which tends to other much higher objectives giving a meaning to our actions. If we stay, however, on a static tolerance, it will be dangerous because it can lead to skeptical positions, if not even cynical.

1.2. Leadership and Dialogue

In the formation of managers in the educational institution, a decisive role is to be taken by the readiness for dialogue through which the relationship can be loaded up with typical values of *virtus, libertas, gravitas, beneficentia, misericordia, benevolentia, aequitas, urbanitas, honestas, iustitia, pietas, honos, fortitudo, ambitio, religio, fides, salus,*

felicitas[11]. These last should not be considered as intrinsic or even innate, but also, and especially for our purposes, as the real skills to be acquired.

Therefore: rather than point to be narrow-minded, in his point of view, or even, in his "*particulare*", the manager must change his perspective and reach an agreement, a mediation, the point of convergence, through dialogue. This last, however, in contrast to what is stated by the functionalist theories of communication, should not be considered as a means, but as a target. If the dialogue is considered only as a means, maybe you emphasize some methodologies which can be very sophisticated, but you lose sight of the goal, which is to reach an agreement that is accepted among the dialogue partners as a higher target.

At a training level it is important to point out that dialogism, before being experienced and sophisticated in dealing with others, must become the *habitus* of the subject; he must be a strong supporter and a witness of it. In his work *To himsel*[12], Marcus Aurelius teaches us that only through the daily work in a work on yourself, in a dialogue with yourself, in fact, you can educate yourself to be wise, to reflect on your life and your daily existence. Well, Marcus Aurelius' lesson is still valid and his recalls to himself ("You have to keep in mind ..."; "Dig in your inner life ..."; "Observe how..." etc.) to support that the dialogue must become for the subject an ethical / educational imperative not imposed from outside, and so not a Kantian categorical imperative, corresponding to "you must", but matured in your conscience, internalized, embraced as yours. The dialogue, as Schleiermacher and Schlegel had said, is understanding and comprehension, and Gadamer adds, it is interpretation. The good manager, therefore, must have a hermeneutic dialogue training that, to resume Gadamer's lesson, "means not so much listening to each other, but lend an ear to each other"[13]. Lend an ear to to each other", then! The typical character of the dialogue is shown in this, that is giving help, lavishing, lending oneself (lending)in the act of listening (an ear), and this action is mutual. As we see, the dialogue is not a method of conciliation, but it is an investment, it is taking part to the other, to and of his/her human experience. It is only in the actual practice of dialogue that you can really understand, because at that time you really belong relationally to another. In the practice of dialogue you have the concrete hermeneutic situation. Each other's understanding can take place only if there is a mutual listening. "The hermeneutic understanding is not limited to noticing, it is an opening and an openness to opportunity, it is the creation of some visions of the world [...] which serve to regulate our behaviour in the practical world"[14]. Lending a ear to each other is, therefore, a practical behaviour that pushes the subject to go beyond his cognitive and interpretive narrow-mindedness. In lending an ear to each other, the question has got a fundamental role. The other asks the questions and demands the answers. The dialectic of question and answer determines understanding, which, however, takes place through language. Interpreting, understanding, speaking are, in the end, the same thing; one is not possible without the other and vice versa. The word of who dialogues-which is necessary to listen

[11] See: G. Sola, *Genealogia dell'humanitas*, «Pedagogia e vita», 2(2006), pp. 110-129.

[12] See: Marcus Aurelius Antoninus, *Conversations to himself* , Introduction by Max Pohlem , translation by Henry Turolla, Fabbri, Milano 2003.

[13] C. Dutt (eds), *Talking to Gadamer*, Cortina, Milano 1995, p. 12.

[14] M. Ferraris, *Ermeneutica,* Laterza, Roma-Bari 1998, p. 26.

to, is a word that needs attention, it demands humanity, human enhancement. Understanding the other is not a sign of failure or weakness for you, indeed, but it is a manifestation of strength because it requires the ability to recognize the value of others' opinions and, therefore, the willingness to put yourself into question. Through dialogue, in the hermeneutic perspective, you must mature the willingness to learn from the other to get out of a private view of things, and in this regard, Gadamer affirms that: "The dialogue with the other, his/her objections or his/her consent, the fact that he /she understands or misunderstands, all that means a sort of enlargement of our uniqueness and a proof of a possible sharing and commonality encouraged by our reason"[15]. The hermeneutic dialogue is, in the end, our ability in rational intersubjectivity. In the dialogue, you are very often involved in an unexpected way and neither you know what the outcome will be, nor you will be able to say when it will really end because there is always something unsaid, and this is what stimulates getting back in the game again. The dialoguing leadership has the advantage not to withdraw into its "point of view" and it ensures that the recognition of the leader's role matures almost spontaneously, but with the possibility that it will always be increasingly questioned, because leadership needs to be acquired time after time, it is never a permanently acquired fact.

2. The decision-making competence for the creation of human value

The hermeneutical model of *Management*, as we have seen so far, recognizes the Leader's centrality as he is the main subject-person, in the educational institution, of an action characterized by responsibility, tolerance, dialogism.

This action, although more moved to a dimension, which is constructive, interactionist and which concerns values, in any case, cannot prescind from other conditions, which are the basis of the concept of *Leadership*, as well as of the same role of *Manager*. Among these, the policy-making and evaluation competence, in this case, is undoubtedly essential to respond to a mission involving, more than ever, the organizations. It covers, of course, a concept of *accountability* and an economic evaluation, but it is mainly based on the individual intended as a goal, on the construction of his ego in his working experience, on the growth and enhancement of his competences for the creation of human value.

The evaluative-hermeneutical competence implies the constant practice of an activity concerning a critical-interpretative thought made by the Manager of the formative educational service that, deciding what is more right to do for the good of the organization, will be supported and influenced by his subjectivity, historicity and framework of values[16].

The subjective conditioning the evaluative practices of the Manager are submitted to, however, does not deny the intersubjectivity. The action of evaluating, at whatever level, of course, always implies a decision process[17] which cannot occur in a social and values' void. On the contrary, it always involves a relational approach that has got a frame of values as its background.

So, if it is true that the Manager's decisions are conditioned by his subjectivity, it does not mean they will be taken out of reality, the context and the existential experiences of the

[15] C. Dutt (eds), *Talking to Gadamer,* cit., pp. 44-45.

[16] See: M. Palumbo, *Il processo di valutazione. Decidere, programmare, valutare*, Francoangeli, Milano 2002; C. Bisio, *Valutare in formazione, azioni, significati e valori*, Franco Angeli, Milano 2002.

[17] M. Palumbo, *Il processo di valutazione,* cit., p. 143.

participants of the system (teachers, educators, students, families, local authorities, etc.), or which will be the expression of a single point of view.

The "*being*" of the subject, in our case of the Leader, takes its value justifying the role he plays if and only if, Heidegger[18] warns, he is able to perceive himself as an existential part of the "*being there*" and *exixting* in the world, into the reality in which he moves, or in the organization he represents.

The result of this is that his identity is not solved at the individual level, but he is a *being* in relationship with others, who is formed with and through the contributions of the individuals he meets in the context of his work and in a horizon of an intersubjective belonging.

Hence, there is the possibility of teaching the *Manager* the recognition of intersubjectivity, as an implicit assumption to enhance his decision-making competence and teaching him his professional role considered as a dialogic practice[19]. In Buberian philosophy, the experience of recognition is nothing but a reflection about identity; it represents a hermeneutical interpretation, for a personal and interpersonal understanding[20].

The dialogue, taken as a category in the evaluative experience, is a positive sign of involvement, affective proximity, relationship with the community. It allows you to overcome the antithetical visions, the clashes, the internal conflicts and the rivalries so as to come to a common ground, as Gadamer would say, to a "fusion of horizons" in the workplace.

The term "fusion of horizons" does not mean the sum of the Manager's truth and the reality / experience / situation to interpret, but something more: it is the birth of a *tertium*, a further level of truth which is different from the individual truths[21]. And it is towards this further perspective that the *Manager* needs to tend in his evaluation practice, to make decisions that are not only right or convenient for himself, but also useful and necessary for the organization. In view of that, he will need to develop his exercise with the awareness of being immersed in a common reality with the other participants of the organization, and all that implies dimensions such as the mutual respect, a common purpose, a constant quest of the others' promotion.

In this perspective, in particular, the Manager will develop his evaluation practice, not in an individualistic and authoritarian perspective, but within a democratic horizon, constantly looking for the understanding, the sharing, the participation by the organization's *stakeholders*[22] in the decisions concerning it and concretely experiencing the responsibility that he has towards the community in which he lives, he practices his professional role and spends his existence.

However, if the *Manager* does not learn primarily to see himself as a part of the world-organism he belongs to, it will be impossible for him to assume any decision-making process, any educational and evaluation plan or action which is effective, therefore of quality. Hev will escape his responsibilities, not only towards himself but towards the whole community he represents.

[18] Cfr. M. Heidegger, *Essere e tempo* (1927), tr. it., Utet, Torino 1969, p. 123.

[19] See: M. Buber, *Il principio dialogico*, tr.it., Ed. Di Comunità, Milano 1959.

[20] L. Fabbri, B. Rossi (eds), *Pratiche lavorative. Studi pedagogici per la formazione,* Guerini Studio, Milano 2010, p. 100.

[21] See: R. Pagano, *La pedagogia generale. Fondamenti ontologici e orizzonti ermeneutici,* in R. Pagano (eds), *La pedagogia generale. Aspetti, temi, questioni,* Monduzzi editoriale, Milano 2011, p. 106.

[22] See: P. Rossi, H. E. Freeman, *Evaluation. A systematic Approac*h, 6 ed., Thousand Oaks, Ca: Sage 1999, p. 192.

In the light of the foregoing, to form the hermeneutical-evaluative competence means to prevent the *Manager* of educational institutions running into a self-referential leadership and to guide him, instead, to a new shared and collective way in the exercise of his *Governance*.

This will, therefore, imply to educate the Manager to the awareness of his historicity, together with the awareness of the value of otherness and the acceptance of the others' points of view, for the construction of any truths or to make decisions for the good of the organization.

An evaluation process, especially a self-assessment one, acquires a hermeneutical meaning when it grows the knowledge of the object to be evaluated starting from listening to the experiences and expectations of the involved parties, as well as through the recovery of the meanings they give, either to that object or to reality.

In the scientific literature, the model which best represents this kind of evaluation is the one suggested by R. Stake, not only addressed to the product – that is, to educational programs, levelled out according to the standards already established *a priori* - but also focused on arising the *issue*, i.e. the issues raised by the various *Stakeholders* involved in the processes within the organization.

In the evaluation practice, Stake states that there is the need to arrive at a judgment which is unique and representative of all the points of view of the participants involved in various ways in the organization and in the training process.

The attribution of meaning and the purpose are the two ontic levels of evaluation, which go hand in hand. The question about the reality of the educational-training organization makes at first the subject *Manager* recognize the value, and then judge it.

In order to obtain a suitable evaluation for the development of the institution, there must be, of course, the recognition or production of a judgment aimed to do, to make the decisions and the choices which have consequences on the reality of the organization itself and, as such, which are able to increase its value and to improve it.

To become a driving force for improvement, change and development in the educational-training institution, the evaluation must be done at several levels by different stakeholders cooperating there. The various forms of evaluation will be attested among the demands of *accountability* (reporting, measurement), *benchmarking* and *audit* (certification, monitoring) and needs of responsibility concerning the institution / service itself and its protagonists.

Hence, there is the recognition of the importance of combining, in the practical decision, a summative evaluation, which is more oriented to the needs of *management control*, *compliance* and *accountability*, with a formative evaluation, which is more likely to respond to the needs of *learning*, *knowledge management, policy and program design* and *performance management*.

Either at an *accountability* level, or at the self-evaluation level of educational institutions and educational-training services we recognize today the need to manage the knowledge, the skills, the experiences, the information gained by the various participants within the individual organizations; the need to share them, making them available outside and transforming them into products / services / results, so as to support a competitive advantage.

In that respect, we talk about *Knowledge Management*. This expression refers to a managerial approach aimed at encouraging the

development of individual skills of the people working within an organization, thus creating the conditions to promote the sustainable development within the organization[23].

The initiatives concerning *Knowledge Management* are directed to the development of Communities of Practice, involving the use of cooperation vehicles and portals that, in the logic of a system, merge with the processes of management and development.

The Communities of Practice are the places in which participants share their knowledge and experiences about a subject, a discipline or a project for their own interest but still supporting the organization they belong to.

All working environments, especially the more subjected to repetition, enforceability, to a mechanism of action, today, are marked by the wish to be the subject of attention and appreciation given by the *Manager*. It doesn't happen very often, and the result is that it follows the occurrence of alienation in the working place, made by those who work within the organization.

Today, one of the challenges affecting the *Manager* in schools or educational institutions, is to overcome what is described in literature such as the cancer of the organizations of the Western educational systems: the disaffection towards the institution and the difficulty to identify themselves as part of it, therefore, to belong to a system.

This phenomenon is highlighted at several levels: by the teachers / educators towards their students / their pupils, by the students / the pupils towards their school / their educational institution, but also, and this is undoubtedly the most destructive combination, by the headmaster himself, head of the education / training service in relation to his condition as a *Manager*, his tasks and responsibilities related to his role in respect of his employees and the welfare of his institution. All of them affected by this evil in their own way, they show attitudes of irresponsibility, lack of interest and motivation towards their work, associated with a myopic view of their activity, then, to an inability to perceive themselves as the bearers of values within the system they belong to.

Among the most effective hermeneutical strategies, to fight this risk, there is the *Performance Management*, the subject of discussion in the next section, which consists of an evaluation of the performance of human capital operating in the institution / service for the purposes of its enhancement. It is, in other words, to evaluate the contribution that a human resource is able to provide the organization he/she operates with, based on skills and the role played in it.

To evaluate the performance of its employees, the *Manager* will not only weigh the degree of achievement of the objectives assigned to the expected outcome, but he will also be able to facilitate the orientation and the development of their skills and knowledge.

From the above, there is the need to train the *Manager* to a hermeneutical decision-making competence to support an evaluation practice that is based more on a human and social interest than on an economic one. Such a training, as we have seen, will be based on the dimensions related to an "ontology of humans"[24], including some aspects such as dialogicity, intersubjectivity, responsibility, care / promotion of the others.

[23] See: A. Ceriani, *La formazione: agire la conoscenza,* in A. Bobbio, C. Scurati (eds), *Ricerca pedagogica e innovazione educativa. Strutture, linguaggi, esperienze,* Armando, Roma 2008, p. 91.

[24] R. Pagano, *La pedagogia generale. Fondamenti ontologici e orizzonti ermeneutici,* cit., p. 109.

These qualities are the foundation of a democratic-civic consciousness a real *Manager* must necessarily be endowed with, if he wants that his role is not reduced to a mere bureaucratic activity, but it becomes a valuable opportunity to contribute with the promotion of human capital, either to a strategic and sustainable development of its organization, or to overcome the passing of an anthropological and cultural crisis which affects multiple levels of our society.

2.1. The HPM (Hermeneutical Performance Management) training Project

In the epistemological framework above-described, a HPM (Hermeneutical Performance Management) research project has been structured for about a year, coordinated in the scientific part by Prof. R. Pagano and in the design of its phases and data processing, by the writer, with the collaboration of a few PhDs, all belonging to the Ionian Department of the University of Bari Aldo Moro. This study, divided into four different stages, relying on a concept of Management hermeneutic-pedagogical, is created with the aim of analyzing, at first, the most common models of Management to date, undertaken in schools and vocational and Socio- Educational institutions in Taranto and in its province, and then to spread the knowledge about HPM model and to train the staff. In the last two phases, in each organization, identified in a suitably chosen sample in the survey planning, we will proceed with the structuring of a management model, based on the priorities identified by each school and hermeneutic institution and a common strategic mission, which will consist of promoting an active citizenship in the territory.

It is not possible to report here on the results produced by the search, because we are still in a phase of investigation. In particular, after the invitation given by the Department to schools, vocational and educational-social schools in the area, and the collection of all the subscriptions by the Headmasters and Managers, we went on with the construction of the organizations' sample, which, with the wish to be representative of the reality on the Ionian area, appears to be as follows: n. 10 educational institutes, n. 5 social and educational services, and n. 5 vocational institutes.

A semi-structured questionnaire was subsequently established, composed of 21 items, addressed to 10 Headmasters and to 10 Managers of educational and training services and aimed at bringing out the management models adopted in their organizations. From an even partial analysis of the data offered by their answers, some interesting perspectives emerge: in schools, the autonomy conferred by Law 59/1997, in the last decade, seems to have centralized the governance in the hands of the Headmaster, which exerts his leadership worrying to meet mostly the economic aims and not always taking care, with concrete actions, of a performance improvement concerning his organization in terms of human capital.

However, the relationship between economic interests and pedagogical purposes results more balanced in the management of educational and training services, in which a more democratic and active management is highlighted, and among its priorities there are training, promotion and strengthening of the members-collaborators-service organization's performance, in order to respond with an increasingly refined performance to the increasingly ambitious challenges of politics, culture, society and territory.

The analysis of some of the answers given by the managers (Headmasters, Managers) to a series of questions related to the identification

of the strategic issues undertaken in recent years by the organization, showed a levelling of certain objectives such as, for example, computer literacy of teachers and students, reception and integration of disabled students and foreigners, right/duty to education, diversification and implementation of training products, guidance, evaluation, internationalization of the disciplines, consolidation of relations between school and territory, between schools and local authorities, alternation between school and work, equal opportunities, and so on. The theme concerning the promotion of a citizenship culture in the territory was less recurring. Once permanently acquired, the data will be cross-checked with the accounts given by the stakeholders of the organizations (teachers, students, families) as part of the focus groups which will be carried out in the classes of the selected schools, socio-educational and vocational institutions. Only then, we will be able to obtain a clearer and less self-referential picture about the most popular models and managerial strategies to date, in educational and training services. The discussions held in the focus groups about different management paradigms, will also allow us to bring out their lights and shadows. So, this will lead to the possibility of overcoming them carrying out some additional strategies to ensure the well-being of the Institution-service, but also its growth in terms of performance and, in the end, this is the most interesting side of it, the possibility of a higher relapse of the organizations' performance in terms of citizenship, respect for the Constitution and political action in the territory.

In order to create a synergy around this mission, after a period of training for managers and the internal staff in schools / institutions following the HPM model, we will go on analyzing the case by developing a cognitive map of the mission strategic objectives aimed at achieving the above-mentioned mission for each organization. The cognitive map will consist of a strategic plan of policies, actions, measures designed to pursue the identified mission. Each process will involve a certain time, the commitment of a budget, the use of some resources and a constant performance monitoring with a view to the results to be achieved. In this perspective, we hoped that, once acquired and metabolized by the organizations, this model could be experienced in a final phase, not only to promote in the territory a managerial training of school and socio-educational services designed to promote some experiences of citizenship in the Ionian area, but also to lay the foundations of a critical and active approach in each organizations in the Governance, based on a hermeneutic philosophy of management which is never predictable or static, but rather always open to new ideas, innovation, the dynamism of history, to the person, to the relations in the belief that each of these variables is essential to build a shared leadership and a quality management of human performances. Today, the research that is being carried on, finds its justification and corroboration in the recent school reform plan suggested by the Italian Government, "The Good School". It hopes for the centrality of the student in the educational process. In this perspective, the mission that the managers of educational institutions, as well as of socio-educational and professional ones, are asked to meet, will be the development of some models about the interpretation of leadership based on a large and shared planning, on a more active listening of the territorial challenges for the pursuit of a full citizenship in the near future.

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DISCUSSION PLATFORM

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Promotion of a Scientific Journal in International Information Environment: Problems and Solutions

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Abstract. Currently, scientists have to cope with the tasks of integration into the global scientific community. These tasks require not only specific measures aimed at improving the quality and efficiency of scientific research, but also significant efforts to create a system of Russian scientific journals of international level. The article summarizes the experience of development of the scientific journal "Economic and Social Changes: Facts, Trends, Forecast" issued by the Institute of Socio-Economic Development of Territories of Russian Academy of Science. The author identifies significant competitive advantages of the title, which include the English version of the Journal and open access to the Journal's full-text materials, which allows it to widen its readership, to provide a publishing opportunity for writers of the world level, and to raise the level of citation. The article highlights important tasks in the development of the Journal, which have been solved by bringing the Journal in accordance with the requirements of global citation indices. The author presents the results of the analysis of the Journal's bibliometric indicators in the Russian Science Citation Index, which indicate that the title has good prospects for integration and advancement in the international information space. The results of assessing the level and quality of publications show that experts give positive assessments concerning the changes that the Journal has undergone; and its development strategy meets expectations of the readership. The results achieved in the field of promotion of the Journal at the international level are described in relation to the criteria used to assess the level of all scientific periodicals by global citation indices and world's leading publishers. In conclusion the author sets out priorities in the field of promotion of the economic journal on the international level, primarily those that help ensure a high quality of published materials, increase publication indicators and international visibility of the Journal.

Key words: economic journal, promotion of a scientific journal, international information space, publication activity, bibliometric indicator, global citation indices.

The increasing role of scientific journals both in the development of academic science, in general, and in the identification of key research priorities determines the emergence of issues related to the promotion of academic publications in the international information space.

The need for more objective information about publications of Russian scientists and improved transparency of Russian science and technology in the world, primarily by global citation indices Web of Science (WoS) and Scopus, has aroused interest in the task of expanding presence of Russian journals in these indices [2, 3, 6–8, 10–13, 17, 20, 23, 26–30].

The targets on the share of publications in international databases are set out in government documents. In order to improve the state policy in the field of education and science and the training of qualified specialists with regard to the requirements of innovative economy, the President urged the Government "to ensure the increase in the share of Russian researchers' publications in the total number of publications in international scientific journals, indexed in the database "Web of Science" to 2.44 percent by 2015"[1]. In 2014 the share of Russian researchers' articles in scientific journals, indexed in the Web of Science database, was recorded at 2.11%, or 29,793 units (as of the beginning of April, 2015) [15, p. 112]. However, by share of publications in the WoS database, Russia is still noticeably inferior to the countries-leaders, as well as to the considerable number of countries, following the path of catching-up development (*fig. 1*).

It should be emphasized that the citation of Russian authors remains too low. So, only in recent years the indicator of citation impact, calculated as average citation in InCites, expressed as percentage of the average for the world (equal to 1), has been approaching the value of 0.5, i.e. 2-fold lower than the average world indicator. Foreign experts note that the citation impact of Russian publications is one of the lowest among the indicators of the Eastern Europe countries [27, p. 1113].

According to experts, the achievement of "readability" and "citation" of Russian publications is possible, if the quality of publications and journals, in general, is in compliance with international standards. The producers and experts of international databases rely on them when selecting journals for indexing in these resources [Kirillova, 2014].

The number of Russian scientific journals indexed in Web of Science increased in 2006–2012, although since 2012 this trend has begun to decline (*fig. 2*). As of May 2015, 159 Russian journals are indexed in WoS [24]. Besides, more than half of the scientific articles are published in Russian journals (*fig. 3*).

As the significant percentage of articles is published in Russian journals, scientists are to increase the number of publications

[1] O merakh po realizatsii gosudarstvennoi politiki v oblasti obrazovaniya i nauki: Ukaz Prezidenta Rossiiskoi Federatsii ot 7 maya 2012 g. № 599 [About the Measures on the Implementation of State Policy in the Field of Education and Science: the Decree of the President of the Russian Federation of May 7, 2012 No. 599*]. Rossiiskaya gazeta* [Russian Newspaper], 2012, May 7. Available at: http://www.rg.ru/2012/05/09/nauka-dok.html

Figure 1. Share of publications in the international system
Web of Science, % (WoS data, May 2015)

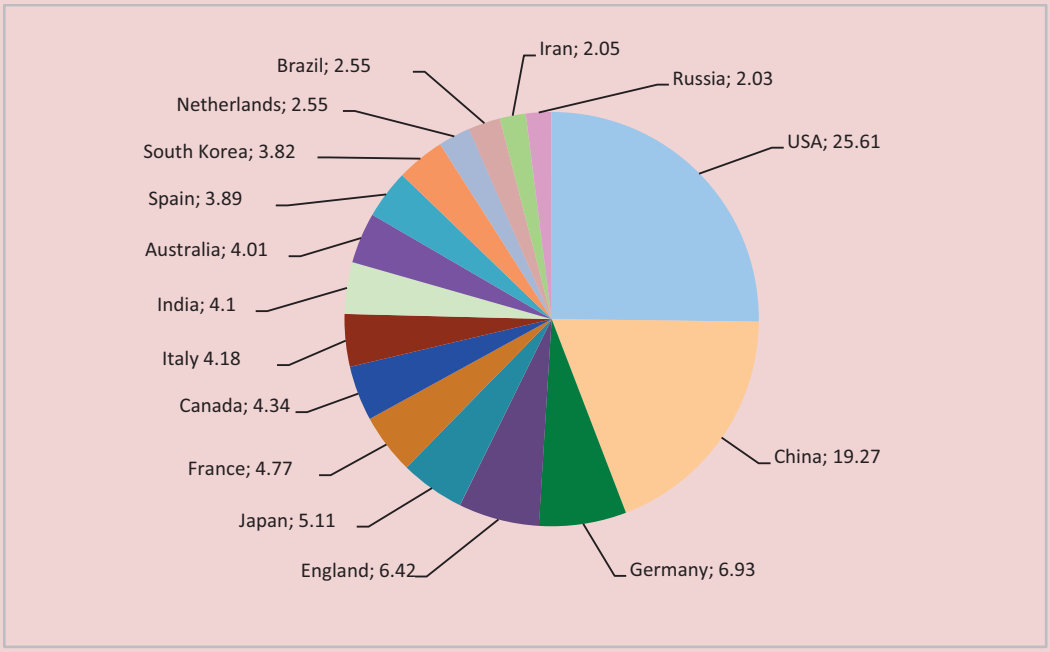
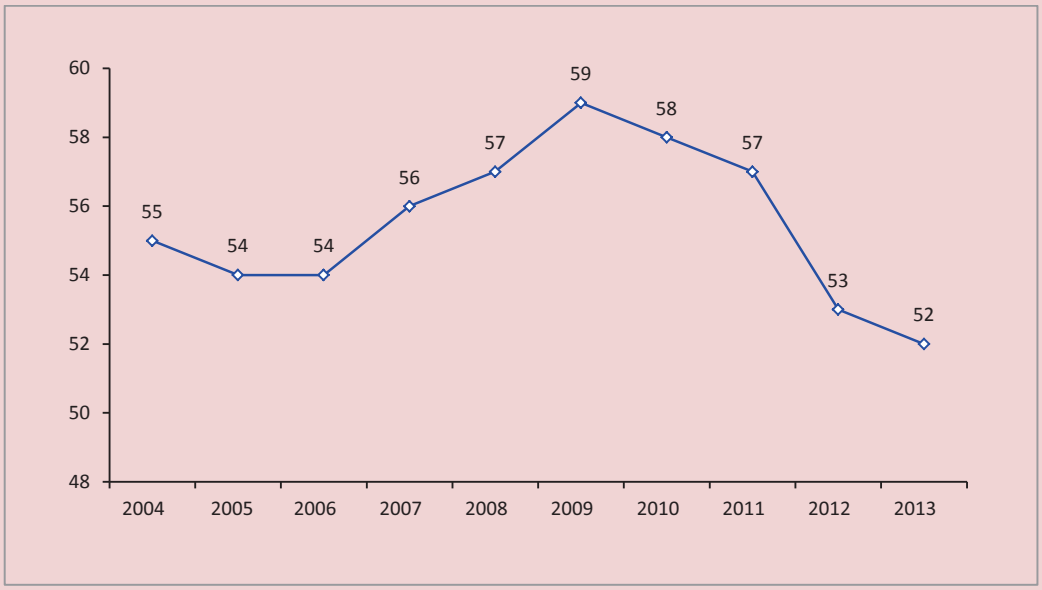


Figure 2. Number of Russian scientific journals indexed in the international system
Web of Science, units (data as of May 2015)

Figure 3. Dynamics of the share of Russian authors' articles published in Russian journals indexed in the international system Web of Science, %



in the global citation indices, it is very important to raise the number of such journals. However, the analysis of modern requirements for the number of researchers' publications and its correlation with the number of journals indexed in WoS and Scopus reveals the excess of the demand in publications over the possibilities of journals to satisfy them. To solve the problem, scientists propose to publish Russian scientific journals in two languages, with international editorial boards [1, p. 79].

In our opinion, the editorial boards of journals should first and foremost focus on bringing scientific journals in accordance with international publishing standards and demands of international citation indices. This path is chosen by the journal "Economic and Social Changes: Facts, Trends, Forecast", founded and published by the Institute of Socio-Economic Development of Territories of the RAS.

The significant competitive advantage of the Journal is the presence of its full-text English version, published since 2009. Thus, we can speak about a 6-year history of the English-language version. The translation is done by in-house translators. The level and quality of translation has been repeatedly highly assessed by foreign members of the Journal's Editorial Board.

The task for the Journal to join the international citation databases Scopus and Web of Science should become an important step in its promotion. The Editorial Staff consistently pursues appropriate policies. In 2013–2014 the staff conducted a number of activities aimed at bringing the Journal to a new level that complies with the requirements of international standards.

The work to develop and promote the Journal is carried out in the following directions:

1. Ensuring the quality of the Journal, including its international visibility.

2. Formation of stable distribution channels.

3. Increasing visual appeal and visualization of the Journal for authors and readers.

4. Bringing the Journal in full compliance with the requirements of global citation indices.

The Journal is focused on:

1. Creating a highly experienced group of specialists to select articles:

– strengthening the Editorial Board by attracting foreign scientists with high citation metrics in foreign databases;

– extending the number of reviewers by attracting respected Russian and foreign experts for the evaluation of scientific papers.

2. Attracting domestic and foreign authors who are recognized experts in the problems of modernization, regional and sectoral economic, social and innovative development and general theoretical and methodological issues.

3. Restructuring the Journal in accordance with the requirements of foreign databases.

4. Increasing the availability and transparency of the Journal in Russia and abroad:

– provision of free access to the Journal's full-text version on the website;

– submission of the Journal to the largest libraries;

– inclusion of the Journal in Russian and foreign databases.

The first measures involved the enhancement of quality of the articles according to the requirements of foreign databases. So, the requirements for manuscripts submitted to the Editorial Board of the Journal were updated. The requirements for abstracts in the article were changed: the volume of abstracts was raised up to 1800 characters (200–250 words). Their structure was enhanced: the blocks, such as introduction, objectives and tasks, methodology, results, conclusion, are to be included now. The Journal was brought in accordance with the requirements of foreign databases: in the Russian version of the Journal abstracts are in English; data on author affiliation are transferred into the body of an article; references are in the Roman alphabet; data on affiliation of the Editorial Board members are supplemented; the International Standard Serial Number (ISSN) for the online version of the Journal is acquired. *Table 1* presents the results of estimated compliance of the Journal with the requirements of global citation indices.

During the year we managed to achieve positive results in terms of improving the accessibility and openness of the Journal abroad. ISEDT RAS became a member of PILA (Publishers International Linking Association). It made an agreement with CrossRef to receive digital object identifiers (DOIs) for articles, which is the basis for correct identification of links and citations, sustainable access to scientific data, validation and use of research results. DOI is placed on the description page of each journal article in the online version (starting with no. 1 (31), 2014) and the full texts of articles (starting with no. 5 (35), 2014).

Table 1. Assessed conformity of the Journal "Economic and Social Changes: Facts, Trends, Forecast" to the requirements of international systems of citation

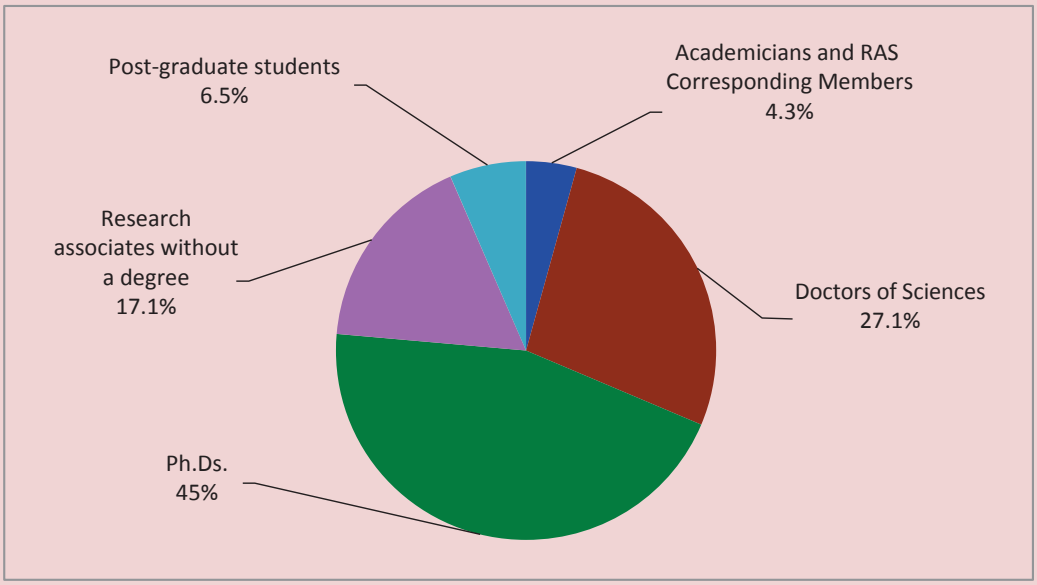
Indicators	Conformity assessment
Presence of ISSN	The journal is registered in the ISSN International Center; there are separate ISSNs for Russian and English versions, as well as for print and online versions.
Compliance of periodicity of the publication and the stated volume	The journal is published 6 times a year strictly according to the schedule; the declared issue volume is 230–250 pages.
Stable review system	All research articles are subject to peer-review and expert selection; the double-blind peer-review is used; the information on requirements for peer-review is posted on the journal's website; the database of external experts is maintained.
Sound editorial policy	The editorial policy formulated and presented in the Journal and on its website is determined by the orientation on a specific audience and a subject area and the pursuit of novelty, relevance and uniqueness of the publication.
Presence of the declaration of conformity to publication ethics	The regulations on publication ethics are posted on the journal's website.
High scientific level of the editorial board, sufficient international composition	The Editorial Board currently includes 23 leading Russian and foreign scientists: academicians and RAS corresponding members, Doctors of Sciences, heads of a number of RAS institutes, academicians of the NAS of Belarus and scientists from France, Finland, Poland and China.
Rather broad geography of authors	The share of foreign authors, on average, amounts to 70%; there are publications of authors from 8 federal districts, 2 cities of federal importance and more than 20 regions of the Russian Federation. The international team of authors is expanded every year.
Presence of a website of the scientific journal	The Journal's website is in Russian and in English, presenting full information about the edition and full-text archives of all editions.
Quality of printing	High printing and digital quality of the publication is provided by the presence of a developed material and technological base for the implementation of prepress and replication of the Journal (private printing-house, developed information technologies).

In May 2014, at the suggestion of the Editorial Board member J. Sapir, the English-language version of the Journal was sent to a number of foreign national libraries with a request to evaluate content, subject matter and level of articles and consider the possibility for inclusion in library collections. As a result, the German National Library of Economics and the Library of Congress receive the Journal on a regular basis now.

The great work was carried out to join Russian and foreign databases. The journal is indexed in Russian Science Citation Index (RSCI), present at the international information systems, such as Ulrich's Periodicals Directory, Index Copernicus, Google Scholar, and the international databases, such as EBSCOhost, ProQuest and RePEC. May 2, 2015 the Journal "Economic and Social Changes: Facts, Trends, Forecast" was included into the largest international base of open access journals DOAJ (Directory of Open Access Journals). The inclusion in this database indicates the quality of the Journal.

In the analyzed journal articles are published by Russian scientists in the field of Economics and Sociology, among them there are academicians and RAS Corresponding Members, Doctors of Sciences, and associates with a Ph.D., research associates without a degree and post-graduate students. In 2008–2014 4.3% of the Journal publications belongs to academicians and RAS corresponding members, 27.1% – Doctors of Sciences,

Figure 4. Authors published in the Journal "Economic and Social Changes: Facts, Trends, Forecast" in 2008–2014



45% – associates with a Ph.D., 17.1% – research staff without a degree and 6.5% – post-graduate students (*fig. 4*).

In 2014 the Journal published 115 research articles (*tab. 2*). The subject matter of publications is relevant to the priority areas of fundamental and applied research in the field of economic knowledge. The grown number of published articles indirectly reveals a systematic increase in the number of studies and the research activity.

The Journal is characterized by a large group of authors. Its international membership is increasing yearly. The period under analysis observed the works of scientists from China, Poland, France, Finland, Czech Republic, Azerbaijan, Belarus, Latvia, Lithuania, Kazakhstan and Ukraine. The share of foreign articles in the last three years amounted to more than 10% of the total number of publications of the Journal. The geography of Russian authors is steadily expanding (*tab. 3*).

Judging by the figures for 2008 and 2014, i.e. the first and last periods of the Journal publication, there was a 3-fold increase in the representation of federal districts (from 3 to 10, respectively) and a 2-fold rise in the representation of RF subjects (from 7 to 19) (*fig. 5*).

Table 2. Dynamics of the number of scientific articles published in the Journal "Economic and Social Changes: Facts, Trends, Forecast" in 2008–2014

Indicator	2008	2009	2010	2011	2012	2013	2014
Total number of articles – per year	41	48	56	95	106	99	115
Number of articles per issue	10.25	12.0	14.0	15.8	17.7	16.5	19.2

Table 3. Dynamics of the number of RF subjects and federal districts*, the authors of which published articles in the Journal "Economic and Social Changes: Facts, Trends, Forecast" in 2008-2014

Indicator	2008	2009	2010	2011	2012	2013	2014
Number of RF subjects	7	8	8	10	15	15	19
Number of federal districts	3	3	5	6	7	6	10
* Including the cities of federal significance.							

Expanding geography of the authors suggests that the Journal "Economic and Social Changes: Facts, Trends, Forecast" is gradually gaining recognition in the Russian scientific community. At the same time, it has acquired its readership. The demand for the Journal is indirectly confirmed by the analysis of scientometric indicators of the Journal in the Russian Scientific Citation Index.

There are basic scientometric indicators for evaluating a scientific journal, such as an impact factor proposed by the American scholar Eugene Garfield as a tool to measure the value of journals by calculating the average number of citations to an article for a certain period of time [25, 1955].

We previously expressed our view on the application of an impact factor as a tool for ranking scientific journals and presented an overview of existing methods for this index formation [19, 2014]. To make the situation more vivid, let us note that the traditional method is to calculate a two-year impact factor of a journal. The two-year impact factor is a classic indicator, calculated by the most authoritative database Web of Science and recognized throughout the world as the basis for ranking journals in relation to each other. "The classic impact factor, i.e. what we natively understand under this term, – says Vladimir Polyakov, is in the strict sense a simultaneous two-year impact factor; the current year is not taken into account... it is an impact-factor that in our time is most often mentioned when comparing the level of the journals" [16, p. 131].

In the Russian Science Citation Index the impact factor is calculated according to the citation of a journal in the Russian Science Citation Index for the previous 2 years – IF_2 (or 5 years – IF_5). The data on citations are taken from publications of the year for which the impact factor is calculated. To calculate the impact factor, of all journals processed in the Russian Science Citation Index the number of references made in the estimated year to articles published in this journal during the previous 2 years (or 5 years), divided by the total number of these articles. In fact, this indicator reflects the average number of citations to articles in a journal. There is a necessary condition for the calculation of a two-year impact factor, such as the presence of all editions of Journal for 3 years (a year of the impact factor calculation plus 2 previous years)[2].

The data, reflecting the dynamics of impact factor values of the Journal

[2] Method to calculate the impact factor in the RISC. Available at: http://elibrary.ru/title_profile.asp?id=26858.

Figure 5. Geography of Russian authors of the Journal "Economic and Social Changes: Facts, Trends, Forecast" in 2008–2014

Federal district / region / city	Region (city)	Number of published articles	Total number of published articles
NWFD	Murmansk Oblast (Murmansk, Apatity)	59	198
	Vologda Oblast (Vologda, Cherepovets)	56	
	Republic of Karelia (Petrozavodsk)	20	
	Komi Republic (Syktyvkar)	55	
	Archangelsk Oblast (Arkhangelsk)	5	
	Pskov Oblast (Pskov)	2	
	Kaliningrad	1	
Central FD	Yaroslavl Oblast (Yaroslavl)	1	3
	Kostroma Oblast (Kostroma)	1	
	Moscow Oblast (Kolomna)	1	
Volga FD	Republic of Mordovia (Saransk)	4	17
	Republic of Bashkortostan (Ufa)	11	
	Ulyanovsk Oblast (Ulyanovsk)	2	

Federal district / region / city	Region (city)	Number of published articles	Total number of published articles
Southern FD	Volgograd Oblast (Volgograd)	2	4
	Rostov Oblast (Rostov-on-Don)	2	
Far Eastern FD	Sakha-Yakutia Republic (Yakutsk)	1	3
	Khabarovsk Krai (Khabarovsk)	2	
Siberian FD	Novosibirsk Oblast (Novosibirsk), Tomsk Oblast (Tomsk), Krasnoyarsk Oblast (Krasnoyarsk, Kemerovo)	4	4
Ural FD	Sverdlovsk Oblast (Ekaterinburg)	10	10
Khanty-Mansi Autonomous Okrug	Khanty-Mansiysk	4	4
North Caucasian FD	Pyatigorsk	1	1
Perm Krai	Perm	5	5
Udmurtia	Izhevsk	1	1
City of federal significance	Moscow	49	49
City of federal significance	Saint-Petersburg	18	18

"Economic and Social Changes: Facts, Trends, Forecast" in the RSCI for the 2009–2014 period, is presented in *Figure 6*.

The indicators shown in *Figure 7* reveal a systematic increase in all values of the impact factor of the Journal. So, in 2014

Figure 6. Impact factor of the Journal "Economic and Social Changes: Facts, Trends, Forecast" in the RSCI (eLIBRARY data as of April 27, 2015)

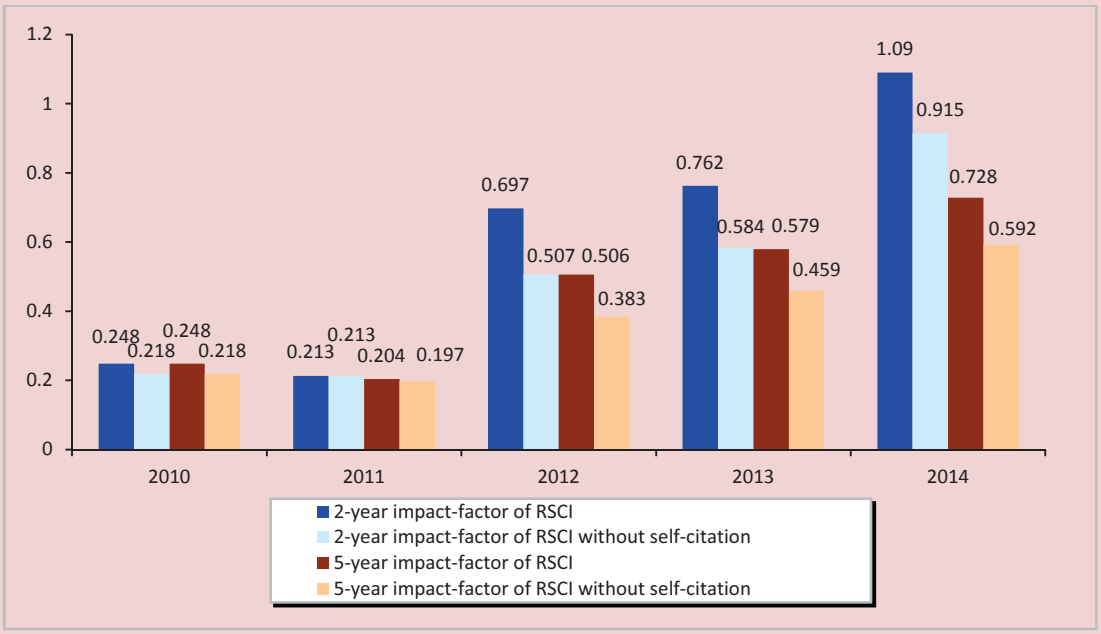
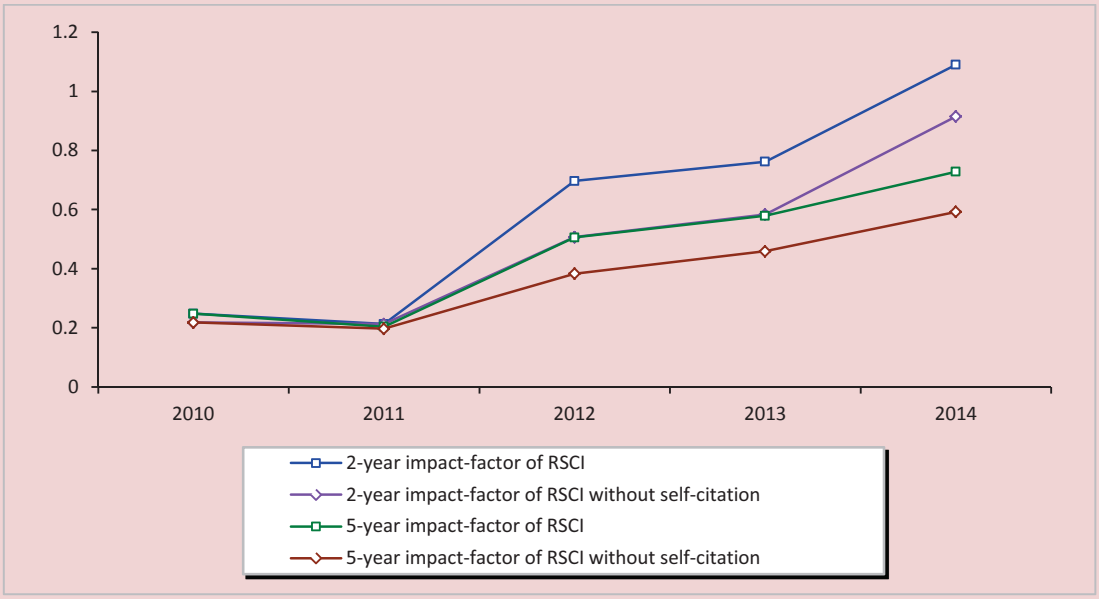


Figure 7. Dynamics of the impact factor values of the Journal "Economic and Social Changes: Facts, Trends, Forecast" in the RSCI (eLIBRARY data as of April 27, 2015)



the growth rates are in the range of 29 to 57%. Compared with the 2009 level, IF_2 increased 13-fold and IF_5 – 3-fold.

It seems important that in 2012–2014 the coefficients of self-citation of the Journal decreased and the Herfindahl index values remain low (less than 1500). This suggests that the increase in the impact factor of the Journal is provided due to the citation in external sources, but not at the expense of self-citation or citation in a limited range of publications.

Two-year and five-year self-citation coefficients of the Journal in 2014 were less than 20% each (*fig.* 8). This is a low level of citation. For comparison, 80% of the journals from the Web of Science database have a self-citation coefficient within 20% [22, p. 4].

To make the Journal assessment more objective, we present the dynamics of the Herfindahl index values (*fig. 9*), which allows us to take into account the number of citing organizations and the number of institutions, the authors of which are published in the Journal.

The Herfindahl index is calculated as a sum of squares of the percentages of the number of articles published by various organizations in relation to the total number of articles in the journal in the current year in which the organization is identified. The index takes into account a number of citing journals and identifies groups of self-citation journals, the so-called self-citation clusters. The greater the number of organizations, the more even the distribution of publications among them,

Figure 8. Self-citation coefficient of the Journal "Economic and Social Changes: Facts, Trends, Forecast" in the RSCI (eLIBRARY data as of April 27, 2015)

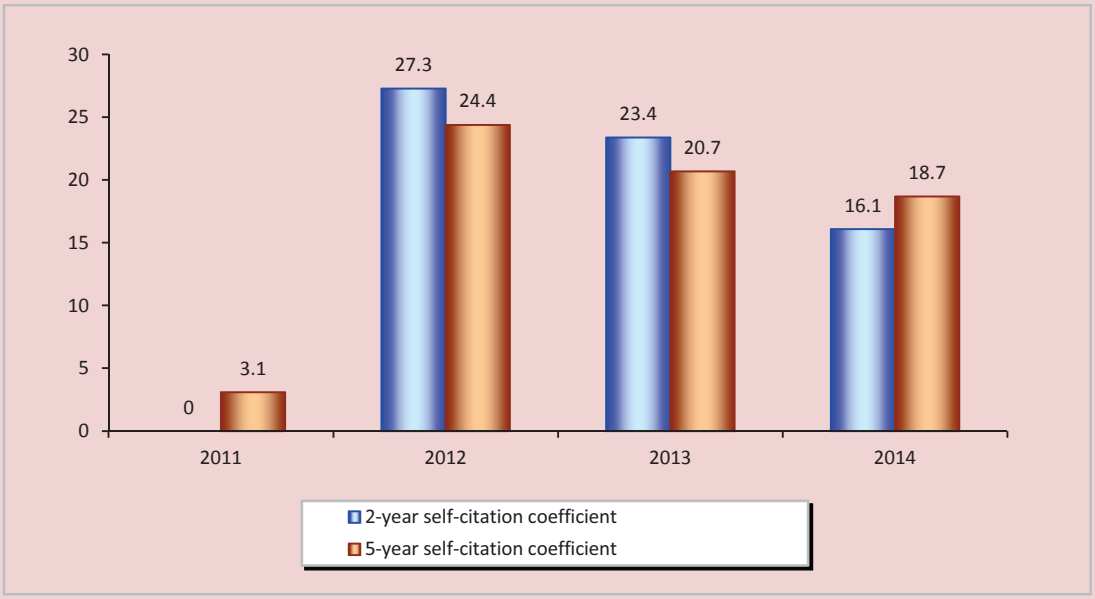
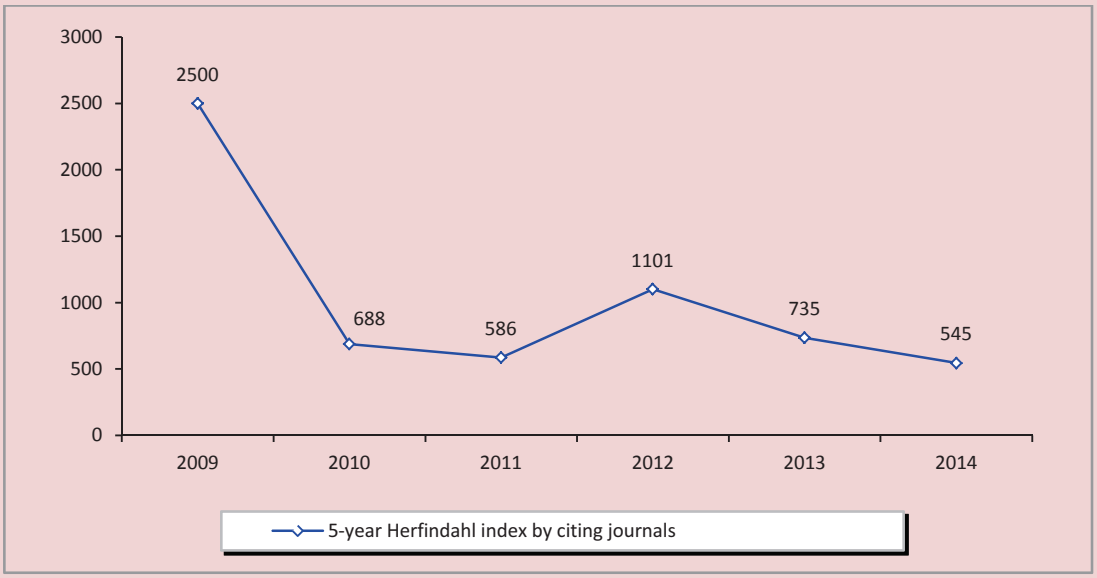


Figure 9. Herfindahl index of the Journal "Economic and Social Changes: Facts, Trends, Forecast" in the RSCI (eLIBRARY data as of April 27, 2015)



the smaller this indicator value. Its high value (more than 1500) suggests that the significant share of links belongs to a very limited number of other journals.

The Journal "Economic and Social Changes: Facts, Trends, Forecast" as of March 14, 2015 ranks 17th out of 300 economic journals and 3rd out of 58 sociological ones in the Russian Science Citation Index by a two-year impact factor for 2014. In the SCIENCE INDEX rating in the category "Economy. Economic science" in 2014 the Journal ranks 43rd out of 287 journals (*tab. 4*).

The integral index of a journal in the Science Index system is used to rate Russian scientific journals and is calculated by the following method. The index calculations are based on a five-year impact factor of a journal in the Russian Science Citation Index; the translated version of a journal (if any) and self-citation are taken into account. The calculated values of the 5-year impact factor of a journal are normalized

Table 4. Dynamics of the indicator and position of the Journal "Economic and Social Changes: Facts, Trends, Forecast" in the SCIENCE INDEX rating in the category "Economy. Economic science" in 2010–2014 (eLIBRARY data as of April 27, 2015)

Indicator	2010	2011	2012	2013	2014
Index value	0.150	0.145	0.192	0.328	0.556
Position in the ranking	49	69	65	64	43
Total number of journals in the ranking	194	221	241	273	287

in regard to the average number of links in the list of references, as well as the share of links per a five-year period used in the calculation of the impact factor. The average indicators of journals in thematic areas, calculated at the previous stage, are used as normalizing factors. The obtained value of the impact factor of a journal is divided by the Herfindahl index for citing journals, normalized to its possible minimum value in this direction. Normalization, with the Herfindahl index being taken into account, increases indicators of the journals that are widely known in the scientific community, and, vice versa, reduces rating of the journals with high self-citation or the journals using mutual citation to artificially improve their performance.

According to Table 4, at the end of 2014 the Journal "Economic and Social Changes: Facts, Trends, Forecast" was in the top quartile of the SCIENCE INDEX rating in the category "Economy. Economic science". Thus, it is possible to note that by scientometric indicators the Journal has high positions relative to other publications of the same theme. In general, the analysis of cientometric indicators of the Journal in the Russian Science Citation Index reveals that it has good starting conditions for integration and advancement in the international information space.

Annually the Institute of Socio-Economic Development of Territories of the Russian Academy of Sciences carries out expert estimation of the Journal "Economic and Social Changes: Facts, Trends, Forecast". In 2014 the questionnaire was completed by the ISEDT RAS personnel, the Editorial Board and the Editorial Staff members, as well as the readers who receive it. The survey involved 114 respondents: 13 members of the Editorial Board and the Editorial Staff of the Journal, 13 readers and 88 employees of ISEDT RAS. The data on the dynamics of the number of respondents participating in the expert assessment are given in *Table 5*.

The survey helps identify the assessment of the level and the quality of publications in the Journal and elaborate a number of proposals for improving its quality.

About 75% of the respondents assess changes in the Journal as positive, at about the same level as the previous year (*tab. 6*). However, the proportion of respondents who have not noticed any major changes in the Journal has decreased slightly.

Table 5. Dynamics of the number of respondents participating in the expert assessment of the Journal "Economic and Social Changes: Facts, Trends, Forecast" in 2010–2014, persons

Group of respondents	2010	2011	2012	2013	2014	Growth rate in 2014 compared to 2013, %
Members of the Editorial Board and the Editorial Staff	13	20	17	11	13	**118**
Employees of ISEDT RAS	81	86	86	82	88	**107**
Readers	-	-	-	-	13	-
Total	**94**	**106**	**103**	**93**	**114**	**123**

Table 6. Dynamics of the share of respondents answering the question:
"How would you assess the changes that have occurred in the Journal?", in 2010–2014, %

Answer variant	2010	2011	2012	2013	2014	Absolute deviation 2014 to 2013, %
Positively	83.0	84.0	78.5	77.7	74.6	-3.1
Negatively	1.1	0.0	0.0	0.0	0.0	0
No significant changes	4.2	7.5	7.5	16.5	14.9	-1.6
Difficult to answer	11.7	8.5	14.0	5.9	10.5	+4.6

Table 7. Dynamics of the share of respondents answering the question:
"How would you assess the level of materials published in the Journal?", in 2010–2014, %

Answe r variant	2010	2011	2012	2013	2014	Absolute deviation 2014 to 2013, %
High	25.5	23.6	22.6	25.9	26.3	+0.4
Rather high	63.9	66.0	69.9	62.4	64.9	+2.5
Average	10.6	9.4	6.5	9.4	8.8	-0.6
Below average	0.0	0.0	0.0	0.0	0.0	0.0
Low	0.0	0.0	0.0	1.2	0.0	-1.2

Table 8. Answer to the survey question:
"What sections, in your opinion, are of the greatest interest"?

Section	2010	2011	2012	2013	2014
	Mean score				
Social Development	8.7	8.5	8.5	8.6	8.8
From the Chief Editor	8.7	8.4	8.4	8.5	8.7
Development Strategy	6.7	8.6	8.2	8.5	8.7
Regional Economy	5.6	8.7	8.7	8.4	8.5
Innovation Development	5.0	8.6	8.3	8.2	8.5
Young Researchers	7.7	8.2	8.2	8.3	8.3
Social Finances	2.6	8.1	8.1	8.0	8.3

The majority of the respondents (91.2%) assess the level of materials published in the Journal as high and rather high (*tab. 7*).

Judging by the survey results, the readers and experts are most interested in the sections, such as "Social Development", "Development Strategy", "From the Chief Editor", etc. (*tab. 8*).

Today the Journal "Economic and Social Changes: Facts, Trends, Forecast" has 4 versions. Russian print and online versions remain most popular (*tab. 9*).

Answering the questions about satisfaction of the work carried out by the Editorial Staff of the Journal in 2014, the respondents estimate it as high – 8.8 points (by the 10-point scale).

Table 9. Answer to the survey question:
"How popular, in your opinion, are different versions of the Journal?

Answer variant	2010	2011	2012	2013	2014	Absolute deviation 2014 to 2013, %
	% of the total number of respondents					
Russian print version						
Very popular	37.2	46.2	34.4	48.2	43.0	-5.2
Popular	56.4	44.3	55.9	38.8	47.7	+8.9
A bit popular	2.2	5.7	5.4	10.6	9.3	-1.3
Unpopular	1.1	0	0.0	0.0	0.0	0
Russian online version						
Very popular	58.5	62.3	46.2	57.6	50.9	-6.7
Popular	31.9	31.1	44.1	35.3	46.2	+10.9
A bit popular	5.3	1.9	4.3	3.5	1.9	-1.6
Unpopular	0.0	0.0	1.1	0.0	0.9	+0.9
English print version						
Very popular	3.2	3.8	5.4	4.7	10.1	+5.4
Popular	26.6	34	25.8	40.0	25.3	-14.7
A bit popular	50.0	42.5	44.1	30.6	47.5	+16.9
Unpopular	18.1	13.2	18.3	16.5	17.2	+0.7
English online version						
Very popular	9.6	12.3	10.8	9.4	19.6	+10.2
Popular	31.9	47.2	43.0	42.4	40.2	-2.2
A bit popular	36.2	28.3	28.0	30.6	29.9	-0.7
Unpopular	11.7	6.6	10.8	10.6	10.3	-0.3

However, they make a number of proposals to improve the quality of reviewed publications, in particular: expand the range of marketing measures to promote the Journal in new regions and attract new audience of readers; more actively involve the Editorial Board members in the "real" work on the Journal (preparation and review of articles); continue the work on bringing the Journal in compliance with international standards; send the Journal to the governments of the Northwestern Federal District regions; encourage scientific discussions in the Journal, invite specialists from different institutions to discuss topics raised in the Journal; form topical issues of the Journal; promote the English version on the Internet. This year on the basis of the proposals the Editorial Staff has put forward a set of measures, the implementation of which should contribute to improving the quality of publications in the Journal and its impact factor, increasing the subject matter and attracting leading domestic and foreign experts to cooperation.

Summing up, it should be noted that to date the Journal "Economic and Social

Changes: Facts, Trends, Forecast" has managed to solve a number of important tasks in its promotion in the international information space. The full-text English version gives it a competitive advantage over other Russian journals in the international readership. The implemented editorial policy of open access gives a great opportunity to expand readership, provides potential places for writers of the world level and raises the citation level. Bringing the Journal in accordance with the requirements of the global citation indices helps reach a qualitatively new level, corresponding to international publishing standards, and creates optimal conditions for integration and advancement in the international information space. The positive evaluation of changes in the Journal provided by experts and readers confirms the correct choice of the development and promotion strategy.

In conclusion, let us consider the key tasks to be addressed in the near future.

First, it is necessary to ensure the high quality of the Journal. Improving the scientific level is a priority of most Russian scientific journals and, in particular, economics journals. To achieve this goal it is necessary to strengthen the requirements to the structure and content of publications, raise the scientific level of the Editorial Board and the Editorial Staff of the Journal by attracting reputable scholars with high citation metrics and enhance the review system quality, particularly by attracting internationally recognized experts.

Second, it is advisable to intensify efforts to increase the international visibility of the Journal. It is possible to solve this problem by attracting foreign authors, expanding the share of joint publications and the presence of the Journal in the international systems. The problem to attract foreign authors is solved in the Journal "Economic and Social Changes: Facts, Trends, Forecast" mainly through the use of contacts of the Editorial Board and the Editorial Staff members and the involvement of foreign authors from the organizations with which the Institute has signed cooperation agreements. There is a promising task to increase the number of publications by the results of joint research with colleagues from abroad due to the Institute's participation in international projects.

Third, it is necessary to increase bibliometric indicators of the Journal. Today the low citation rates in global indices pose a serious problem for many publications. However, in our opinion, before talking about the evaluation of scientific journals according to data of the international citation databases, it is advisable to create own effective system for scientific journals evaluation by bibliometric indicators at the country level. The state authorities should assign this resource should acquire a status of a national database. The implementation of such an initiative would form the core of scientific journals, selected according to transparent and objective indicators. Different support mechanisms can be created for journals with high indicators in the national citation index, so that they can comply with international standards and join global citation indices.

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