THE RUSSIAN ACADEMY OF SCIENCES
INSTITUTE OF SOCIO-ECONOMIC DEVELOPMENT OF TERRITORIES OF RAS

ECONOMIC AND SOCIAL CHANGES:

FACTS, TRENDS, FORECAST

5 (23) 2012

The journal is published according to the decision of RAS economic institutions' administration in the North-West federal district

Institute of Socio-Economic and Energy Problems of the North Komi scientific centre of the Ural RAS department (Komi Republic)

Institute of Economics of Karelian scientific centre of RAS (Karelia Republic)

G.P. Luzin Institute of Economic Problems of Kola scientific centre of RAS (the Murmansk Oblast)

Institute of Socio-Economic Development of Territories of RAS (the Vologda Oblast)

and according to the decision of St. Petersburg State University of Engineering and Economics administration

and other RF regions

Institute of Social and Economic Research of Ufa Science Centre of RAS (Bashkortostan Republic)

Institute of Economics, the Research of the Ural RAS department (the Sverdlovsk Oblast)

The decision of Presidium of the Higher Attestation Commission of the Russian MES (No. 6/6, dated 19.02.2010) the journal is included in the list of leading scientific editions, recommended for publication of the main results of dissertations for the degree of Doctor and Candidate of Sciences.

ISSN 1998-0698

Internet address: **http://esc.vscc.ac.ru**

CONTENT

FROM THE CHIEF EDITOR

ECONOMIC POLICY

DEVELOPMENT STRATEGY

BRANCH-WISE ECONOMY

SOCIAL DEVELOPMENT

ENVIRONMENTAL ECONOMICS

YOUNG RESEARCHERS

ACADEMIC LIFE

FROM THE CHIEF EDITOR

Anxious expectations

Vladimir A. ILYIN
Doctor of Economics
Professor
Honored Scientist of the RF
Director of ISEDT RAS
ilin@vscc.ac.ru

Vladimir Putin is nearing the end of the first six months of his presidency in Russia.

A new six-year period of V.V. Putin's presidency has began during the crisis in the global economic system and under the problems of socio-political order established in Russia over the past 20 years. According to a well-known publicist M. Shevchenko, *"...the state power in Russia was forcing against Russia speaking on behalf of Russia during the last decades. This paradox does not allow Russia, in fact, to form a conceptual development vector. And we wonder: why is our right hand very patriotic while our left hand is making international economic agreements, which put our country in the total dependence on the global capital?"*[1]

In his seven pre-election articles, as well as at the meetings with all the strata of Russian society (from oligarchs to state employees and villagers), Vladimir V. Putin has shown that he sees the urgency of the situation, when the state power blocks the modernization of the socio-economic development of the country due to clannish, oligarchic and bureaucratic interests. As a result, there is an increase in the gap between Russia and the world developed countries not only in the context of economy, but also – and most importantly – in terms of human development. These trends have been convincingly represented in the recent report of Academician S.Yu. Glazyev and Professor V. Lokosov devoted to assessing the critical threshold values of the indicators of the state of Russian society and their use in the socio-economic development management.

Scientists believe that "... *as a result of the poor state management efficiencies of the resource potential of Russia is more than twice lower than the critical value"*[2].

---

[1] Philosophy of victory: a report from the first meeting of the Izborsk Club. Zavtra. 2012. No. 37 (982). P. 2-3.

[2] Glazyev S.Yu., Lokosov V.V. Assessment of the critical threshold values of the indicators of the state of Russian society and their use in the socio-economic development management. Bulletin of the Russian Academy of Sciences. Vol. 82. 2012. No. 7. P. 587-614.

In his 13 decrees (No. 594 – 606 as of 7 May 2012) the President made the organizational base for the system implementation of his pre-election programme, which was supported by 64% of voters. One of the real instruments for implementing RF President's orders is the budget for the period from 2013 to 2015.

However, according to an editorial article in the journal "Expert", real values and long-term strategic objectives were not considered in the draft budget as priorities. There is a question at the end of the article, *"Who will restrain and make the Russian Ministry of Finance listen to reason? Who will stop this bad endlessness?"*[3]

It will be extremely important if the President is able to defend his policy of developing the country according to the strategic directions outlined in his pre-election articles, or liberal-oligarchic elite blocks the implementation of the President's programme, considering the preservation of the existing system as the main condition of its own well-being.

Scientific expert K. Mikulskiy characterizes the situation in the following way, *"It is very important for the country that big business and partly middle-sized business reduce their relationship with the Russian economy and acquire offshore nature. The state has made purposefully the conditions for capital emigration and transferring the profits of Russian companies and personal income abroad. The most important thing in this process in not the economic attractiveness of foreign investments but the desire of the Russian capital, especially bureaucrats and oligarchs, for breaking away from the Russian day-to-day realities, reducing the tax burden and – it is probably the most significant desire – for protecting themselves in the case of political forces regrouping at the highest level of power and social disruptions"*[4].

More than once, our Journal has published the materials on this topic based on the analysis of the dynamics of three leading steel RF corporations' indicators[5].

Tables and graphs that are included in this issue confirm once again the conclusion that the state makes purposefully the conditions for transferring companies' profits and personal incomes abroad. In reality, this has a very negative impact on the budget system of the Russian Federation and its regions.

The analysis of information on three major metallurgical corporations has showed the following:

1. There was a decrease in the role of ironworks as the mobilizers of revenue sources to the budgets of all the levels in the period from 2000 to 2011.

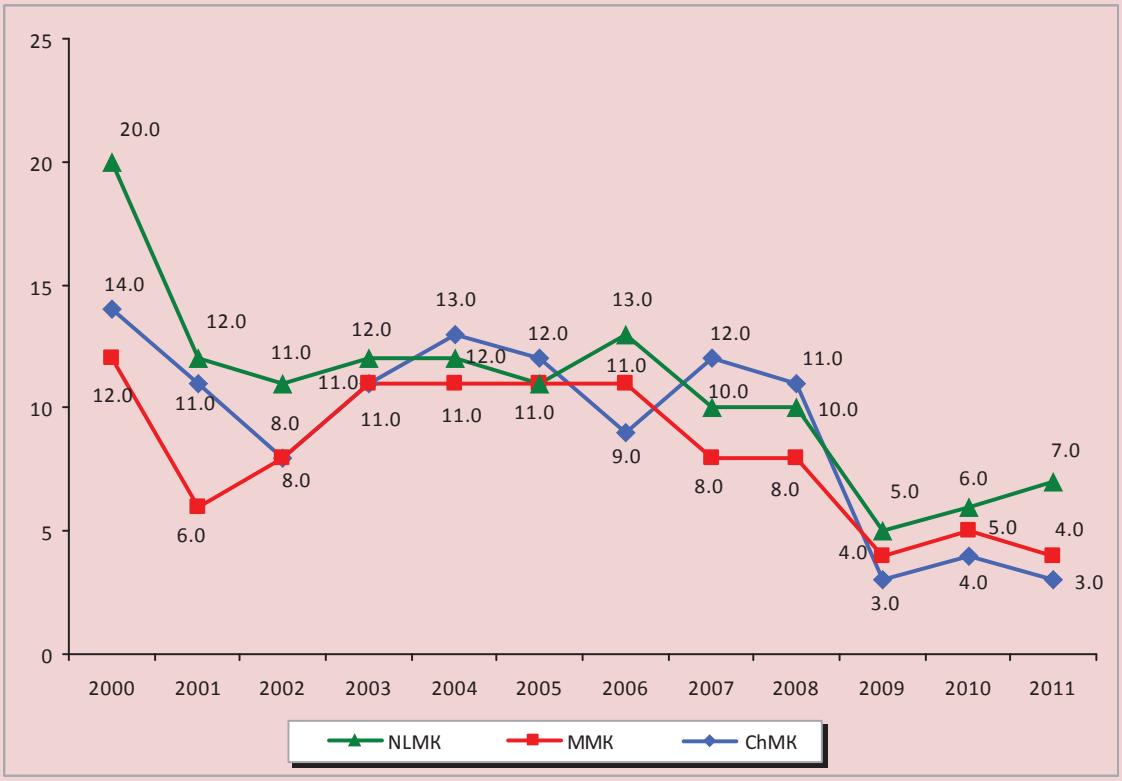
Tax revenues from Cherepovets Metallurgical Plant (ChMK) to the budget system of the Russian Federation decreased from 14 to 3% in relation to revenue, the tax revenues from Novolipetsk Steel (NLMK) decreased from 20 to 7% and the tax revenues from Magnitogorsk Iron and Steel Works (MMK) – from 12 to 4% *(fig. 1)*.

[3] How can a pupil fight riffraff: editorial article. Expert. 2012. No. 39 (821). P. 19.

[4] Mikulskiy K. Russian social system blocks the progress of the country. Society and Economy. 2012. No. 7 - 8. P. 5-12.

[5] See: Ilyin V.A. The influence of ferrous metallurgy corporations' interests on the regional development. Economic and social changes: facts, trends, forecasts. 2011. No. 3 (15). P. 14-38; Povarova A.I. The influence of the metallurgical corporation owners' interests on the financial performances of the parent enterprise (in the case of OJSC «Severstal»). Economic and social changes: facts, trends, forecasts. 2011. No. 5 (17). P. 36-51; Ilyin V.A., Povarova A.I., Sychov M.F. The influence of the metallurgical corporation owners' interests on the socio-economic development: preprint. Vologda: ISEDT RAS, 2012.104 p.

Figure 1. Dynamics of metallurgical complexes' tax burden* in 2000 – 2011, % to sales revenue



* Includes all the taxes paid by metallurgical complexes to the federal, regional, local budgets and state non-budgetary funds without VAT recovery and income tax.

Sources: Annual Reports of OJSC Severstal, OJSC MMK and OJSC NLMK (RAS); ISEDT RAS calculations.

2. There was a decrease in the share of tax revenues from metallurgical corporations in the total regional budgets from 76 to 20% in the Vologda Oblast (ChMK is located here), from 81 to 32% in the Lipetsk Oblast (NLMK) and from 40 to 15% (MMK) *(fig. 2)*.

It should be noted that the decline in the share of tax revenues from metallurgical enterprises in the total revenues of regional budgets began in 2000, and there was a 2-3-fold decrease in this share in 2008.

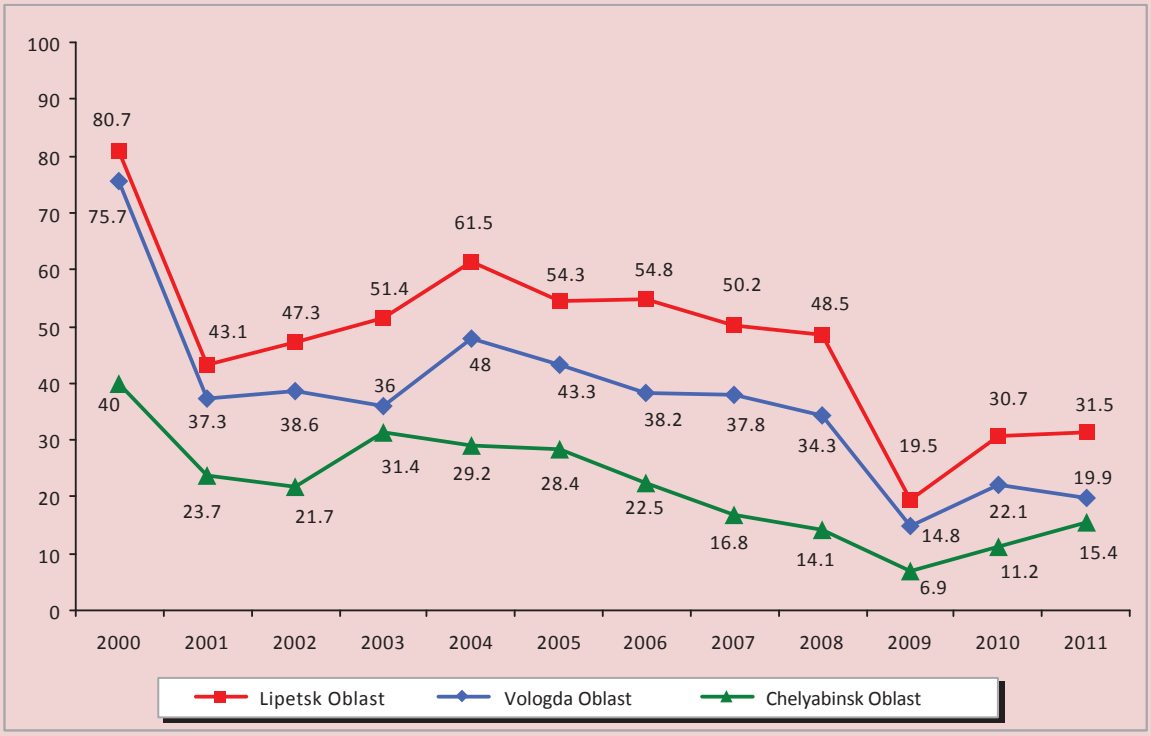
There was a similar trend in the post-crisis period: in 2011, the share of revenues from the steel production was lower by 17 percentage points in the Lipetsk Oblast and by 14.4 percentage points in the Vologda Oblast in comparison with the level of 2008.

As a result, in the post-crisis period from 2010 to 2011, tax revenues from the steel production decreased by 24% down to 6.2 thousand rubles per capita in the Vologda Oblast and by 20% down to 7.6 thousand rubles per capita in the Lipetsk Oblast as compared with average annual values of five previous years *(tab. 1)*.

3. Over the period from 2004 to 2011, the incomes of the owners of metallurgical corporations increased 2 – 3.5-fold; as opposed to this, profit tax return to all the levels of RF budget system decreased 2 – 3.5-fold *(tab. 2)*.

4. In the period from 2008 to 2011, the metallurgical enterprises' revenue losses from export sales accounted for 308.4 billion rubles due to underpricing by 25 – 30%.

Figure 2. Dynamics of the share of tax revenues from the metallurgical production in the total volume of tax and non-tax (own) revenues* in the regional budget for 2000 – 2011, %



* Tax revenues include income tax, personal income tax, excise tax, total revenue tax, payments for the use of natural resources, state duty. Non-tax revenues include income from the use of state-owned (municipal) property, tangible and intangible assets sales return, administrative fees and charges, payments for public services, payments for the use of natural resources, fines, etc.

Sources: Annual Reports of OJSC Severstal, OJSC MMK and OJSC NLMK (RAS); Federal Treasury; ISEDT RAS calculations.

As a result, additional profit tax, calculated to this sum, accounted to 64.8 billion rubles, including 9.1 billion rubles of allocations to the federal budget and 55.7 billion rubles to the regional budgets *(tab. 3)*.

5. Over the period from 2006 to 2011, non-regulated relation in the share of commercial and administrative expenses to revenues led to the increase in these expenses from 5.2 to 8.8% in Cherepovets Metallurgical Plant, from 7.3 to 11.3% in Novolipetsk Steel. As a result, the profit taxes, which could be allocated in 2009 – 2011 in the case of keeping the share of these expenses at the level of 2006 – 2008, would amount to 8.62 billion rubles, including 0.87 billion rubles of allocations to the federal budget and 7.75 billion rubles to the regional budgets *(tab. 4)*.

6. In the period from 2005 to 2011, there was a decrease in the share of metallurgical enterprises' fixed capital investments in the total volume of metallurgical corporation's investment against the background of increased depreciation of fixed assets. There was the most difficult situation in Cherepovets Metallurgical Plant as compared with Novolipetsk Steel and Magnitogorsk Iron and Steel Works, where the depreciation of fixed assets grew from 29 to 43% in the last six years and, however, the share of investment in enterprise's modernization programmes has decreased from 40 to 24% *(fig. 3)*.

Table 1. Dynamics of non-tax (own) revenues of the regional consolidated budgets and the share of tax revenues from metallurgical production in them for 2000 – 2011, thsd. rub. per capita

Revenues	2000	2001	2002	2003	2004	Average for 2000 – 2004	2005	2006	2007	2008	2009	Average for 2005 – 2009	2010	2011	Average for 2010 – 2011
Vologda Oblast															
Tax and non-tax (own) revenues *	7.15	6.3	7.5	11.7	18.4	10.2	18.8	22.4	29.3	37.5	22.9	26.2	29.9	33.5	31.7
Tax revenues from metallurgical production	5.3	2.2	2.7	4.0	8.4	4.5	7.7	7.9	10.2	12.0	3.1	8.2	6.2	6.2	6.2
The share of tax revenues from metallurgical production in the total volume of tax and non-tax (own) revenues of the regional budget, %	75.7	37.3	38.6	36.0	48.0	46.4	43.3	38.2	37.8	34.3	14.8	33.7	22.1	19.9	20.9
Lipetsk Oblast															
Tax and non-tax (own) revenues *	5.8	6.0	8.4	11.1	17.9	9.8	17.3	22.3	23.3	28.7	22.4	22.8	26.0	29.3	27.7
Tax revenues from metallurgical production	4.6	2.5	3.5	5.5	10.7	5.4	8.8	11.5	10.7	12.7	3.9	9.5	7.0	8.1	7.6
The share of tax revenues from metallurgical production in the total volume of tax and non-tax (own) revenues of the regional budget, %	80.7	43.1	47.3	51.4	61.5	57.0	54.3	54.8	50.2	48.5	19.5	45.6	30.7	31.5	31.1
Chelyabinsk Oblast															
Tax and non-tax (own) revenues *	4.13	4.1	5.0	7.5	10.3	6.2	11.7	16.9	22.0	25.4	16.9	18.6	24.6	27.5	26.1
Tax revenues from metallurgical production	1.6	0.9	1.0	2.2	2.8	1.7	3.1	3.4	3.3	3.2	1.0	2.8	2.4	3.7	3.1
The share of tax revenues from metallurgical production in the total volume of tax and non-tax (own) revenues of the regional budget, %	40.0	23.7	21.7	31.4	29.2	29.3	28.4	22.5	16.8	14.1	6.9	17.0	11.2	15.4	13.4

* Tax revenues include income tax, personal income tax, excise tax, total revenue tax, payments for the use of natural resources, state duty. Non-tax revenues include income from the use of state-owned (municipal) property, tangible and intangible assets sales return, administrative fees and charges, payments for public services, payments for the use of natural resources, fines, etc.
Sources: Data of the Federal Treasury; Russia's Federal Tax Service; ISEDT RAS calculations.

Table 2. Dynamics of profit tax funds from metallurgical enterprises to the budget system of the Russian Federation and their principal owners' capital, 2005 – 2011, bln. rub.

Indicator	2005	2006	2007	2008	2009	2010	2011
ChMK							
Principal owner's capital	245	319	602	126	299	564	493
Profit tax*	12	12	16	18	0.4	5.2	5.3
MMK							
Principal owner's capital	155	240	391	74	296	341	180
Profit tax*	10	12	12	11	0.5	1.6	3.1
NLMK							
Principal owner's capital	325	398	587	153	478	732	512
Profit tax*	11	18	14	18	1.3	5.3	7.1

* Profit tax to all the levels of the budget system of the Russian Federation.
Sources: Data of The Forbes. Available at: http://www.forbes.ru/rating/; annual reports of OJSC Severstal, OJSC MMK and OJSC NLMK (RAS).

Table 3. The estimated amount of RF budgetary system's revenue losses from metallurgical enterprises due to export underpricing as compared with the world prices over the period from 2008 to 2011, bln. rub.

Indicator	ChMK	MMK	NLMK	Total
Average export price of an enterprise, dollars/t	638	519	578	
Average world price, dollars/t	818	817	728	
Price variations, %	-22.0	-36.5	-20.6	
Revenue losses	65.6	126.8	116.0	308.4
Profit tax losses	13.6	27.0	24.2	64.8
Including: by federal budget	1.4	4.3	3.4	9.1
by regional budget	12.2	22.7	20.8	55.7

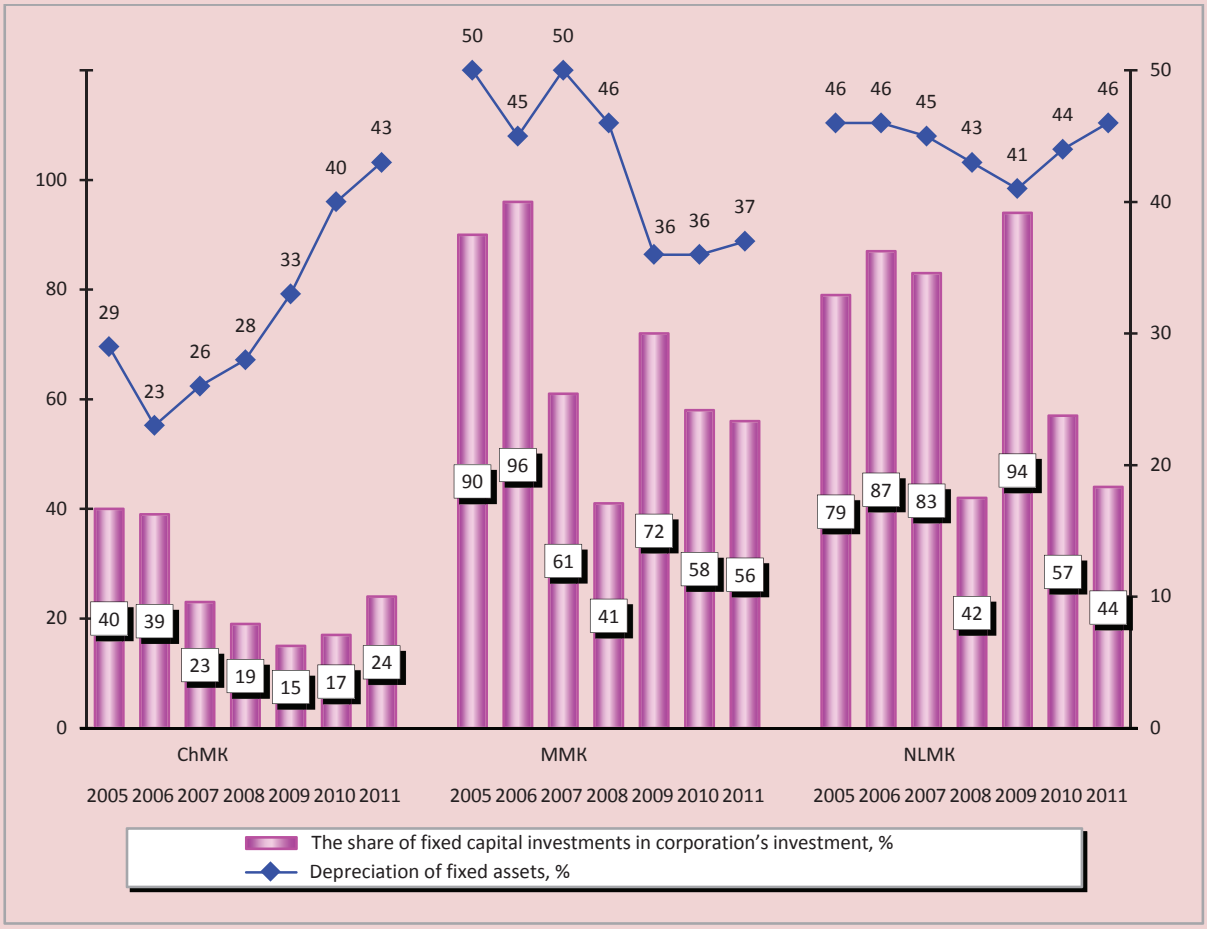
Sources: Data of Federal State Statistic Service and Annual Reports of OJSC Severstal, OJSC MMK and OJSC NLMK (RAS); ISEDT RAS calculations.

Table 4. The effect of increasing the share of commercial and administrative expenses in metallurgical enterprises' revenues on profit tax formation in 2006 – 2011

Indicator	ChMK		NLMK	
	2006 – 2008	2009 – 2011	2006 – 2008	2009 – 2011
Sales revenues, bln. rub.	597.3	607.7	497.3	529.7
Commercial and administrative expenses, bln. rub.	31.3	53.4	36.1	60.0
The share of commercial and administrative expenses in sales revenues, %	5.2	8.8	7.3	11.3
Commercial and administrative expenses in 2009 – 2011 on condition of keeping the share of expenses at the level of 2006 – 2008, bln. rub.		31.6		38.7
Decrease in taxable profit as a result of rising scale of commercial and administrative expenses, bln. rub.		21.8		21.3
Profit tax that could be received in 2009 – 2011 on condition of keeping the share of these expenses at the level of 2006 – 2008, bln. rub.		4.36		4.26
Including: to federal budget		0.44		0.43
to regional budget		3.92		3.83

Sources: Annual reports of OJSC Severstal, OJSC MMK and OJSC NLMK (RAS); ISEDT RAS calculations.

Figure 3. Changes in the level of depreciation of fixed assets and the share of metallurgical complexes' fixed capital investments in the total investment of corporations in 2005 – 2011



Sources: Annual Reports of OJSC Severstal, OJSC MMK and OJSC NLMK (RAS); ISEDT RAS calculations.

Upon availability of considerable investment resources, owners did not invest enough money in the programmes for the development of enterprises – the volumes of undistributed profits were 5 – 10 times higher than capital costs[6].

According to the data mentioned above, it can be concluded that the liberal and oligarchic elite has created the conditions in the country that do not stimulate the increase in taxable income and growth on this basis of the national budget revenues.

Many experts[7] point out other available reserves to fill the federal and regional budgets which include:

- legislative prohibition or severe restriction of transferring Russian property to offshore jurisdictions;
- cancelling of VAT refund for the largest exporters;

[6] ISEDT RAS calculations according to annual reports of OJSC Severstal, OJSC Magnitogorsk Iron and Steel Works and OJSC Novolipetsk Steel (RAS).

[7] Krichevskiy N.A. You were robbed! Arguments and Facts. 2011. No. 28; Inozemtsev V.L. Tax jail. Ogonyok. 2011. No. 40; Senchagov B. Finance modernization . Problems of Economics. 2011. No. 3. P. 419; Shvetsov Yu. National budget as a national property / / Society and Economics. 2011. No. 8-9. P. 119-131; Zubarevich N. Way out of the crisis: regional projection. Problems of Economics. 2012. No. 4. P. 64-84.

• introducing a progressive scale of personal income tax[8];

• determining a tax on luxury and expensive real estate;

• increasing dividend tax rate from 9% to 13 – 15% and equalizing this tax for Russian and foreign corporate entities;

• radical change in the law regulating the insurance payments to social funds; in particular, the matter is the cancellation of margin annual revenue (463 thousand rubles) that is the highest limit for social contributions;

• expansion of tax authority rights, primarily territorial, in the sphere of control over cash flows of the largest taxpayers and in order to obtain all necessary information on their activities;

• introduction of changes in the law on joint stock companies in terms of expanding a list of information that is required to be disclosed;

• introduction of hard currency repatriation tax.

In our opinion, these measures fit well in the structure of organizational and economic mechanisms proposed by Vladimir V. Putin in his pre-election articles and the presidential decrees of May 7 in order to overcome clannish, oligarchic and bureaucratic obstacles that restrain the socio-economic modernization of the country. People, who voted for Vladimir Putin, are expecting his real steps to ensure overcoming the obstacles that block the economic and social development of the country.

A writer A. Salutskiy has expressed exactly the expectations that were established in the Russian society during Vladimir V. Putin's presidency.

"Just today, after challenging election, Putin has got a chance to become a true tsar – in the sense of a real national leader, who is in charge for the greatest obligations to the Russian people. However, does Putin himself understand in full measure the responsibility that was heaped on his shoulders?

Meanwhile, time presses. Tsar authority appears in the first key days. And civil responsibility should be above personal obligations. People are tired of dual power and endless behind-the-scenes struggle. People are waiting for Munich speech on our home themes, and they do not want to know about tightening or weakening the screws but they want him to put an end to bureaucratic maneuvering at one tsar's word, step up to the plate and solve all the problems in the sphere of power in his own way...

If Putin is able to become such a high moral authority, then everything in Russia will go with a run. It he is still overnice to solving personnel problems, considers all the possible side interests too vigilantly and, in fact, shares his supreme authority with anyone, the people won't recognize him as a tsar and the voters, who elected him to be the President, will call for a vote of confidence"[9].

[8] The share of income tax collection in Russia's GDP has not risen above 4% over the past 10 years, while it is 8 – 10% in the USA and Western Europe. Under the current flat tax rates, income tax in Russia is payable at the rate of 13% for oligarchs and other citizens. As for foreign countries, the re are the following income tax rates there: 10 – 35% in the USA, 0 – 50% in Great Britain, 17 – 47% in Australia, 38-59% in Denmark, 26% in Latvia (Source: Ilyin V.A., Povarova A.I., Sychov M.F. The influence of the metallurgical corporation owners' interests on the socio-economic development: preprint. Vologda: ISEDT RAS, 2012. 102 p.).

[9] Salutskiy A. New Putin. Literary Gazette. 2012. No. 39 (6386). P. 3.

j

Like in the previous issues, we provide the results of the last assessments of public opinion monitoring concerning the state of Russian society*.

The following tables show the dynamics of some indicators of social well-being and socio-political moods of the Vologda Oblast population for the period from October 2011 to October 2012 (the data for 8 months including August 2008 are used to assess the public moods in the pre-crisis period).

Estimation of power activity
(How do you assess the current activity of..?)

Vertical power structure	Approval in % to the total number of respondents								Dynamics indices. Oct. 2012 to 8 months 2008		Dynamics indices. Oct. 2012 to Aug. 2012	
	8 mnth. 2008	Oct. 2011	Dec. 2011	Feb. 2012	Apr. 2012	June. 2012	Aug. 2012	Oct. 2012				
The President of the RF	75.0	56.6	51.7	47.3	50.3	54.5	53.7	50.9	**0.68**		**0.95**	
The Chairman of the Government of the RF	76.4	59.1	52.9	52.6	51.7	49.5	48.5	47.1	**0.62**		**0.97**	
The Governor of the Vologda Oblast	57.8	47.7	41.9	37.7	37.7	44.7	45.3	43.6	**0.75**		**0.96**	

Vertical power structure	Disapproval in % to the total number of respondents								Dynamics indices. Oct. 2012 to 8 months 2008		Dynamics indices. Oct. 2012 to Aug. 2012	
	8 mnth. 2008	Oct. 2011	Dec. 2011	Feb. 2012	Apr. 2012	June. 2012	Aug. 2012	Oct. 2012				
The President of the RF	9.3	29.0	35.7	35.7	33.3	28.9	31.1	32.1		**3.45**		**1.03**
The Chairman of the Government of the RF	10.4	24.7	32.7	32.0	33.1	31.5	34.5	32.8		**3.15**	**0.95**	
The Governor of the Vologda Oblast	10.4	24.7	32.7	32.0	33.1	31.5	34.5	32.8		**3.15**	**0.95**	

What party expresses your interests?

Party	In % to the total number of respondents								Dynamics indices. Oct. 2012 to 8 months 2008		Dynamics indices. Oct. 2012 to Aug. 2012	
	8 mnth. 2008	Oct. 2011	Dec. 2011	Feb. 2012	Apr. 2012	June. 2012	Aug. 2012	Oct. 2012				
United Russia	40.5	29.8	26.1	26.0	28.3	31.9	31.4	26.6	**0.66**		**0.85**	
KPRF	40.5	29.8	26.1	26.0	28.3	31.9	31.4	26.6	**0.66**		**0.85**	
LDPR	7.7	9.1	9.2	9.1	9.5	7.7	6.7	6.8	**0.88**			**1.01**
A Just Russia	5.0	5.6	13.9	10.2	8.2	4.6	5.6	5.5		**1.10**	**0.98**	
Other	1.4	3.1	4.6	3.1	3.2	2.8	2.3	2.4		**1.71**		**1.04**
No party	20.1	28.1	23.9	25.7	28.6	31.5	33.2	36.1		**1.80**		**1.09**
It's difficult to answer	13.7	12.2	9.0	15.8	10.8	11.6	11.1	12.3	**0.90**			**1.11**

* The polls are held six times a year in Vologda, Cherepovets, and in eight districts of the region (Babayevsky District, Velikoustyugsky District, Vozhegodsky District, Gryazovetsky District, Kirillovsky District, Nikolsky District, Tarnogsky District, 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. Representativeness of the sample is ensured by the observance of the proportions between the urban and rural populations, the proportions between the inhabitants of settlements of various types (rural communities, small and medium-sized city), age and sex structure of the adult population of the region. Sampling error does not exceed 3%.

The results of the ISEDT RAS polls are available at www.vscc.ac.ru

Estimation of social condition

In % to the total number of respondents								Dynamics indices, Oct. 2012 to 8 months 2008		Dynamics indices, Oct. 2012 to Aug. 2012	
8 mnth. 2008	Oct. 2011	Dec. 2011	Feb. 2012	Apr. 2012	June. 2012	Aug. 2012	Oct. 2012				
What would you say about your mood in the last days?											
Usual condition, good mood											
70.2	64.7	64.2	62.9	63.4	69.0	71.3	69.0	**0.98**		**0.97**	
Feeling stress, anger, fear, depression											
22.1	29.4	30.2	33.5	30.2	23.4	23.3	25.5		**1.15**		**1.09**
What statement, in your opinion, suits the current occasion best of all?											
Everything is not so bad; it's difficult to live, but it's possible to stand it											
81.0	73.9	78.6	74.9	76.5	77.3	73.2	77.5	**0.96**			**1.06**
It's impossible to bear such plight											
10.9	15.8	14.1	18.1	16.8	13.6	17.0	15.6		**1.43**	**0.92**	
Consumer Sentiment Index											
107.5	88.5	85.6	89.8	90.1	93.4	92.3	91.7	**0.85**		**0.99**	
What category do you belong to?											
The share of people who consider themselves to be poor and extremely poor											
39.8	44.6	41.9	43.2	43.6	45.0	44.2	44.1		**1.11**		**1.00**
The share of people who consider themselves to have average income											
50.7	41.8	42.2	44.9	46.5	45.3	43.4	44.7	0.88			**1.0**

The data in the tables show that the level of positive assessments of V.V. Putin's activities as the RF President is very stable. In October 2012, the degree of approval of his activities increased as compared with April - a month, which preceded his accession to the presidency. It is also important that people's attitude toward the vertical of power at all levels is stabilizing as well. The people's assessments of their social status prove that their dynamics according to key parameters remains positive.

The first regional election campaign held on 14 October 2012 that took place after the federal elections and political reform showed that the "United Russia" remains the dominant party. In all five subjects, where the governor's elections were held, the candidates from "United Russia" won, its representatives headed the elections in the vast majority of the regional and local representative power bodies. However, considering these results, one should take into account the fact that the last campaign was distinguished by the low voter turnout. So, in the city of Vologda only 52% of registered voters participated in the elections of deputies of the Vologda Oblast Legislative Assembly. As for the additional elections of the deputies of the Vologda city Duma, the voter turnout decreased to 14 – 16%. For instance, in the voting station No. 365 only 16 people or 3.2% took part in the elections out of the electoral roll of 447 voters. This circumstance compels us to assess the results of the elections and the degree of population's support of the authorities more critically.

j

As in the previous issue, in this one we publish the journal articles rating.

The first ten articles according to the frequency of their viewing for the recent 12 months (November 2011 – October 2012)

Rating	Article	Total time of reading for the recent 12 months, minutes	Total time of reading, for the whole period, minutes	Number of views for the whole period	Number of views for the recent 12 months	Number of views for the recent 3 months	Average time of viewing for the whole accounting period, minutes	Issue	Release date	Authors
1	Modernization of the Russian economy as the imperative of the country's prospective innovative development	4999	5089	180	168	1	28	No.16	August 2011	Kondakov Igor Anatolyevich
2	Threats to the region's economic security and the ways to overcome them	2115	2764	145	98	12	19	No.14	April 2011	Uskova Tamara Vitalyevna Kondakov Igor Anatolyevich
3	Fiscal federalism and inter-budget relations in the Russian Federation	1925	2675	191	131	8	14	No.13	March 2011	Avetisyan Ishkhan Artashovich
4	Methodology of the comparative estimation of the scientific and technical potential of the region	1304	3190	173	77	11	18	No.12	December 2010	Zadumkin Konstantin Alekseyevich Kondakov Igor Anatolyevich
5	The post-crisis economic development and prospects of innovation activity in the Tomsk Oblast	1207	1209	42	41	1	28	No.15	June 2011	Myakota Ekaterina Aleksandrovna Vorobyov Aleksandr Grigoryevich Putilov Aleksandr Valentinovich Zhiganov Aleksandr Nikolayevich
6	Agriculture on the European North: All-Russian agricultural census results	1035	2032	131	80	0	16	No.11	September 2010	Ivanov Valentin Aleksandrovich Ivanova Elena Valentinovna
7	Demographic problems of the Republic of Belarus and their solutions	816	874	67	63	18	13	No.16	August 2011	Shakhotko Lyudmila Petrovna
8	Programmed project modernization of the federative structure in Russia	659	659	28	28	8	24	No.18	December 2011	Tatarkin Aleksandr Ivanovich Lavrikova Yuliya Georgievna
9	Migratory processes as mirrored by the transformations: border regions in Russia	600	770	33	20	1	23	No.14	April 2011	Mikhel Egor Aleksandrovich Krutova Oksana Sergeyevna
10	Development of a methodology of forming anti-crisis management strategy for a wholesale trade organization	587	587	33	33	3	18	No.18	December 2011	Shamina Marina Sergeyevna

* Account of the site's viewing has been carried out since 2009, December, 12.

The article is published here with the consent of the authors.
The original text is published in the journal "Problems of forecasting". 2012. No. 5.

Ivanter V.V., Komkov N.I.

Basic provisions of Russia's innovation industrialization concept*

The article deals with the basic provisions of Russia's innovation modernization concept.

Viktor V. IVANTER
Doctor of Economics, Professor, RAS Academician, Director of the Institute of Economic Forecasting of the Russian Academy of Sciences
vvivanter@ecfor.ru

Nikolay I. KOMKOV
Doctor of Economics, Professor, Head of the Department of Organizational-Economic Problems of Scientific-Technological Management at the Institute of Economic Forecasting of the Russian Academy of Sciences

Main results of the development of previous programmes for scientific and technological modernization. In 2002 – 2008 and in 2009 – 2011, within the framework of the RAS presidium fundamental research programmes, the inferential research was carried out in the sphere of innovation modernization of Russia's economy.

The research enabled to establish the areas of promising technologies' generation and extension, to outline the major directions of exploratory and basic research with regard to socio-economic factors. The global technological development trends have been revealed including the development trends in the following economic sectors: natural

* The concept is regarded as a methodological basis for the development of the RAS Presidium Programme "Forecast of Russia's Innovation Industrialization Potential". Programme Coordinator – RAS Academician V.V. Ivanter, the principal developing organization – the Institute of Economic Forecasting of RAS.

Organizational and methodological support of the Programme is provided by the group supervised by Professor N.I. Komkov.

resources extraction and processing, energy production, manufacturing and high-tech industries, final products production, the creation of innovation and industrial infrastructure [1, 2].

During the Programme's implementation in 2011, the dynamics of Russia's innovation development for 1998 – 2008 was evaluated, which confirmed its rather modest increase. By 2008, the development level has reached only 42% as compared to the 2000 standards for the EU countries. If in the following years, Russia retained its development rates achieved in 1998 – 2008, then the transition to the EU standards of 2000 could last another 20 – 25 years. It should be noted that many of the standards characterizing the innovation environment in the U.S. and Japan, exceed the EU standards, and the EU countries themselves have significantly raised their standards by the end of the first decade of the 21st century as compared to the 2000s level.

The studies estimating the dynamics of Russia's economy transition to the innovation standards show its rather slow and gradual nature. In order to analyze the reasons for such a slow transition and find the factors for its acceleration, a "road map" of innovation economic development was worked out. The essence of the "road map" lies in defining the independent, but considered as interconnected, developmental factors, marked "milestone points" of movement in every direction, and in determining the logical and functional links between the latter.

Such conditions at the first stage include: the restoration of the balanced capacity of the main links of the innovation cycle (science – R&D – industrial development); the adoption of efficient measures for attracting young researchers in science; the increase in the share of innovation-active enterprises up to 30%; the creation of a network of engineering centres on the comprehensive development of innovation; the improvement of the validity of scientific and technological forecasts, which facilitates their use in the processes of drafting and adoption of political and economic decisions; the increase of expenditures on science, including an increase in the share of business expenditures on innovation, etc.

The Programme proposes a hierarchical system of competitiveness capacity assessment, taking into account that of the country, complexes, branches, products and technologies. It is shown that although Russia ranked 58 among 131 countries by the competitiveness rating estimated according to M. Porter's model by the World Economic Forum experts in 2007, in fact, it was understated by about 10 p. In 2010 – 2011 Russia's rating was even more downgraded, and Russia ranked 63 according it. The analysis of Russian industries' competitiveness capacity for 2006 – 2008 proved, that the most competitive ones include export-oriented extractive industries, as well as the sectors (communications, transport) based on relatively advanced technologies that produce final products, and establish infrastructure. The industries of the manufacturing and processing sector, production of machinery and equipment are at the bottom of the rating. In the developed countries, e.g. the U.S. and the EU countries, the processing and manufacturing industries account for the main share of GVA [1].

The 2009 – 2011 Programme studies the influence of the countries' scientific-technological development capacity on the emergence of the world financial crisis and its overcoming. It has been established, that technologically advanced countries were influenced by the effects of the crisis to a lesser extent, in addition, they actively used this potential to overcome its consequences. For example, the enterprises in such developed countries as the U.S. and Germany in the 2009 – 2010 crisis period, increased their R&D and technology expenditures, and as for Russia and Ukraine, their companies, on the contrary, reduced these expenditures.

The fact that in the crisis conditions, the companies in the technologically advanced countries and those lagging behind act differently, only confirms the role of scientific and technological potential in the market conditions.

The Programme also substantiates the inevitability of abandoning the domination of the resource-based export strategy in the RF economic development, because such a strategy is not a promising one, besides, it is based on the sufficient amount of reserves, the depletion of which is expected in 2015 – 2020. It is noted, that since 1993 Russia has already exported more than 2 billion tons of oil and nearly 3.5 trillion cubic meters of natural gas for the total amount of more than 10 trillion dollars.

The transition to an innovation strategy and the abandonment of the resource-based export policy is impeded by a whole range of factors:

- external demand for resources is high;
- domestic demand for resources, providing support for "long technological chains", is limited due to the collapse of the processing and manufacturing industries' potential;
- efficient domestic technologies of resources processing are absent in many spheres;
- taxes and risks for processing and manufacturing industries are high;
- domestic innovation sphere is virtually non-competitive and is little involved in the economy modernization; and the developing domestic enterprises in the issues of modernization focus mainly on the import of technologies.

These factors are caused by the external environment and they are sustainably supported by the interests of many economic entities in the export of resources.

The export of resources should be linked with the development of domestic processing and manufacturing industries, and the appropriate ratio of exports to domestic consumption could be as follows: for resources extraction 1:3, processing 1:2, manufacturing 1:1. Therefore, 3 out of 4 units of extracted resources should remain in the domestic economy, 2 out of 3 units of processed resources should be consumed within the country and for manufacturing industries – the half of produced goods should be exported.

It is shown that the preservation of a non-promising resource-based export strategy in Russia – in contrast to Norway, where the share of petroleum exports is even more significant – and the large-scale export of resources generate economic contradictions and social conflicts, which include:

- excessive gap between the incomes of the super rich and the poor (30 – 50-fold);
- short processing (without the finishing technological processes) and manufacturing technological chains (without the innovation component in the primary technologies);
- corruption increase;
- reduction in the quality, along with the increase in the cost of products and services (housing and public utilities, food, transportation, medicine) [1, 2].

Prerequisites for the transition from the existing local to the large-scale economy modernization. The Programme for 2009 – 2011 states that policy directives and changes in legislation are unable to eliminate these reasons and contradictions. It is necessary to introduce radical systemic measures, for instance: new technologies, low taxes for processing and manufacturing industries, means and mechanisms of promoting demand and creating new technologies.

In order to gain the right to purchase new foreign technologies, it is necessary to have not only a sufficient amount of currency, but also the capacity for the successful development and subsequent maintenance of new technologies. In this respect, at least two conditions should be taken into account. Firstly, the companies-owners (the patent owners) of new technologies are not interested in selling them to the countries

with no appropriate professional personnel potential, because the poor development of technologies could damage the company's business reputation. Secondly, the companies-owners of new technologies form a kind of "club", the access to which is granted only if candidates have their own technologies and are ready to share and exchange them. The research of modernization prospects shows the inexpediency of restoring the idle production facilities due to the following reasons:

- the introduction of scattered innovations can ensure only minor improvements, slightly increasing the potential of the old, physically worn-out production facilities, besides, such innovations do not enable the swift raise in efficiency and competitiveness of technological chains;
- many idle production facilities, created in the former USSR, are inefficient and non-competitive;
- under market conditions it is inexpedient for Russia to copy the USSR strategy concerning the gradual restoration of old facilities;
- many sectors and sub-sectors have already passed the "point of no return" to a competitive level, and in their place it is necessary to create new companies and industries virtually from scratch.

In this respect, the Programme under development proposes a new approach to innovation industrialization, the goal of this approach is the creation of sub-sectors in a form of a network of connected competitive technologies in the following areas: machine-tool building, aircraft engineering, ship-building, heavy engineering, pharmacology, environmentally friendly foods, processing of industrial wastes, etc. The implementation of this approach is possible on the basis of construction management centralization in the framework of new modern holdings and the formation of innovation technological clusters and not on the basis of existing ministries and their structures.

Innovation and technology clusters should become the organizational basis for the formation of new industries and sub-industries and the initial development of new technologies should be carried out in the special economic zones. Given the technological backwardness of domestic innovation structures as compared to the world level, it is expedient to effect the initial large-scale import of technology, licenses and patents with their subsequent development and maintenance by means of domestic innovation potential.

The combination of industrial and post-industrial development. The need for innovation industrialization is determined by the fact that the transition to post-industrial economy is impossible at such a low level of industrial production development that Russia possesses. The unprecedented decline (almost 2-fold to the 1990 level) of industrial production volumes by the mid-1990s in Russia was curbed at the beginning of the 21st century but the pace of their recovery, especially in manufacturing industries, lagged behind the growth rates of the economy as a whole, and in the recent years, due to the global financial crisis, it has slowed down. The decline in production affected not only high-tech sectors (rocket-and-space, electronic, aircraft and shipbuilding, pharmaceutical, instrument-making, etc.), but also medium-tech industries (machine-tool building, heavy transport and agricultural mechanical engineering, etc.). This has resulted in the present situation, when the transition to post-industrial society with a collapsed industrial base is either impossible, or it will only lead to the creation of an "advanced raw-material appendage" of the world economy.

However, the transition to post-industrial society, based on knowledge economy, modern information technologies and computers, should not be delayed. These two problems should be solved jointly. It is necessary to raise the level of medium- and low-tech sectors on the basis of innovations with the use of high-

tech industries' opportunities and potential. Only in these conditions it will be possible to move on from the almost disintegrated but restorable industrial potential to a post-industrial society.

When solving the problem of combining, i.e. recovering the lost industrial potential in the conditions of post-industrial development, it is necessary to take into account the negative experience of production automation in the former USSR, where automation and production of non-automated machine-tools, machines, manufacturing lines and other equipment was effected in the following sequence: first, non-automated products were produced, and then their automation was carried out. The latter did not become a compulsory part of modern production in the USSR, as a result, Russia was left with the significant amount of *enterprises and the whole branches with "manual control mode"*.

One should also take into account another historical experience, when the industrial potential of the USSR, lost during World War II, was restored on the pre-war technological base, which caused the strengthening of non-advanced technologies of the 2nd and 3rd technological modes. The essential goal of directing human and material resources to non-progressive technologies was to provide jobs for soldiers transferred to the reserve, but the restored, though still obsolete production facilities (mines, factories, transport vehicles, etc.) negatively affected the resource and energy intensity of domestic economy, and began to "burden" the industrial base in a subtle but consistent way. In the absence of competition, enterprises were forced to take (not purchase) the machines, equipment and material resources assigned to them in the framework of established funds. That's why at present, Russia's industrialization potential should be restored on the innovation basis oriented to the support of competitive technologies in processing and manufacturing branches.

Dynamics of innovation modernization of Russian economy in many respects will depend not only on the available innovation potential, but also on the quality of technological environment, in which innovation solutions are implemented. Technological environment is a particular case of organizational-economic environment, where economic entities, economic agents, entrepreneurs carry out their activities. According to the World Economic Forum data, Russia ranked 120th in 2010 – 2011 by the quality of organizational-economic environment and the level of favourable conditions for business. Such low quality is caused by the inefficiency of federal and regional laws, which frequently contradict each other. The set of rules and procedures, authorizing and supervising business, is accompanied by the high level of corruption and crime rate, etc. All this is aggravated by the inefficient observance of adopted laws, slow trials and partiality of legal judgments, attempts of forced illegal takeovers of property, etc. The improvement of the organizational-economic environment's quality was to a certain extent facilitated by the Decrees of RF Presidium and Resolutions of RF Government on reducing the number of tax inspections small and average business enterprises, simplifying the registration procedure for business enterprises and organizations, etc. However, these measures only partially improved the business climate and were unable to radically improve the environment for doing honest business.

It is noteworthy that Russian business itself does not yet possess the features typical of that in the developed countries, and it lacks the reliability of compliance with contractual obligations; strict observance of established standards and norms; compliance with established tariffs; transparency of financial flows; tax compliance, etc. Attempts of providing false information, gaining profit at the expense of consumers often become wide-scale, which causes the supply of low-quality

goods, medicines and food at excessive prices. These unpleasant activities are usually handled with the help of competition, the establishment of efficient standards, and efficient supervisory authorities. However, these measures do not work in the conditions of high corruption rate, lack of professionalism on the part of supervisory bodies, unjustified court decisions, etc.

It is impossible to improve the conditions for doing business by changing only one feature of organizational-economic environment. This requires systemic measures, implying a gradual, progressive improvement of the conditions for doing business based on the harmonization of interdependent characteristics of organizational-economic environment.

Competitiveness is a crucial condition for innovation modernization. How can the competitiveness of Russian economy be increased? In theory, the answer to this difficult question is well-known: with the help of new technologies, the efficient innovation-based mechanisms of their development and implementation, as well as the active support of the demand for the products of these technologies.

However, it is not so easy to implement these essential conditions; Russia could pay a hefty price of wasting time and achieving nothing for "relying only on its own", while many developed countries would advance far ahead. Therefore, Russia should carry out the following measures the sooner the better: 1) to import the advanced technologies in the strategically important industries of national economy (mechanical engineering, machine-tool building, electronics, oil processing, pharmaceutical industry, instrument making, etc.); 2) to work out the mechanisms for the rapid and full development of these technologies' potential; 3) to introduce an obligatory innovation component, into the content of investment projects in order to support their development.

It is important not only to import new technologies (which was successfully done in the former USSR), but also to develop their potential comprehensively. This requires, along with the perseverance and consistent actions of authorities and business, the highly qualified personnel. Their shortage at present can be compensated by establishing the centres for personnel training and education in the field of advanced technologies in cooperation with leading domestic and foreign companies. Qualified personnel is one of the main conditions for attracting investments. Besides, it is necessary to establish research centres for support and maintenance of new technologies in the framework of their life cycle in cooperation with state-owned corporations. If organized properly, these centres can replace the branch-wise science disintegrated in the 1990s, and factory science existing earlier.

At that, it is necessary to take into account the possibility of importing technologies and production facilities in view of the prospects of reconstructing Russia's competitive industrial base.

Of course, Russia, like many other developed countries, will not be able to establish competitive industries in all sectors. The branches subject to priority reconstruction should comprise [1, 3] investment mechanical engineering, including heavy, energy, transport, chemical engineering; construction materials sectors; pharmaceutical industry; electronics, instrument-making; communication and information systems, etc. However, after the inferential research and calculations, this list can be adjusted, since even many of the major developed countries don't have a complete list of their own competitive industries, and the use of backward technologies ruins the country's economy.

Formation of the technological environment of a new quality. Production and sale of competitive products are impossible in the conditions of a non-competitive environment.

The important factors ensuring the development of market economy, exist in the mechanisms of competitive goods production and their free sales on the market. If the first condition is not realized in the domestic economy due to the accumulated long-term lagging of its technologies behind the world level, then the non-competitive environment is supported at the federal and regional levels by corrupt officials, crime, the inaction of law enforcement agencies and flaws in legislation. It would be difficult to "jump" from the 120th place up to the 20th in the ranking of countries according to the business environment attractiveness [2], because it requires a full and simultaneous replacement of entire parts in the system of state structure. It is expedient to accumulate and generalize the experience of rearranging the organizational-economic environment in the local conditions of new productions and technologies formation. At the same time it should be emphasized that entrance to the market and the initial development of new technologies should be strictly controlled by federal and regional bodies that haven't lost their purpose and professional qualities.

The significant drawback of domestic technological environment is the extremely slow cycle of decisions formation and adoption. For instance, in Russia one has to wait about 12 months to receive authorization for the construction of buildings and industrial facilities, this figure exceeds 6 times that of Kazakhstan and 10 times that of the U.S. According to expert estimates, the total duration of the decision-making cycle on the technological development issues at the federal level exceeds 6 months, while in the U.S. it does not exceed 1 month. It is noteworthy that after the adoption of decisions at the federal level, the time before the start of their implementation is stretched for more than 6 months, which is typical both of civil and military programmes, as well as of the financing of research projects by the federal funds: the Russian Humanitarian Science Foundation, the Russian Foundation for Basic Research, etc.

At this stage of development it is necessary to provide active support of forecasts, strategies and programmes, to shape them professionally and to the highest standards, taking into account both domestic and foreign experience. While drafting development programmes, one should consider the links between the goals, expenses and time indicators of achieving the competitive level of new technologies and new products. The programmes should regard quality, cost and volume together and in coordination.

The planned industrialization of Russia may fail unless the financial mechanisms of ensuring investments sufficient for the scale of the set goal are created. In future it is planned to create large volumes of funding, which are concentrated in tangible and intangible assets and distributed among the enterprises of private, mixed and state ownership. These assets should serve as a tool for organizing the flow of capital in the emerging new sectors and sub-sectors. The efficient mechanisms of investment support should direct the created assets to modernization, and they should not be withdrawn under various pretexts to the budgets and funds. These assets should turn from the savings into accumulations and then into investments, supporting the next, new cycle of reproduction.

Effective management of technological development. It should be admitted, that management quality and timeliness of decision-making at the state and corporate levels currently lags far behind the modern requirements of a dynamic market situation, which can often change unpredictably. The mechanism of forming the forecasts, strategies, programmes and projects should meet the present-day requirements. The legally established practice of forming the state order, especially when choosing innovation solutions and new technologies, is outdated and needs urgent revision.

The formation of long-term investments is impeded by high risks of their non-repayment, as well as the insufficient consideration of innovation component determining the competitive technology potential in methodological recommendations for estimating technologies' competitiveness potential.

Technological environment being an integral part of the organizational-economic environment should have a number of essential features, promoting business activities. They include:

1. Orientation of economic entities, implementing integrated technologies [1], toward the movement of products within the complete technological cycle: extraction of resources – production and processing in the form of machines, systems and facilities – their usage and the disposal of products that lost their consumer properties.

2. The chains of established technologies, called technological conversions, prolong the processes of intermediate products transfer (delivery), which are carried out with certain delays caused by the subjects of technological environment, who perform various control functions, including the tracking of products transfers between technological conversions.

3. High complexity of modern technological processes, especially in the manufacturing and processing industries, requires a high degree of synchronization in the delivery of raw materials and components and the processes of their transformation in the complex technology, the demand for which is initiated by the consumers and related technologies.

4. Synchronization of activities and comprehensive technologies maintenance is achieved through joint regulations and documents, having different purposes. These processes include a forecast, strategy, programme, plan, project, contract. Many of the documents should be coordinated between the subjects of technological environment, responsible for its regulation.

5. The business entities' interests, determined by their founders, and the various displaying of these interests in the functions and activities of the enterprises' managerial staff lead to different contradictions and conflicts, that can be resolved only with the participation of many subjects, regulating the technological environment.

The most striking examples proving the low quality of Russian business environment are the maintenance of the resource-based export strategy since the early 1990s and the decline in the domestic industrial production volumes. This generates short chains in the processing and manufacturing sectors. Of course, a limited set of conjugated technological conversions, effectively retained in the country by domestic economy, is influenced by the low potential of their competitiveness. So the absence of efficient technologies of oil processing, industrial methods of separation of propane, butane and ethane in the supplies of natural gas within the country and for export, the underdeveloped technologies of wood processing, etc., significantly reduce the added value of raw materials exported by Russia, as the profitability of the final conversions in the petroleum and gas chemistry and wood processing industry in the leading countries is several times greater than the profitability of primary conversions, which production is exported by Russia.

Most of the regularities, adopted in social sciences, market economy and democratic society reflect the results of activities of the existing mechanisms of economic subjects' interaction. These mechanisms are the rules of relations between entities, based on mutual agreements, mutual concessions and compromises. Many of the mechanisms reflect the rules of rational choice, Pareto efficiency principle and others adopted in economics. In the Russian market economy, formed less than 20 years ago, the transfer of the capital to private hands pursued political goals, the

collapse of the socialist state foundations, and was held in the conditions of chaos, absence of the fair rules of state property distribution, that was created by the efforts of many generations. The illegitimacy of state property distribution in the 1990s is still an obstacle to mutual agreement between the different layers and groups of society, which significantly hampers the harmonization of relations in the economy and society.

In the conditions of limited financial resources in the country, when forming the credit policy, one should take into account not only the strategic importance of reconstructed industries, but also the quality of their reconstruction management. Traditional methods of development management and the programmes, worked out by a simple "summing up" of proposals without a strategic plan and orientation at a level competitive in the world markets, should not be funded and supported. In the initial stages it is more important to abandon investment proposals lacking the innovation potential, than suffer losses from the production of obsolete products and technologies useless for modern economy.

It is necessary to carry out a consistent search for the harmony of technological environment characteristics, which would be favourable for business. For Russia the ratios of separate parameters of this environment, sustainable in their dynamics, are unknown beforehand. Their values are determined not so much by considering the similar ratios in the developed countries, as by regular forecasting, modeling, analytical calculations and research.

Absorbing the new technologies. At present, among many acute problems hindering the innovation development, the issue of absorbing innovation solutions by Russian economy is the most important one. Its promotion requires the following:

- enterprises should not only have a development strategy (which is useless without absorbing innovation technologies and solutions), but also the annually approved plan (programme) for the specific measures on the adopted strategies implementation;
- regular assessments of the impact of developed innovation technologies and solutions on the enterprises' economy should be carried out, including the analysis of the changes in the volumes of released production, its quality, self-cost and price;
- value of tangible and intangible assets of an enterprise should be regularly assessed, the change of which should be influenced by implemented innovation solutions, as well as external conditions reflecting the dynamics of the market situation.

The absence of competitive domestic technologies is not the only factor facilitating short processing chains. Numerous endorsements for gaining authorization for business activity significantly increase the risks in the final stages of resources processing, which contributes to the fact that companies abandon their development, and they export non-processed resources. It is not mere chance that the transition of Russian companies to the production of motor fuels that meet Euro-3, Euro-4 and Euro-5 standards is delayed for many years, and the adopted projects for oil refineries reconstruction went significantly beyond the agreed deadlines and cost estimates.

The structure of the RAS Presidium Programme "Forecast of Russia's Innovation Industrialization Potential". The main sections of the new programme on inferential research are as follows:

1. Conditions of Russia's socio-economic development for a medium- and long-term perspective.
2. Conceptual, strategic decisions, providing innovation-based industrialization.
3. Main outlines of the innovation industrialization state regulation mechanism.
4. Concept and model of an innovation-active enterprise.
5. Prospects of forming the organizational-economic environment favourable for innovation industrialization.

6. State and prospects of Russia's innovation potential development.

7. Promising structural and technological changes in resource-extraction, processing, and manufacturing industries.

8. Opportunities for creating promising sub-sectors and production facilities on the basis of technologies import.

9. Analysis of a condition and development prospects of small and medium-sized enterprises, including small innovation enterprises.

10. Foreign experience of industrial and post-industrial development.

11. Conditions and organizational forms of training qualified personnel for new technologies maintenance.

12. Perspective development directions of fundamental and exploratory research (region-wise).

13. Promising areas of applied advanced R&D.

14. Patterns of technological development of the economy, including structural changes in Russia's economy in the framework of the 5th technological order, as well as advanced technologies of the 4th technological order.

Innovation industrialization of Russia is promoted, in particular by the following factors and conditions:

1. Under the "reset" of Russia – U.S. relations it is necessary to secure the repeal of the Jackson-Vanik amendment concerning the delivery of advanced technologies to Russia.

2. In the framework of international agreements it is necessary to get the U.S. abandon the monopoly on advanced technology, which allows the U.S. to control the technological leadership.

3. In order to mitigate the growing contradictions and conflicts with developing countries, industrialized countries shouldn't impose "democratic values" and they should supply advanced technologies on favourable terms.

4. Innovation industrialization financing sources can be found in the newly created assets, extra-budgetary funds, industrial gold loan, funds and assets of the USSR, located in other countries, etc.

5. If Russia has become an "integral part of the world economy" [2], it has the right to suggest that the countries-importers pay for the supplied resources not only in cash, but also by supplying new technologies on their part. Under the conditions of the global crisis, orders for such supplies can provide substantial support to their economy.

References

1. Forecasting the prospects of technological modernization of the Russian economy. Moscow: MAKS Press, 2010.
2. Putin V. We need a new economy. "Vedomosti". 30 January 2012. No. 15 (3029).
3. Forecast of the technological development of Russia's economy with regard to new world integration processes (informative, economic and institutional aspects). Information reports for 2002 – 2008. Moscow: MAKS Press, 2010.

DEVELOPMENT STRATEGY

UDC 614.2

Development of health economics for improving the quality of life

The article deals with the developmental problems of public health in Russia as a key factor of improving the quality of life and providing the high efficiency of domestic economy. It shows the dynamics of main health indicators in the last two decades. Economic and organizational, social and cultural reasons for Russia's lagging behind the developed countries in terms of public health are characterized in the article. It focuses on the essential territorial differentiation of public health standards in the country and represents the specific indicators of these differences for federal districts, which allow us to see the complexity and volume of health problems. The main ways and directions of progressive public health development in Russia are indicated in the article.

Russia, public health dynamics, territorial differences, directions of health development, quality of life.

Vladimir V.
OKREPILOV
RAS Academician, Deputy Chairman of the St. Petersburg Scientific Center of RAS,
CEO of FBU "Test-St.-Petersburg"
okrepilov@rustest.spb.ru

Health has always been the main value of people; it is a basis for harmonious individual development and the greatest boon. The famous ancient physician Hippocrates said, "Health is the greatest of human blessings". According to the philosopher Arthur Schopenhauer, nine-tenths of our happiness depends upon health.

The better the public health, the higher the rate of social and economic development. Poor health leads to lower production volumes; when morbidity is mass, production is disorganized. The state bears losses due to paying sickness benefits, disablement pensions and survivor's pensions, expenses for disabled persons homes and disabled children boarding schools. It should be noted that the amount of the gross domestic product reduces because of temporary or permanent disability as a result of disease, disablement or death.

This can be illustrated by the following figures. According to the Institute of Social and Economic Development of Territories of RAS, the state loses about 0.3% of GDP because of temporary disability and 17% of GDP because of untimely deaths. That is, losses are significant and the problem of public health preservation is very urgent *(tab. 1)*.

Table 1. Decline in GDP due to the poor health of Russia's population involved in the production process

Indicator	2008		2009	
	bln. rub.	% to GDP	mln. rub.	% to GDP
Annual decline in GDP due to the diseases of population (insurance payments)	118	0.28	124.5	0.32
Annual decline in GDP due to disabled persons' noninvolvement in the production process	10.5	0.03	14	0.04
Annual decline in GDP due to untimely deaths of able-bodied population	360	0.9	320	0.8
Annual decline in GDP due to the lost years of potential life	7 500	18	6 670	17

Today, not only doctors and sociologists, but economists deal with the health problems. Both the value and importance of health is greater than such familiar types of resources as wood, coal, gas and oil. It is no mere chance, economic services have been established in many medical institutions and the position of Deputy Director on Economy has been introduced. All these facts allow us to consider the health not only in terms of medicine or sociology, but also in terms of economics and speak about a new field in science – health economics.

Health economics deals with the public and individual health as a component of economic growth and therefore the sustainable development of the state, which can and should be managed.

Nowadays, the state invests significant resources in the health sector. Thus, according to the Ministry of Finance of RF, almost 930 billion rubles have been allocated over the period from 2006 to 2012 to implement the national project "Health". Modern cardiovascular and cancer medical centres have been established; perinatal and high-tech medical centres are being built *(fig. 1)*. However, state budget expenditures on health account for only 4.8% of GDP. It is one of the lowest index among the developed countries of Europe.

Health is one of the most important factors determining the quality of life. And the increase in the life quality of population is one of the most important national challenges. The United Nations Development Programme (UNDP), which appeared in 1990, points out that the main purposes and sense of economic and social progress include providing everyone with the opportunity to realize his/her potential and have a healthy, creative and active style of life. There is a method of calculating the **human development index (HDI)** in the Programme, which is a synonym for the concept of "life quality".

Nowadays, HDI calculation method is the most versatile tool to evaluate and compare the life quality of the population in different countries and regions.

According to it, three main possibilities, representing three components of HDI, are recognized as fundamental constants:

– life expectancy index;
– education index;
– real GDP per capita.

Reports within the United Nations Development Programme (UNDP) have been published since 1990; our country ranked 29 among 130 countries according to the Human Development Index at that time. Today, we rank 71 among 182 countries by this index.

It should be emphasized that UN experts consider **life expectancy**, which is primarily dependent on the **health**, as the most important component of HDI.

Today, Russia takes the 122th place among 182 countries *(fig. 2)*. But despite some growth, our country is still far behind the leading countries according to this indicator – by more than 10 – 12 years.

Figure 1. Cost of the national project "Health", bln. rub.

Figure 2. Dynamics of life expectancy in some countries

Source: 2009 Human Development Report, UNDP.

The territorial differentiation of life expectancy in Russia is quite significant. In 2009, the minimum rate – 65.9 years – was fixed in the Far Eastern Federal District. It was 4.7 years less than the maximum rate that was fixed in the Southern Federal District (tab. 2).

Demographic situation in Russia has begun to change for the better in the recent years: a birth rate has increased and a mortality rate has reduced *(fig. 3)*. But it should be noted that the total mortality in Russia was much lower in the 1980s than today. Moreover, mortality among the able-bodied population in Russia is four times higher than in the developed countries, and it is two times higher than in the developing countries.

Table 2. Life expectancy at birth in the federal districts of the Russian Federation, years

Federal district	2000	2005	2006	2007	2008	2009
Central	66.1	66.3	67.3	68.1	68.5	69.4
North-West	64.5	64	65.6	67	67.4	68.2
Southern	67.3	68.1	68.8	69.7	70.1	70.6
Volga	65.5	65.3	66.5	67.2	67.6	68.5
Ural	64.6	65.2	66.8	67.6	67.9	68.6
Siberian	63.7	62.8	64.7	65.7	66.2	67
Far Eastern	63.2	62.2	63.9	64.9	65	65.9
RF, on average	***65.3***	***65.3***	***66.6***	***67.5***	***67.9***	***68.7***

Note. The calculations of life expectancy index, as well as the analysis of other demographic indicators, given in the article, do not include the data about the North Caucasian Federal District, because there are no these figures till 2010 in the database of the Federal State Statistics Service.
Source: Databases of the Federal State Statistics Service. Available at: http://www.fedstat.ru/indicator/data.do

Figure 3. Demographic situation in Russia

Source: Federal State Statistics Service.

Table 3 shows that there were highest birth rates in the Ural and Siberian Federal Districts, where the total birth rate accounted for 14.1‰ in 2010. The worst situation was in the Central and North-West Federal Districts, where there were the lowest birth rates (10.7 and 11.4‰, respectively) with high mortality rates (15.2 and 14.9‰, respectively).

However, there is no significant effect of a higher level of health development in Moscow and St. Petersburg on the improvment of the demographic situation.

According to Academician A.G. Aganbegyan, people die from diseases 12 years earlier in Russia than in Western Europe, and men die from diseases 16 years earlier.

Table 3. Crude birth and death rates in the federal districts, ppm

Federal district	2000	2005	2006	2007	2008	2009	2010	2011
Central								
Birth rate	7.4	8.8	9	9.7	10.3	10.8	10.7	10.7
Mortality rate	17	17.4	16.7	16.1	16.1	15.5	15.2	13.9
North-West								
Birth rate	7.7	9.3	9.4	10.2	10.7	11.3	11.4	11.4
Mortality rate	16.4	17.7	16.6	15.6	15.7	15.2	14.9	13.9
Southern								
Birth rate	8.6	10	10.2	11.1	11.8	11.9	11.8	11.8
Mortality rate	15	15.6	15	14.5	14.4	14.1	14.1	13.7
Volga								
Birth rate	8.8	9.8	10.1	11.1	11.8	12.1	12.4	12.4
Mortality rate	15.3	16.5	15.6	15.2	15.1	14.6	15	14.3
Ural								
Birth rate	9.2	11.1	11.4	12.4	13.2	13.6	14.1	14.2
Mortality rate	14.4	14.8	13.8	13.3	13.3	12.9	13	12.7
Siberian								
Birth rate	9.7	11.4	11.6	12.7	13.7	14	14.1	14.1
Mortality rate	14.6	16.5	15.1	14.4	14.4	13.9	14.2	13.7
Far Eastern								
Birth rate	9.7	11.5	11.5	12.3	12.6	13	13.2	13.2
Mortality rate	13.2	15.3	14	13.5	13.6	13.3	13.8	13.5
Russian Federation, on average								
Birth rate	***8.7***	***10.2***	***10.4***	***11.3***	***12.1***	***12.4***	***12.5***	***12.6***
Mortality rate	***15.3***	***16.1***	***15.2***	***14.6***	***14.6***	***14.2***	***14.2***	***13.5***

Source: Databases of the Federal State Statistics Service.
Available at: http://www.fedstat.ru/indicator/data.do

The main mortality causes are the following:

1. *Cardiovascular diseases* – 57% of the total number of deaths; it is the main cause of all the deaths in the world. But these figures are higher in Russia than in other countries: 25% of the Russians, who had a heart attack, die. For comparison, this indicator is 5 times lower in Western countries. Every second person dies of apoplectic attack in our country, while in France only every eighth person dies of this disease.

2. *Injuries and external causes of death* – 27%. Injury mortality rate is much higher in Russia than abroad: it is 4 times higher than in Japan, 3 times higher than in France, 3.5 times higher than in the USA.

3. *Cancerous diseases* – more than 14%. Comparing the cancer mortality rates among men in Russia and Western countries we can see that the share of dead is almost equal. But people die at the age of 65 in Russia and at the age of 75 in Western countries.

There is the highest cardiovascular death rate in the Central Federal District – 917.71 deaths per 100 thousand people (tab. 4).

High mortality rates in the North-West and Volga Federal Districts are influenced by high mortality rates because of external causes (156.26 and 192.83 per 100 thousand people, respectively);

Table 4. Mortality rate according to mortality causes in the Federal Districts of the Russian Federation in 2010 (the number of deaths per 100 thousand people)

Mortality causes	Central FD	North-West FD	Southern FD	Volga FD	Ural FD	Siberian FD	Far Eastern FD	RF on average*
Cardiovascular diseases	917.71	860.82	828.28	850.87	674.45	720.02	735.75	805.88
Neoplasms	227.16	229.37	212.63	192.83	200.82	208.06	190.97	205.10
External causes	124.89	156.26	115.20	173.99	173.42	203.44	202.45	151.72
Diseases of the digestive system	64.10	73.86	61.17	68.07	62.16	65.82	78.09	64.36
Diseases of the respiratory system	47.55	48.81	40.59	59.34	53.31	68.29	58.83	52.34
Some infectious and parasitic diseases	14.93	23.51	25.58	21.95	33.37	37.49	32.56	23.51
Suicides	14.51	21.60	17.69	30.36	30.16	36.53	34.04	23.42
All the types of transportation accidents	20.45	18.83	18.31	20.74	19.26	20.63	22.42	19.98
Accidental alcohol poisoning	11.80	17.30	4.73	15.95	13.10	22.27	13.18	13.39
Murders	9.28	12.43	8.32	12.61	15.95	23.05	25.61	13.26
Total number of deaths	*1517.54*	*1491.31*	*1406.32*	*1503.26*	*1297.54*	*1418.10*	*1376.38*	*1419.16*

* Ranked by prevalence in the Russian Federation.
Source: Database of the Federal State Statistics Service. Available at: http://www.fedstat.ru/indicator/data.do

the most common of them are suicides and transport accidents. It should be noted that there are higher death rates of neoplasms in the North-West and Central Federal Districts than in the country on average (229.37 and 227.16 cases per 100 thousand people, respectively).

In modern conditions, it is possible to determine four factors that are crucial for health support.

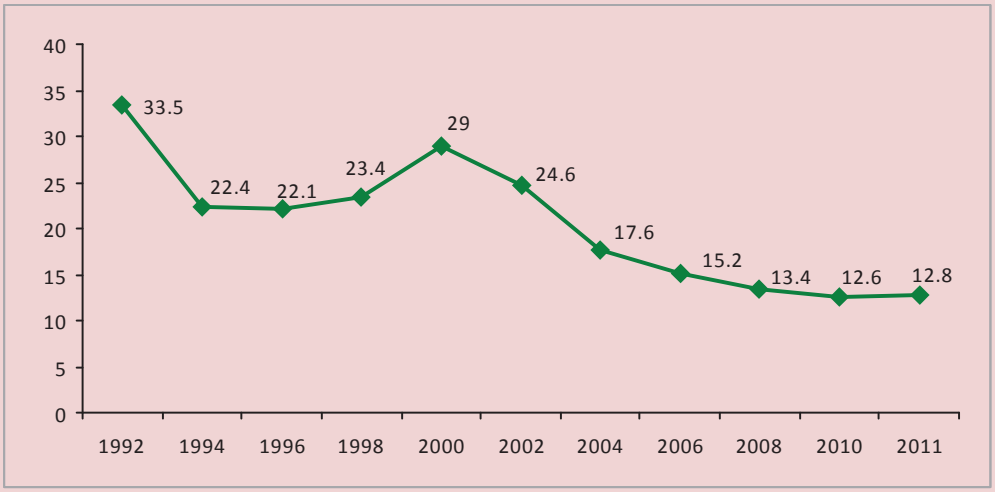
The first one is an economic factor that is associated with human capabilities to create the material basis of well-being.

One of the main problems in modern Russia is a huge gap between the rich and the poor. Low wages of most employees and high unemployment rate do not improve health. And at first glance, the state has taken steps to improve the welfare of the Russians. For example, according to the Federal State Statistics Service, the number of people living below a minimum subsistence income has been decreasing since 2000. The number of these citizens has reduced almost 2-fold over 10 years. This is a positive trend *(fig. 4)*.

However, the rise in population's welfare is accompanied by the increase in property stratification. This process is being observed during the recent decade in all the districts of the Russian Federation. The most difficult situation is in the North-West Federal District. During the period from 2000 to 2010, there was the lowest decrease in the number of people living below a minimum subsistence income in this territory with the highest growth rates of funds coefficients in comparison with other federal districts *(tab. 5)*. For comparison, the rate of decline in the share of people living below a minimum subsistence income for the same period accounted for 56.6% in the Russian Federation on average, and the growth of R/P 10% ratio and Gini coefficient – 6.3 and 18.7%, respectively.

The Internet-based survey, the results of which were published last spring in the newspaper "Metro", showed that the population's cost structure of life-saving goods was far from optimal. Thus, the citizens of the Russian Federation spend half of their income to buy food-stuffs – this is more than in many other

Figure 4. The Russians living below a minimum subsistence income (in% to the total population)



Source: Data of Federal State Statistics Service.

Table 5. Indicators that characterize the dynamics of population's living standards

Federal district	R/P 10% ratio (the ratio of the average income of the richest 10% to the poorest 10%)				Gini coefficient (coefficient of income concentration)			
	2000	2005	2009	2010	2000	2005	2009	2010
Central	10.72	11.89	13.65	13.54	0.342	0.365	0.388	0.384
North-West	9.72	12.68	14.11	14.16	0.340	0.378	0.395	0.396
Southern	10.03	11.78	13.27	13.28	0.348	0.372	0.389	0.389
North Caucasian	9.37	10.48	11.70	12.02	0.339	0.356	0.371	0.376
Volga	9.76	11.76	13.95	13.93	0.340	0.367	0.387	0.394
Ural	14.39	15.61	16.63	16.40	0.394	0.409	0.419	0.418
Siberian	10.82	12.15	13.65	13.95	0.359	0.381	0.390	0.396
Far Eastern	9.53	11.98	13.39	13.26	0.342	0.374	0.390	0.389
RF, on average	***13.9***	***15.2***	***16.6***	***16.5***	***0.395***	***0.409***	***0.421***	***0.42***

Source: Federal State Statistics Service. Available at: http://www.fedstat.ru/indicator/data.do

countries *(fig. 5)*. Consequently, most people have not enough income to supply other vital needs.

This conclusion is confirmed by the results of another survey conducted by the All-Russian Public Opinion Research Centre (VTSIOM): more than half of people do not invest their spare money, because they simply do not have them. And the share of such people has increased over three years. Of course, it is rather difficult to find money to invest them in the health in these conditions *(fig. 6)*.

This means not only, for example, the payment for classes in the pool or gym. The people in Russia have to save not only on food but on medicines due to a lack of funds. The results of the survey, conducted by VTSIOM specialists in autumn in 2011, show that 58% of respondents consider their medical products expenses as burdensome for their budgets. 19% of respondents (almost – one in five!) claim that they have no money to buy even the essential medicines *(fig. 7)*.

Figure 5. Food expenses in the world (in % of personal income, national average)

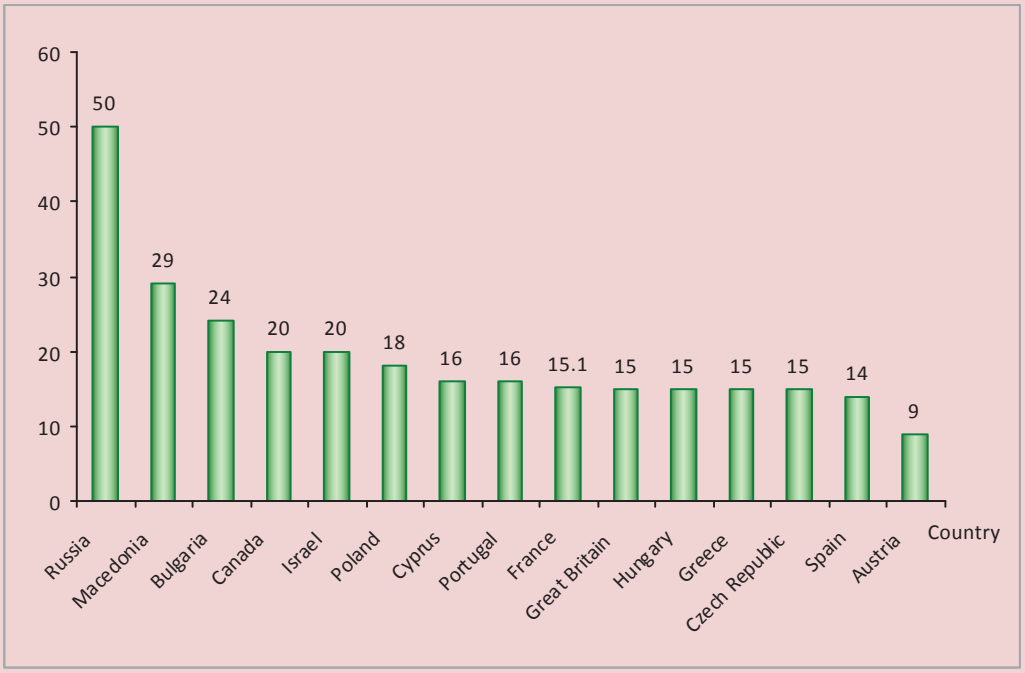
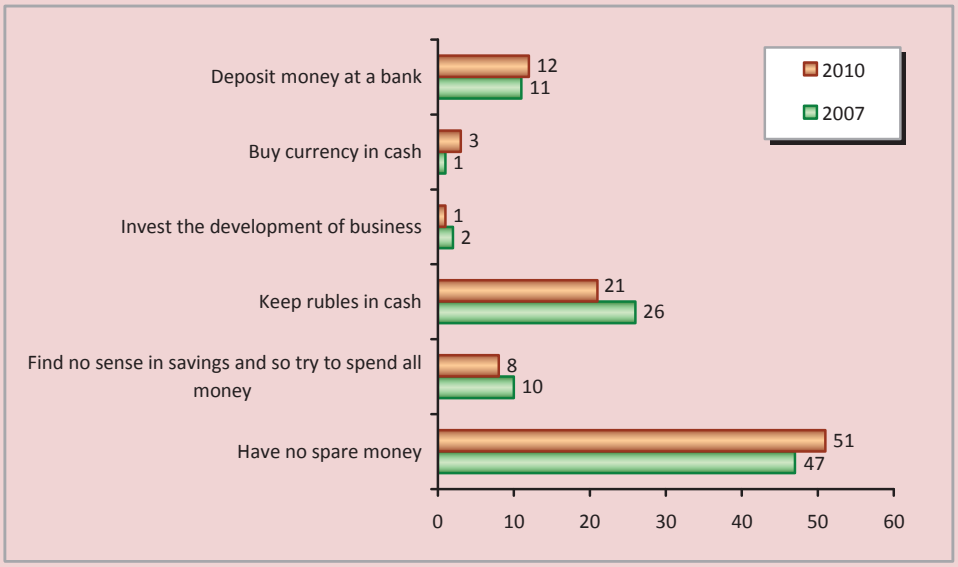


Figure 6. Where do the Russians invest their spare money?



Population incomes are directly related to improving their living conditions, which affect the health. There is a concept of **"affordable housing"** that is defined by the numbers of annual salaries of a typical worker required to buy a typical one-bedroom apartment. Comparing some cities of Russia and other countries shows that housing prices are higher in Russia than in Western countries, while wage rates are lower *(fig. 8)*.

As a result, according to housing supply, Russia ranks 80 among 200 countries; it is inferior to Latin America, Africa and the Middle East.

Figure 7. The results of the survey of Russian citizens on the appropriateness of purchasing drugs in 2011

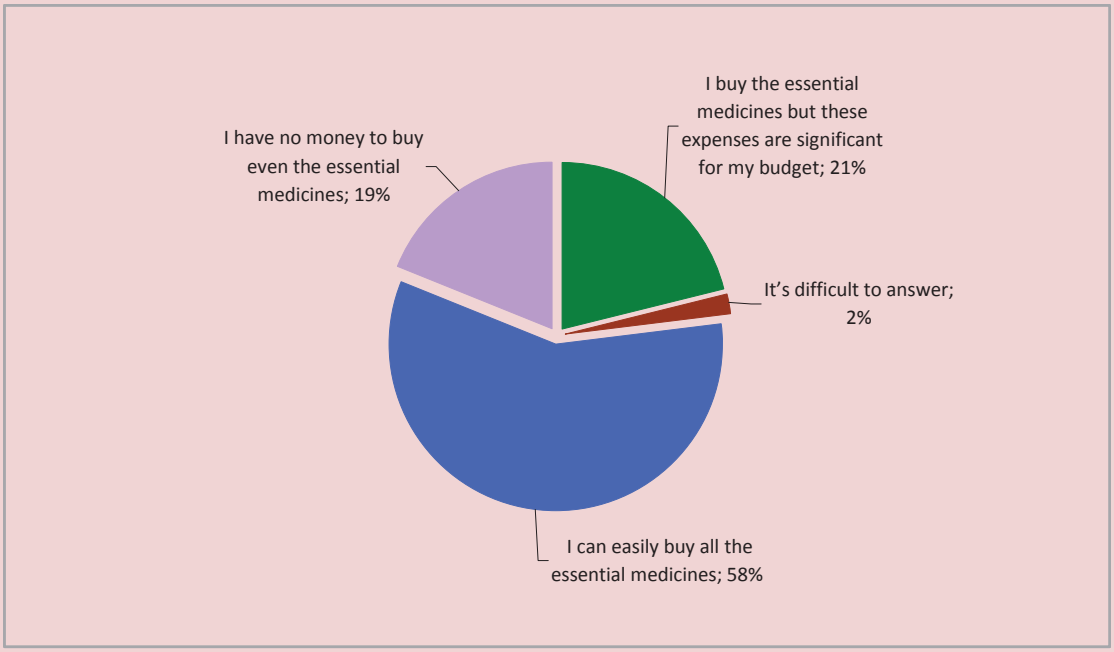


Figure 8. Housing affordability

Source: Data of the Fund "The Institute for Urban Economics".

There are 21 square meters of housing per person on average in our country, while the average supply of housing amounts to 40 – 60 square meters per person in the developed European countries and 70 square meters in the USA. But it's not just the size of living space.

Housing comfort is much more important. According to Academician A.G. Aganbegyan, houses in Western countries are equipped with a refrigerator, gas or electric stove, microwave oven, dishwasher, washing machine, air conditioning, multiprogram television, modern

telephone and Internet, garage for one or two cars. In Russia, a quarter of the housing is not equipped with sewerage and water supply system, and more than half of houses do not have hot water supply.

The rapid deterioration of available housing is a huge problem *(fig. 9)*. Complete housing overhaul has not been carried out over the last two decades. As a result, today the amount of dilapidated housing in Russia is more than one billion square meters. At the same time, new housing construction is small and often the quality of these buildings is poor.

The second health factor – medical – is associated with human treatment capabilities. International research company EPSI that regularly measures customer satisfaction with health services in 20 countries puts Russia in the last place with a satisfaction index of 56.9 points out of a possible 100. As it has been already noted, medicine expenses have been increased significantly in our country in the recent years. Unfortunately, these funds are aimed at the development of medicine in large cities, while the developmental level of rural medicine remains extremely low. This leads to extreme regional differences.

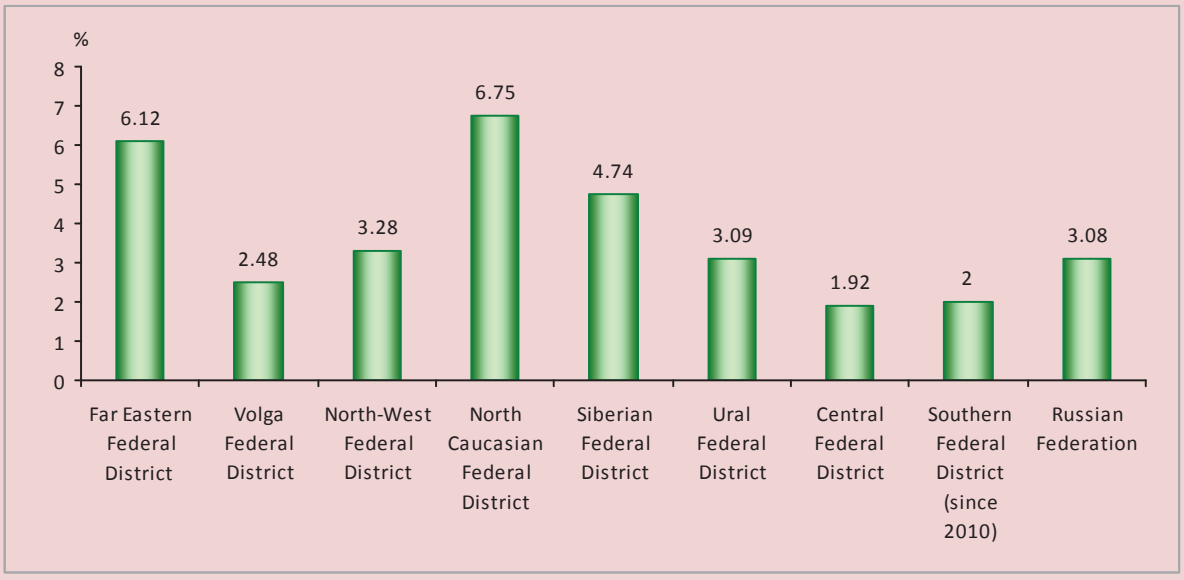
According to the report "Millennium Development Goals", prepared by a group of UN experts, the world rural maternal and infant mortality rate is 40% higher than the urban one. This indicator is 50% in our country,

The third factor – environmental – is associated with the environmental influence over the people. Environment protection is troubled in our country. According to the Prime Minister's assessment, about 15% of Russian territory is in critical environmental conditions. There are mainly ecologically poor industries such as metallurgy, oil and gas complex in the Russian economy; and clean industries, for example, electronics, are not developed.

According to the polls, the majority of citizens believe that the environmental situation has deteriorated in their region in the recent years, and they are afraid of ecological disasters.

Firstly, today, as a result of increased pollution, clean rivers remain only in Kamchatka. One third of population lives in the

Figure 9. The share of ramshackle and failing housing stock in the total housing area in 2010, %



Source: Federal State Statistics Service.

regions where there are no efficient waste water treatment facilities, i.e. water is not purified effectively; there are old rusty pipes in most houses; 40% of urban water supply systems are in disrepair. Thus, according to the polls, one third of people drink tap water, they do not filter or boil it, i.e. there is a threat to the health of 30 million people.

Secondly, half of urban people live in the regions where air pollution level is characterized as high and very high. Naturally, they include the major megalopolises of the country. And there has been an increase in air pollution over the last ten years in 16 of 34 cities in Russia. And, of course, increasing urban transport contributes a lot to air pollution. In large cities, the share of motor transport accounts for 90% of emissions. It should be also noted that hundreds of thousands of people in Russia live in the sanitary protection zones of industrial enterprises, i.e. in the territories where air pollution is particularly high, and according to Russian legislation, one cannot live in these zones.

Thirdly, the state of soils in Russia is poor. In the cities they are intensely polluted with cadmium, arsenic, antimony, radioactive substances. But soil contamination with lead caused by car exhaust is the most troublesome one.

Lead has the most negative impact on human health. Women and men reproductive systems are damaged, and there is a decline in children mental development and increase in childhood mental disorders. According to ecologists, lead contamination covers all the territories of Russia. However, effective measures to reduce lead emissions have not been developed yet.

There is the most unfavorable situation with air pollution emission in the Ural and Siberian Federal Districts. The need to decrease dirty discharge is actual in the Central, North-West and Volga Federal Districts (tab. 6).

Finally, the fourth factor affecting health is social, which is determined by human abilities to perceive oneself as a full member of society. At the same time, the social and psychological conditions in the Russian society cannot be considered as satisfactory. Russia is one of the most "disturbing" countries the world, along with Sudan, Iraq and Somalia. Russian people die of stress due to the unstable situation in the country 20 times more often than 30 years ago.

There are such common habits in Russia as smoking and alcohol consumption that lead to the decline in health. Tobacco corporations have found huge market outlets in Russia. The number of smokers is almost 1.5 times more in our country than the world average.

Table 6. The amount emissions of pollutants into the atmospheric air and dirty discharge into surface water sources in the federal districts of Russia

Federal district	Emissions of pollutants into the atmospheric air due to stationary sources (thsd. t)*				Dirty discharge into surface water sources (bln. sq. m)			
	2000	2005	2009	2010	2000	2005	2009	2010
Central	1597	1496	1577	1618	4742	4341	3596	3761
North-West	2335	2254	2176	2389	3579	3192	2830	3088
Southern	772	617	629	648	1752	1409	1409	1446
North-Caucasian	143	185	152	138	637	496	445	390
Volga	2930	3071	2567	2513	3858	3162	2674	2883
Ural	4562	6296	5262	5105	1773	1681	1702	1860
Siberian	5604	5615	5789	5868	2914	2575	2348	2218
Far Eastern	876	890	869	836	1036	871	848	870
RF, on average*	18.8	20.4	19.0	19.1	20291	17727	15854	16516

* In Russia – in mln. t.
Source: Data of Federal State Statistics Service. Available at: http://www.fedstat.ru/indicatr/data.do

43.9 million people or about 40% of the adult population smoke in Russia. 7 out of 10 men and 4 out of 10 women aged 19 – 44 smoke in our country *(fig. 10)*.

300 billion rubles of budget money are spent annually to treat the diseases associated with smoking, although tobacco companies' assignments to the budget account for only 88 billion rubles.

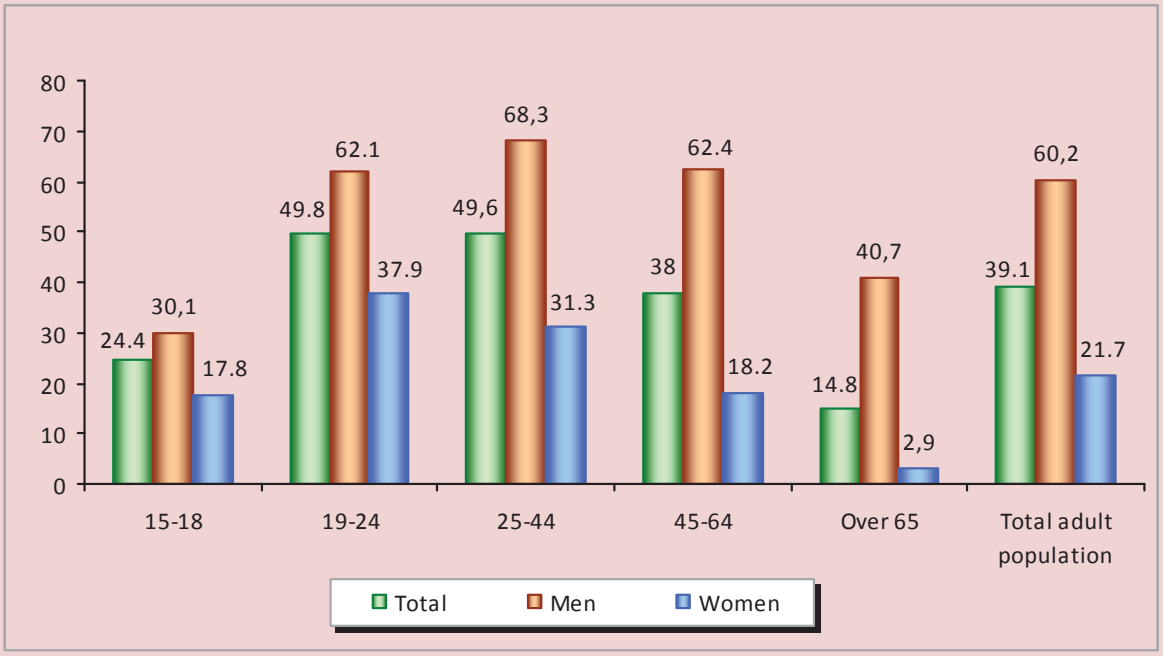
According to the study "Smoking beginner", which was published in the Arguments and Facts Newspaper, 100% of homeless teenagers, 31.7% of girls and 24.4% of boys smoke in St. Petersburg.

However, the measures that are taken recently give the hope that this situation will be improved. The Ministry of Health has prepared **a draft of a new "anti-smoking" law.** According to it, for example, smoking will be prohibited in the workplace, the territories of educational, medical, cultural and sporting institutions, catering organizations, in the areas of public recreation and public transport. Tobacco advertising and tobacco companies' sponsorship of any events and activities will be completely banned.

However, of course, it is necessary to think about ensuring the rights of smokers, for example, through establishing the special places equipped with modern ventilation devices.

Alcoholism expansion is another trouble; the data of the Ministry of Health and Social Development shows the extent of the problem: alcohol consumption in Russia accounts for 15 liters of pure alcohol per capita annually. However, the World Health Organization considers that the level of alcohol consumption equal to 8 liters is dangerous to the health of the nation. Each additional liter beyond this limit takes away 11 months of men life and 4 months of women life. Russia has gone on before other countries in the world *(fig. 11)*.

Figure 10. Smoking in Russia (the share of smokers, %)



Source: Global survey of adults about tobacco use. Russian Federation, 2009.

Figure 11. Alcohol consumption in the Russian Federation and Western countries

The incidence of such socially dangerous diseases as HIV, tuberculosis and diabetes is revealing. According to the Federal State Statistics Service, there is no any improvement in this indicator, and on the contrary, these morbidity rates are increasing in the whole country. For example, the number of HIV-infected people has increased by 30% since 2005 *(fig. 12)*.

This sad result is largely due to negative social phenomena: in Russia such disease as HIV is transmitted mainly through drug addicts' syringes. The problem of drug addiction in Russia acquires the features of a national disaster. According to the Ministry of Health and Social Development, the number of drug addicts increases by 4.5% every year.

Today, unfortunately, Russia lags far behind the developed countries in the economic and social spheres, including the health sector. There are many problems that should be solved as soon as possible.

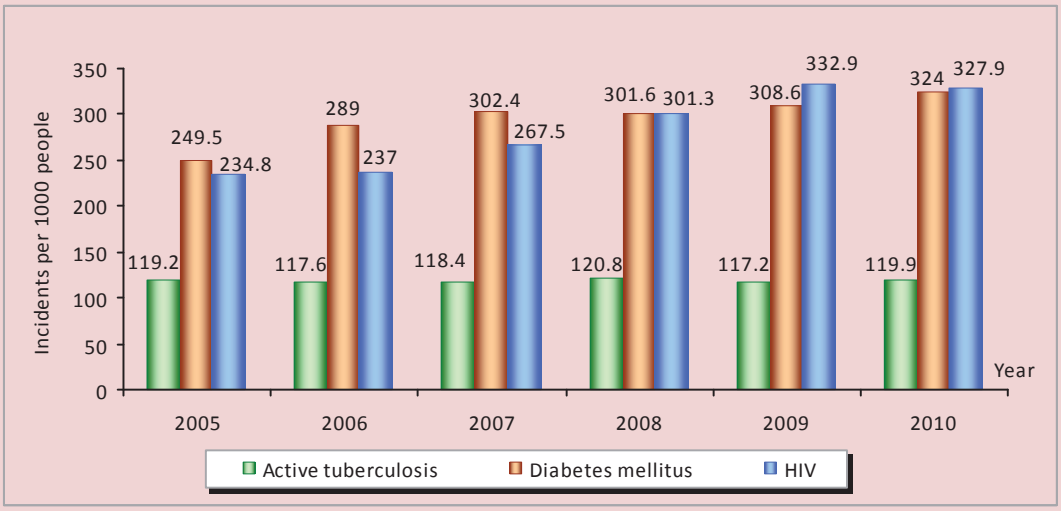
The government understands this and takes some steps to solve them. For example, the Concept of the Demographic Policy in the Russian Federation until 2025, adopted in 2007, is taking on great significance.

It is assumed that it will be possible by 2025:

- providing a gradual increase in the population size (including at the expense of replacement migration) up to 145 million people;
- increase in life expectancy up to 75 years;
- 1.5-fold increase in the total birth rate in comparison with 2006;
- 1.6-fold decrease in mortality rate;
- 2-fold decrease in maternal and child mortality.

Nowadays, there are various alternatives to develop the country. It is necessary to point out a very important thing. Such programmes should include the complex development of all the spheres – economy, social sphere, culture, etc.

Figure 12. The incidence of HIV, diabetes and tuberculosis



Source: Federal State Statistics Service.

Our country must meet public health indicators of countries with the same level of economic development by 2025.

Summing up what has been said above, we would like to suggest the following areas for further work:

1. Strengthening the role of the state in the development of public health:

- adoption of a new legislation;
- implementation of the national project "Health";
- measures to improve the environmental protection;
- enhancement of measurement capabilities and standardization .

2. Transition to health protection:

- considering the health as an economic resource;
- revival and development of preventive medicine;
- development and implementation of economic incentives to improve health.

3. Changing the attitudes to our own health:

- adherence to a healthy lifestyle;
- selection of a family physician;
- upbringing the children with responsible attitude to the health.

Successful implementation of the proposed measures could significantly improve the quality of life in Russia and make the Russians more happy.

References

1. Okrepilov V.V. Quality economics. St. Petersburg: Nauka, 2011.
2. Aganbegyan A.G. How can we live long and stay healthy. Moscow, 2011.
3. Science and Society. Physiology and Medicine of the XXI century: Abstracts of plenary reports at the St. Petersburg Scientific Forum. St. Petersburg, 2011.

UDC 330.342.146

Integrative economics – the economics of coordinated and socially oriented development

The article proposes a new vision of modern economics, which is called integrative economics. It is regarded as the economics of coordinated and socially oriented development. The article substantiates the concept of "integrity" as the compromise participation of various structures in the creation of a coordinated product. The principles and structural elements of integrative economics are disclosed here. The article proves that integrative economics is aimed at ensuring promising future, oriented toward the development of a human personality.

Integrative economics, coordinated and socially oriented development, development of a human personality.

Vladimir S. BOCHKO
Doctor of Economics, Professor, Deputy Director of the Institute of Economics of the Ural RAS Department
vbochko@mail.ru

Integrity as a scientific concept

In order to reveal the content of integrative economics, it is necessary first of all to focus on the concept of "integrity" ("integrative"). It derives from a close term of "integration", which is defined in dictionaries as "the unification of any parts, elements into the whole" [1, p. 216], but these concepts are not equal. It is a new semantic content, and not only an unusual phonetic sounding, that attracted the scientists' attention to this concept and became the reason for its inclusion in the naming of new sciences.

Thus, in 1997 biologists of the Lomonosov Moscow State University proposed to introduce the notion of *"integrative biology"* at the International conference "Biology, Humanities and Education". They defined it as follows: "Integrative biology is a system of knowledge in the field of biology, integrated along with other natural sciences and humanities into the sphere of people's values for the formation of biological literacy and worldview, based on a humane attitude towards every living thing" [2, p. 35]. American lawyer John Berman created the concept of *"integrative jurisprudence"* as a philosophy that unites three classical schools of law: legal positivism, the theory of natural law and the historical school of law (mainly German). V.N. Panfyorov's school of thought *"Integrative approach in psychology"* (Herzen State Pedagogical University) was established in psychology of the 1990s [3]. *Culturology* has been named an *integrative science* since it is a field of knowledge formed at the intersection of philosophy, history, psychology, linguistics, ethnography, religion, sociology of culture, art studies, and it deals with the essence, functioning and development of the culture as a whole [4, p. 24-28]. The notions of "integration" and

"integrity" have considerable differences in their meaning. *Integration* implies, on the one hand, the process of movement of parts and elements toward their unification into *a single whole*, and on the other hand, the formation of the outcome of this process into a *single product* of some kind. *Integrity,* in its turn, is based on other premises, i.e. not the achievement of an object's unity, but *ensuring the coordination of actions* of the process participants, not the disclosure of the real or imaginary wholeness of an object, but *the search for uniting forces* for the subjects of activities.

The above stated differences do not allow equating the concept of *"integrity"* with other similar concepts, as they have their own specific meaning. For example, although the concept *"integrated"* means the multilateral depiction of phenomena (processes), taking into account the interactions between the given elements, it underlines the intention to unite them into a single whole. The connection of elements under integrated development can take place either through establishing the relations between equal elements, or on the basis of some central element. The concept *"systemic"* also differs from *"integrated"*. The systemic approach *initially* considers an object as a system, i.e. as a set of interconnected elements forming a certain unity. The concept *"integrative"* does not coincide with the con-cept *"synergistic"* either.

They both deal with the systems consisting of many subsystems (multicomponent systems) *of a various nature* and reveal how the interaction of such subsystems leads to the *emergence of new structures*. In addition, both the synergistic and integrative approaches focus primarily on the dynamics of the processes, and not the statics. In this regard, they are interested not in equilibrium systems, but in those where the equilibrium is absent or disturbed, and the control actions can change at random.

At the same time, the difference lies in the fact that *synergistic systems* can be governed from without, and the *integrative development of territories* – only from within.

The distinction of the concept *"integrity"* from other close or similar concepts allows characterizing it as an independent scientific tool possessing its own categorical status. Integrity, revealing the new properties and characteristics of interactions between people, *is a target-oriented compromise participation of various structures (parts, elements) in the creation of a coordinated product*. At that, it does not include the intention to complete the uniting processes, it is oriented toward their movement to unity.

The main stage in the phenomenon of "integrity" is *a coordinated product created by compromise*, *it is regarded as a material or non-material result of human labour, economic activities, compatible with the wishes and expectations of all the participants of united actions*. Each person taking part in the creation of such product treats it as the manifestation of his/her own activities.

A coordinated product created by compromise should comply with certain requirements. Firstly, every part of it should occupy a specific place, so that all the other parts were coordinated and they facilitated the development of what was originally planned. Secondly, particulars should not prevail over the main ideas. Thirdly, the product under creation should not be detrimental to the phenomenon, for which purpose it is developed.

The problem of coordinated and socially-oriented economic development

Modern industrial-technological level and interpersonal relations developing on its basis objectively cause the gradual formation of integrity in human cooperation as a compromise participation in production activities.

Coordinated and socially-oriented economic development is a form of displaying integrity. It is expressed in actions aimed at the *integration* of separate structures and processes (production companies, technologies, markets, territories) in a more or less united phenomenon.

Strengthening *connection processes* are unfolding both on *the world level* in the form of relationships globalization and on *the national territories* through the promotion of cultural, educational and information exchange, as well as the increase of personality socialization. Expanding connection processes allow to make the territories' development a target-oriented process aimed at the reproduction of individuals as the main value of the territory, i.e. the process, not restricted to meeting only material demands of people, and extended to the scale of civil society formation.

The enhancement of present-day activities aimed at space transformation is based on *people's knowledge* about social, cultural, economic and other facts, that is used in economic activities. At that, the new stage in their development is marked by the transition from the discrete knowledge of individuals to the coordination of knowledge on the scale of a society. Academician N.N. Moiseyev, having in mind such kinds of knowledge transformation processes, wrote about the passing of knowledge from the individual mind to the Collective Mind (Intellect) that provides a single vision of what is happening [5, p. 86 – 90]. *Coordinated knowledge* is the basis of foresight and implementation of socio-economic prospects through their fixation in *the territories' development strategies*.

At the same time, developing connection processes remain constantly volatile due to the individual (personal and corporate) freedom of their participants. Moreover, the instability of the relations inevitably increases in the absence of appropriate institutions (legal or moral and ethical), securing the norms and rules of coordinated behaviour. Though sociologists' interest in global and local economic transformations is increasing, penetration into their essence is impeded, on the one hand, by the *immaturity* of the new territorial development phenomena, which makes it difficult to observe the content of the cause-effect relationships; on the other hand, it is impeded by the imperfection of existing research tools and often by their absence. Therefore, researchers face a dual objective, which consists in the necessity not only to *conduct an in-depth study of the new phenomena*, including connection processes and their corresponding institutions, but also the necessity *to create reliable tools* for the study and explanation of emerging innovations.

Such research will naturally result in the emergence of new scientific tools, as well as the establishment of new fields in economics. One of them will be the development (disclosure) of the foundations and mechanisms of mutually beneficial agreement (consensus) of the set of people's actions aimed at organizing their life, we call this set of actions *"integrative economics"*.

Integrative economics as a result of interaction between all the components of socio-economic life

Historical experience shows that in order to shift to a new stage of economic and social development, countries usually applied a target-oriented set of interrelated measures including *the increase of population's education level, the strengthening of moral principles in economic activity, the development of respect for productive work, etc.*

At the time, economist and chemist D.I. Mendeleyev (1834 – 1907) in his work "To the knowledge of Russia" (1906) analyzed the reasons for poverty in the country and wrote the following: "Laws, even the most liberal

ones, would do nothing for the country if the necessity, example and growth of consciousness didn't inspire the need for and love of work". He stated further, that "only truth and goodness, education and unanimous consent can conquer the evil" [6, p. 495].

In methodological respect, the adoption and implementation of coordinated and long-term development should be based on *the principle of interconnection* between everything.

Its essence proceeds from the fact that economic relations are effected under the shortage of resources, and it is not mechanical tools, but people with different psychological, moral and cultural features that are involved here. When making a decision, an individual is guided by his/her lifestyle, habits, attitudes, desire to gain profit, hopes for good luck, etc. At the same time, his/her decisions are not isolated from external circumstances, including the legal basis, market conditions, behavior of partners, confrontation of interests, completeness of the information on goods and services.

Complex technologies, dependence on suppliers, marketing techniques of products release create overall interdependence. Acting on one's own under such conditions is impossible, besides, it is damaging for the society. The price for wrong decisions made by separate economic entities can be a company's bankruptcy. Life of an individual becomes completely dependent on the behavior of the local and national community. In the economic aspect, it (life) is determined by the laws of the market, but actually, it is regulated by the single whole, which is a technologically, industrially and mentally united community. People can console themselves with the fact that they are separate and independent individuals, let them think so, because "blessed is he who believes".

Authorities, public organizations, business, science, and individuals are not just interrelated, they are doomed to cooperation, because they form a society as a single socio-economic, cultural, ethical, moral and legal body. Each of its separate components can exist only by ensuring the existence of the other. The role of such components in the life of a single organism is revealed through their functional predestination, the main feature of which is self-preservation of the organism for a maximum duration, up to infinity. Therefore, the functional setting for each of the components is the long-term existence of the organism as a whole. This functional setting is substantial: a function exists for the preservation of an organism, and not vice versa.

The unity of all the components of a public organism may be weaker or stronger. It depends first of all on the development level of productive forces (people and the means of production used by them), generating a certain degree of technological interdependence between people's actions. As the technological dependence of people becomes more profound, they have to cooperate with each other not only in the exchange of finished products, but also in the coordination of their actions concerning the production of the components of goods and services necessary to achieve the final, functionally suitable product.

Such changes in the technological and social development lead to the emergence of a new content in the economy. Atomistic subjects of economic activities are replaced firstly by the group subjects (joint stock companies, partnerships, pools, inter-sectoral associations), and then there comes the period when a new phenomenon – *integrative economics* – emerges. The transition to integrative economics leads to the *phase resolution of contradiction* between the increased economic strength of a society and its low social orientation, which does not ensure the reproduction of individuals. Integrative economics shows that further economic growth is limited not by resource factors, but by social factors. Under the *phase resolution of contradictions*

we mean their resolution at the time (phase) of the transition (phase transition) of a phenomenon into a different state that is characterized by different features. In this period, old structures collapse and a new order emerges.

Integrative economics *is a system of economic and socio-cultural relations aimed at the compromise socially-oriented and coordinated combination of material and spiritual preferences of territorial activities (individuals, structures, civil society institutions) in the process of creation and satisfaction of individual needs.*

Integrative economics explains the reason for economic and social growth not by summing up the contributing factors, but through collective conscious interaction between educated people. With regard to Russia, integrative economics is the basis for the emergence of a new type of civilization – a society of intellectually and morally developed people, possessing the economy with dominating socially oriented and coordinated actions [7, p. 95].

From a scientific viewpoint, *the object of integrative economics* is a socio-economic activity of people who are equally guided by economic preferences and moral and cultural norms.

The subject of integrative economics is not the relations concerning goods and services, but preferences (interests, wishes) of the people, members of the society (subjects of economic activity, producers and consumers), including various psychological and social factors when *choosing the objects of production and consumption* (use). People choose not only goods and services. They also choose the lifestyle, the features of goods and services production organization (e.g. environmentally friendly or unfriendly), the range and quality of services, peculiarities of everyday life and leisure organization. The choice is made on the basis of preferences, formed in the family, at school, when communicating with other people. This leads to the formation of attitudes and habits. And all of this is the result of socio-cultural development of a society, the reflection of knowledge and consciousness, or the combination of spiritual values. So, integrative economics links its transformations in the first place to the changes in the people's mentality concerning the image and style of behavior and activity.

Integrative economics is not reduced to the description of the procedures ensuring equilibrium in the economic activity, it does not set the framework for its study by the categories of wealth, exploitation, poverty.

It involves in its theoretical study all the human activities, including problems of an economic choice, moral, ethical and psychological norms of people's behavior, it seeks to understand and describe the economic understanding of human happiness and on its basis – to explain the preferences and expectations of individuals.

By the second half of the 20th century the majority of countries, especially industrialized states, began to realize, that not only a country as a whole, but also its separate regions cannot develop without the mechanisms of the state support for the economy. In this connection, increased attention to the socio-economic situation of territories became a relatively new phenomenon. It turned out that a productive life should exist not only in capital cities or industrialized areas, but also on the entire territory of a state, regardless of the remoteness from the capital or industrial centres. The value of human life was all the more understood by a developed society as a value in general, and not with regard to certain areas. People living far from the "centres of civilization", have the same right for a decent life, as those in wealthy urban settlements. This change of values was related, on the one hand, with the growth of labor productivity, which allowed meeting the diverse needs of population to the fullest, and on the other hand, with the formation of the basic elements of a civil society.

Principles of coordinated and socially-oriented economic development

Coordinated and socially-oriented economic development, which forms the basis of integrative economics, is based on a number of initial principles. The first is **the principle of the unity of economic and moral-cultural approaches**, it consists in the necessity of taking into consideration public values, rules, regulations, customs and mentality of population in making economic decisions. The existence of this principle is determined by the fact, that people's social behavior is determined not only by economic, but also by psycho-physical motives, which are based on the hierarchy (pyramid) of demands – from physiological needs to personality self-realization. Therefore, in integrative economics moral-cultural and economic relations are equally important.

Application of the principle of the unity of economic and moral-cultural approaches relies not on the enforcement of social justice requirements, or on the substitution of the motive of gaining profit for the motive of conscience, but on the voluntary activities of agents, who, while regarding their personal interests, do not violate the interests of other society members. In essence it is the realization of the Pareto efficiency principle, when none of the agents can improve his welfare, without infringing upon that of at least one other person.

Naturally, the full observance of morality in economic relations is possible only in the society of intellectually developed and tolerant people with new civilizational values. Culture, economy, law, ethics in such a society become the components of a civilization, as well as the person with his/her internal and external values. Integrative economics is aimed at the practical improvement of an individual by making him/her an important participant of economic activities and transforming the economy into the means of personality development.

It should be mentioned, that under the conditions of poverty, destitution, extremely large gap between the rich and the poor, one should not expect absolute compliance with ethical norms and rules. Only a prosperous society, in which labour is valued and people are rewarded according to their contribution to the general welfare, is capable of combining moral and ethical values with market principles.

Generally speaking, scientists got interested in the issue of combining economic, social and moral approaches long ago, one can say, since they had started analyzing society and man.

This issue was touched upon in "Nicomachean Ethics" by Aristotle (4th century BC), "Theory of Moral Sentiments" by Adam Smith (1759), "Groundwork for the Metaphysics of Morals" by Immanuel Kant (1785), "An Introduction to the Principles of Morals and Legislation" by Jeremy Bentham, (1779), "Book on Poverty and Wealth" by Ivan T. Pososhkov (1724).

S.N. Bulgakov in his work "Philosophy of Economy" (1912) shows that economic activities are not just one of the elements of human life, but they represent this life, they become the replication of people as a part of nature with the only difference that nature is guided by blind intelligence, and in human activities this intelligence manifests itself as a conscious action, resulting in "humanization of nature" [8, p. 99, 41, 110, 187].

Similar views were expressed by O. Spengler in his work "The Decline of the West" (1918 – 1922). He writes that "every kind of economic life is the expression of spiritual life" [9, p. 501], that those who pursue only economic benefits, are not capable of proper actions and will inevitably turn out a pawn in someone else's game and will be deceived.

And yet these were mostly theoretical arguments. The goal of combining economic, social and moral approaches can be achieved

only in the conditions of high material and intellectual maturity of a society as a whole, as well as the majority of its citizens. It is a new technological and intellectual step in the development of a society that brings the problem of integrative economy to the forefront.

Another principle of *coordinated and socially-oriented economic development* is **the principle of cumulativeness and synergism** reflecting the combined actions of different factors, which leads to the emergence of self-organizing systems that switch to their new status under the influence of the strengthening of some factors and weakening of the others.

The very concept of *synergism in integrative economics* receives a new content. It reflects not just a higher efficiency (aggregated effect), resulting from the interaction (merging, combination) of systems, but also *a voluntary, mutually beneficial and coordinated overall cooperation that brings well-being to everyone*. Such a synergism turns into a socio-institutional system and creates new elements of a civil society. These characteristics of synergism were highlighted by A. Maslow who considered it as a culture, in the framework of which the things beneficial to an individual are beneficial to a society as well. He argued that cultures with a high level of synergism were distinguished by safety, benevolence and high morals. Cultures with a low level of synergism are insecure, aggressive, they are characterized by the low level of morality [10, p. 57-58].

The third principle, forming the basis for *coordinated and socially-oriented economic development,* is **the principle of partnership agreements**. It determines the nature of institutional links between the participants of socio-economic relations in the society. The main feature of these links is voluntary and mutually beneficial economic decisions. It means that partnership relations are formed as profitable for each participant.

Structural elements of integrative economy

In *methodological respect*, understanding of the structural components of integrative economy is based on a broader conception of the basic structural elements of a society, developed by sociologists, and political scientists.

One of the founders of social stratification theories is a recognized sociologist *Pitirim Sorokin*, who singled out three such basic elements. He wrote: "The structure of social and cultural interaction, if viewed from a slightly different angle, has three aspects that are inseparable from each other: 1) *an individual* as the subject of interaction; 2) *a society* as the set of interacting individuals, with its socio-cultural relationships and processes; 3) *culture* as a set of values and norms that interacting persons possess, and the set of bearers, that objectify, socialize and disclose these values" [11, p. 218].

On the basis of the named sociological structural "aspects", we define three structural elements for integrative economy that ensure the mutually beneficial combination of preferences of individuals and society and that are gradually becoming typical of a modern economy of any country or territory.

The first structural element is intellectually and culturally educated people. This implies that the given territory should develop science and new or adopted technologies. In order to promote this development, intellectually educated people should not only know the laws of nature and society development, but also be civilized, tolerant, and capable of considering the interests of a society along with their own ones. In other words, there should be the foundations of the civil society. Under the sound legislation, they provide the establishment of partnership relations between all the participants of social and economic relations on the given territory.

The second structural element of integrative economy is **the real production sector**. This

means that any business entity should, using its own resources, produce real products for satisfaction of its own needs, as well as for their exchange for other kinds of material goods. No territory in the conditions of market relations would survive without the development of the real sector. It is only an illusion that someone would produce the necessary goods somewhere and then would bring them to local residents. If all the territories, relying on the others, which is theoretically possible, ceased to produce material goods, then inevitably there would come the times of intellectually educated, but hungry sybarites. Material production was and will forever remain the basis of physical and biological survival of people.

The third structural element of integrative economy is **an advanced service sector**. In its absence, the territorial economy will develop one-sidedly, as well as in the absence of the real sector. The service sector includes not only servicing productions, i.e. connected with the maintenance of produced or supplied goods, but also all the branches that are not related to the material sector. Transport and transportation inside the territory and beyond its borders, tourism service, energy and telecommunications, legal services, accounting consultations, education and health care, public utilities, and housing services – all this is included in the service sector.

Integrative economics and other economic theories

Integrative economics is closely related to the concept of socio-economics [12], but only in the part, which deals with the role of trust, ethics and human dignity in business and society. According to V.A. Sukhikh, socio-economics "is an interdisciplinary field (area of scientific knowledge), *which studies the patterns of modern economic life in time and space through the prism of moral and ethical rules (restrictions) and social justice criteria* (author's italics. V.B.)" [13, p. 22].

At the same time, integrative economics is not guided by moral-ethical requirements (restrictions) and the principles of social justice. It is based on the social solidarity principle, when the freedom of economic action is understood as a social responsibility, i.e., not as a requirement, but as a voluntary action, and socio-economic reforms are associated with the changes in people's mentality. The basis for strengthening confidence in integrative economics is not only the development of trust associated with moral and ethical values, but also the creation of material conditions for its strengthening.

Integrative economics is not reduced to praxiology, which is the study of the common logic of any rational action.

The most prominent representative of the praxiological science, Austrian economist *Ludwig von Mises* in his work *"Human Action: A Treatise on Economics"* (1940) noted that "economic theory became part of the...more general science – praxiology", that its subject was "human activity as such, regardless of external, random and individual circumstances of certain actions. Its knowledge is purely formal and universal, without any regard to the substantive content and individual characteristics of a particular event. It focuses on the knowledge, valid for all cases, the terms of which exactly correspond to its assumptions and conclusions. Its statements and theorems are not derived from experience. As in logic and mathematics, they are a priori" [14, p. 7, 33-34]. Unlike praxiology, integrative economics deals, firstly, with benefits (goods and services), and secondly, it includes social, moral and ethical aspects into individual and public actions. Praxiology studies human activities, and integrative economics – the motivation of human activities, outlined by moral and ethical search.

Integrative economics should not be considered in the categories of *normative economic science*, i.e. as a justification of what should be and not what actually is.

However, integrative economics is not based only on the postulates of *positive economic science*. Theoretical strictness of the liberal theory statements is not supported by actual economic reality. Therefore, the theory of integrative economics does not regard all the statements of the liberal theory as scientifically grounded. It is built not on the requirements of morality, duty, justice, but takes them into account as components of market development, i.e. *does not subject the economy to morality, but links them as equal driving forces*, developing their actions in conditions of the real (not forced) voluntary exchange. That's why the theory of integrative economics is based on the provisions of both normative and positive economic science.

Significant place in the integrative economics belongs to the provisions of *behavioural economics*, which, on the basis of the combination of psychology and economic theory, explores the actions of different agents in the conditions of their limited cognitive ability. One of its creators – Nobel prize winner (1978) Herbert Simon argued that, in their behaviour people are guided by limited rational principles and not only economic, but also psychological motives, and that "by mid-1950s, the theory of bounded rationality has become an alternative to the classic comprehensive rationality" [15, p. 330]. H. Simon's ideas undermined the fundamentals of the general equilibrium theory and the postulates of maximization and optimization of profit and utility, on which this theory is based.

The famous representative of behavioral economic theory is George Akerlof, Nobel prize winner (2001) who stated his ideas in cooperation with Robert Shiller in the work "Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism" (2009). Their essence lies in the understanding of *man as a creature that in economic activity is guided by the irrational element*, i.e. in highlighting *the subjective factor* in economic behaviour. They write, "In order to understand the economy, one should learn, how it is driven by the irrational" [16, p. 17]. G Akerlof believes that such rules of economic behavior ("informal institutions"), as labour morality, justice, selflessness, money fetishism, gregariousness, etc., are not sufficiently taken into account in economics.

Practical results of the development of integrative economics

Development of integrative economics ensures obtaining real practical results. Firstly, it *combines economic freedom with the social solidarity* of a territory's population, which should lead to the reduction of the gap between wealth and poverty. But it is possible to achieve such a state of a society if certain additional conditions are observed. First of all, freedom should be understood as voluntary actions of individuals who understand the responsibility and necessity to consider the interests of their fellow citizens. Freedom must not be abused, it shouldn't be confused with permissiveness, non-compliance with the rule of law, disrespect for the value of a human personality, because freedom is the social responsibility of all the citizens.

Secondly, integrative economics provides *the formation of evolutionary selection of behaviour patterns* of the subjects participating in the territory's development. This is a very important consequence, as it fixes new positive forms of socio-economic behaviour of the subjects, which are based on the willingness to cooperate and create collectively used goods.

Thirdly, integrative economics, due to its moral and ethical standards, *ensures the growth of trust within the community*. Thus, when we speak about trust within a society, we mean the existence of universal trust of everyone in everyone. This means that trust must exist

not only directly between the parties (at the conclusion of agreements or contracts), but also indirectly between all the members of a society.

Fourthly, integrative economics provides the territorial community with *internal optimism,* because it considers the territory's own resources, including moral and intellectual, to be the most important driving force.

Fifthly, *integrative economics* expands people's opportunities of improving their personal welfare, as well as public welfare through their participation in the development and implementation of new activities and development strategies acceptable for the territory.

Conclusion

Integrative economics in all its aspects is aimed at ensuring efficient future, oriented towards the development of a human personality. It envisages man's liberation from the dull daily routine, and the transition to economic activities as a spiritual and moral-ethical existence of a personality.

---

[1] Unabridged Economic Dictionary. Ed. by. A.N. Azriliyan. 3rd ed. stereotype. Moscow: Institute of New Economics, 1998.

[2] Pivovarova L.V., Korzhenevskaya T.G., Gusev M.V. The role of science and education in the formation of biological literacy. In: RAS Bulletin. 2006. No. 1.

[3] Panferov V.N. Relevant problems of teaching psychology in pedagogical university and at school. Moscow: Publishing House "Prometey", 1990; Panferov V.N. Integrative approach to human psychology. In: Human Psychology: An Integrative Approach. Saint Petersburg, 2000; Panferov V.N. To the problem of the forms of manifestation of the psychic. In: Integrative Approach in Psychology. Saint Petersburg, 2003. Available at: http://herzen-aspirant.narod.ru.

[4] Shendrick A.I. On the relevance of cultural studies as a science and educational subject. Knowledge. Understanding. Ability. 2005. No. 4.

[5] Moiseyev N.N. Fate of civilization. Path of the Mind. Moscow: Languages of Russian Culture, 2000.

[6] Mendeleyev D.I. To the knowledge of Russia. In: Mendeleyev D.I. Writings. Vol. 21. Leningrad-Moscow: Publishing House of the Academy of Sciences of the USSR, 1952.

[7] Bochko V.S. Integrative strategic development of territories (theory and methodology). Yekaterinburg: Institute of Economics, the Ural branch of RAS, 2010.

[8] Bulgakov S.N. Philosophy of economy. Moscow: Nauka, 1990.

[9] Spengler O. The Decline of the West: in two volumes. Vol. 2. Translated from German by I.I. Makhankov. Moscow: Ayris-press, 2003.

[10] Maslow A. Maslow on management. Translated from English. Saint Petersburg: Piter, 2003.

[11] Sorokin P.A. Structural sociology. In: Sorokin P.A. Man. Civilization. Society. Under gen. ed. of A.Yu. Sogomonov. Translated from English. Moscow:Politizdat, 1992.

[12] Etzioni A. Socio-economics: further steps. Economic sociology. 2002. vol. 3. No. 1; Borodkin F.M. Socio-economics. Path to the domination over the economy. In: Social sciences and modern times. 2006. No.4; Animitsa Ye.G., Sukhikh V.A. Space-temporal paradigm in socio-economics: regional aspect. Perm, 2007; Shabanova M.A. Socio-economics: from paradigm to a new science. In: Social sciences and modern times. 2006. No. 1.

[13] Sukhikh V.A. Socio-economics of the region: research methodology, development trends and regulating mechanisms. Perm State University Perm, 2008.

[14] Ludwig von Mises. Human action: a treatise on economics. Translated from 3rd revised ed. By A.V. Kuryayev. Moscow: OJSC "NPO "Ekonomika", 2000.

[15] Simon H. Rational decision making in business organizations. A lecture in memory of Alfred Nobel, delivered by Herbert Simon on 8 December 1978. In: Nobel laureates in economics: autobiographies, lectures, comments. Ed. by RAS Corresponding Member V.V. Okrepilov. Vol. 1. 1969 – 1982. Saint Petersburg.: Nauka, 2007.

[16] Akerlof G., Shiller R. Animal spirits: how human psychology drives the economy, and why it matters for global capitalism. Translated from English by D. Priyatkin; ed. by A.Suvorov, foreword by S. Guriyev. Moscow: LLC "United Press", 2010.

UDC 330.341.1(476)

Formation and functioning of the national innovation system

The article presents conceptualization of such notions as "innovation", "innovativeness", "innovation activity", "national innovation system". It contains a structural model of this system, describes its main functions in the process of implementing the state scientific-technical innovation policy in Belarus.

Yevgeniy M. BABOSOV
Doctor of Philosophy, Academician of the National Academy of Sciences of Belarus
babosov@yandex.ru

Transition of economy and all other spheres of life of the modern Belarusian society to innovation development requires solving a whole range of interrelated tasks. Two of them can be pointed out for consideration. The first task is practical-managerial, it consists in ensuring the purposeful movement from uncoordinated innovation projects to a national (state) innovation system. The second task is theoretical-methodological, which consists in conceptualization of such notions as "innovation", "innovativeness", "national innovation system", and in creating a theoretical model of such a system, which is supplemented by a structural model of its components and performed functions in the context of implementing the state innovation policy.

The development of the given theoretical concept is based on the assumption, that innovative thinking and actions should be cultivated already in childhood, pre-school and school age. Childrens' involvement in various hobby groups, clubs (young naturalists, model aircraft, ship models, etc., artistic and scientific creation) plays an important role in this process.

Characteristic features of innovative thinking and acting, a feeling of joy from learning something new, unusual, interesting, pride for the first successful steps in this direction are being developed in such youth associations. It is important to notice and develop this interest in creativity in time, and prevent it from fading out in the conditions of a formal, dogmatical approach toward education and training of schoolchildren and students in modern educational establishments.

Of course, when we speak about the person's involvement in the system of innovation activity, we mean not just a movement of young naturalists or children's technical and artistic creativity. What is meant here, is a professional, well-organised, purposeful and dynamic creative activity of specialists who are involved in innovation research, engineering, constructing or managerial work.

In order to obtain considerable scientific, constructing, managerial commercial etc. effect from this work, individuals should possess appropriate innovative potential. The earlier a person gets involved in creative activity and acquires knowledge and skills of creative

thinking and action (in the process of personality development in schools and universities), the more developed and creative this innovative potential will be.

It is essential not to suppress the elements of innovative thinking and action that a person obtained in his/her school and college years, these elements should be developed, they should acquire more specific, professionally outlined ways of their manifestation in day-to-day activity in any sphere of economy, culture, health care, education, science, management. In this connection, conceptualization of the basic notions of innovative potential of a personality and social community, which include the terms "innovation", "innovativeness" becomes more acute.

While accepting the fundamental importance and significance of introducing innovations in the production of new goods and services in order to achieve economic, social and other types of effect, we note, that innovation as a process of forward-looking creative activity should be understood and interpreted in a broader social context.

First of all, in the processes of young people's education and upbringing, starting from kindergarten and school age, it is necessary to form the innovative potential in a personality and social community. We can formulate the definition of this social phenomenon on the basis of definitive approach. *Innovative potential of a personality (social group, organization) is the integration of innovation capacity, innovation readiness, innovation capabilities and innovative action, implemented in real innovation activity.* The main peculiarity of this phenomenon lies in the fact that innovative potential crystallizes in the act of making an innovative decision, which, in turn, becomes a trigger for an innovative action. This understanding implies that innovation in the sociological discourse should be conceptualized as a notion, reflecting the creative nature of social activities, oriented towards the generation of new ideas and changing the object of action to a new qualitative state. Therefore, the social phenomenon under consideration can be determined as follows: *innovation is the creation of new technologies and technical novelties (based on new ideas and scientific knowledge), their embodiment in new kinds of commodity products and services, contributing to the growth of their efficiency and fulfillment of various consumer demands, as well as social processes' improvement.*

This interpretation provides for defining the main characteristics of innovation. They are:

a) target-oriented nature of innovation activities;

b) novelty of obtained results (ideas, methods, technologies, products, etc.), i.e. their qualitative difference from previous analogues;

c) completeness and practical applicability of obtained results;

d) increase of the competitiveness of personnel trained in education system, manufactured goods and services, and receiving benefits from their positioning on internal and external markets;

e) obtaining a more profound economic, social, ecological, scientific-technical, educational, social, cultural and managerial effect.

The above-stated peculiarities of innovation lead to the conclusion that it can develop from a "sprout" (a new idea or scientific discovery) to a creative process of innovation activity leading to practical implementation of obtained new results in the form of new technologies, technical facilities, design and engineering only when a favoufable innovation climate is created in a society and there exists a fairly high demand for innovations.

This second key notion of the issue under consideration can be conceptualized as follows. Innovativeness is the ability and willingness of a social system (scientific institution, enterprise, firm, sector, region, country) to integrate the latest achievements of science, engineering, technology, management, to commercialize scientific discoveries and development for

sustainable innovative scientific-technical and socio-economic development and efficient management.

The main aspects of innovativeness consist in the following:

1. Capability to generate new ideas and research projects, to protect the intellectual property rights, to provide all economic entities with unrestricted access to the market of high technologies.

2. Ensuring the outrunning growth of investments in intellectual capital development, the impetus towards its involvement in implementing the latest scientific achievements in the economy and other spheres of society.

3. Embodiment of innovative ideas and actions in the innovation culture of an individual and of the community, which, in its practical implementation, gives a sustainable innovative character to all transformations taking place in a society.

4. Inclusion into innovation activity of all social mechanisms (existing in a scientific institution, enterprise, firm, region, and industry) motivating, stimulating and even compelling people to innovative actions.

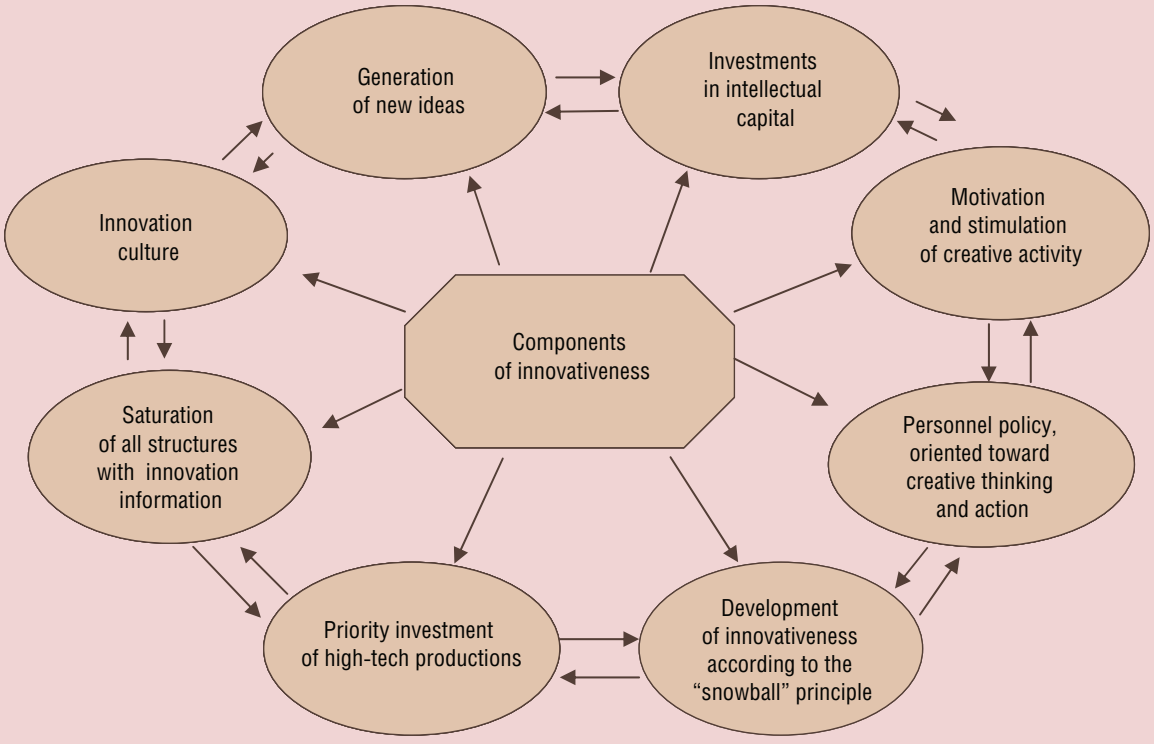
5. Saturation of a society, its economic, healthcare, educational, administrative, etc. structures with innovation information, without which it becomes difficult to carry out innovation activity in the conditions of an information society.

6. Implementation of a targeted personnel policy, oriented toward the development of creative thinking and action among various categories of workers in all the spheres of life.

7. Priority development of high-tech industries, which requires substantial investments at the expense of budgetary and extra-budgetary funds, including foreign investment funds.

8. Development of innovativeness according to the "snowball" principle, when innovation processes in one sphere of life cause wave-like "resonance" emergence and spreading of innovations in other segments of society *(fig. 1)*.

Figure 1. Theoretical model of innovativeness

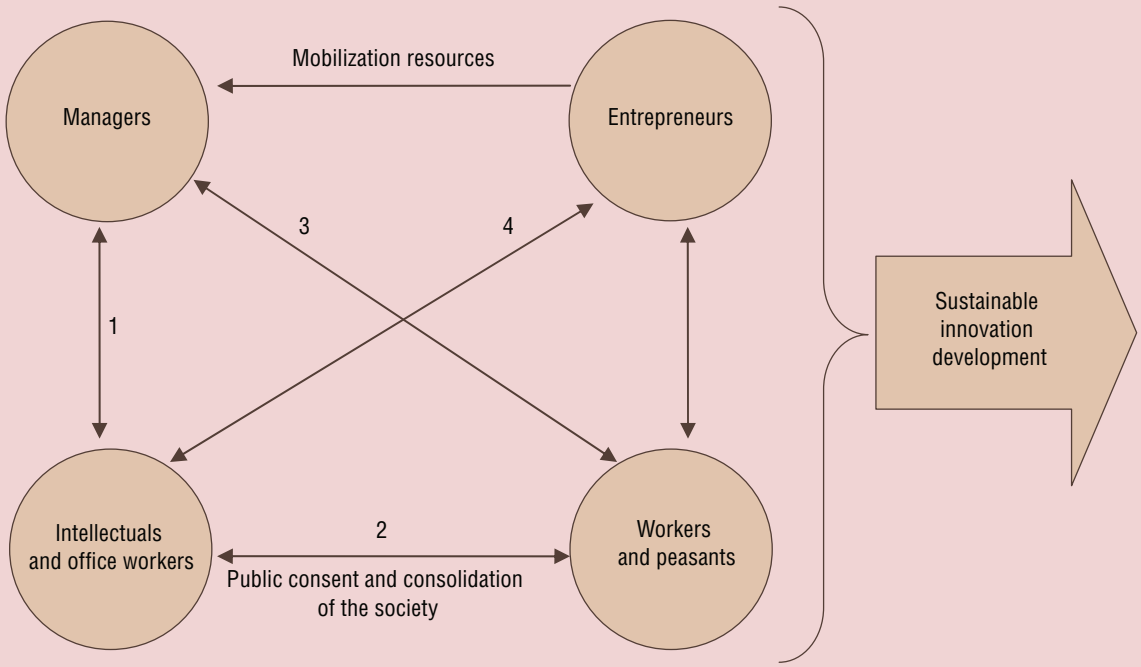


Careful and thorough consideration of two basic conceptualized notions of innovation potential (referred to an individual, group, or society in general), proves that though, in the beginning, the leading role in innovation activity belongs to creative scientific elite and engineering-technical workers, mainly, construction personnel, this activity can't result in high-efficiency products or services without active involvement of managers, entrepreneurs (including farmers), workers and peasants, i.e. all the categories of economically active social groups.

Each social group, solving their everyday problems, promotes the sustainable socio-economic development of a country to a greater or lesser degree. And efficient solving of these tasks requires conditions and opportunities for substantial and well-paid work, satisfaction of material and spiritual needs, provision of citizens' public and personal security; development of healthcare, education, science, culture; development of friendly psychological and socio-political climate in a society. The path of a country's innovation development is based on the intercrossing of these and other social variables. The involvement of various social strata of a society in sustainable innovation development can be presented in the theoretical model *(fig. 2)*.

Such a diversity of social subjects (individuals, social groups, organizations), included in innovation activity and possessing different needs, interests, preferences, attitudes, etc., leads to the fact that innovative process is characterized by nonlinearity, uncertainty, risk and unpredictability. It has to be acknowledged that, in recent years, a lot of new ideas, technologies and new, including import-substituting, products have appeared in scientific institutions and universities, in design organizations and enterprises in Belarus; but

Figure 2. Model representing involvement of the main social strata in the process of sustainable innovation development



Figures in the arrows denote: 1 – level of education and competence of employees; 2 – labor and consumption; 3 – level of income; 4 – political stability

an integral and efficient national innovation system in education has not been formed yet. Unfortunately, the set of effective mechanisms identifying, supporting and distributing the best examples of innovation activity has not been properly organized yet. To achieve this goal, it is necessary to take a number of interrelated measures, aimed at creating *high susceptibility* to innovations among the personnel of education sphere, scientific and design organizations, industrial enterprises. Such susceptibility includes cognitive, motivational, technical and organizational readiness to the perception of innovations and their implementation in production activity. *Cognitive* readiness for innovations perception is manifested in the desire to receive detailed information on innovative technological and technical development and use them actively in their own practice of production activity. *Motivational* readiness for this kind of action reveals itself in the recognition of importance and prospects of economically promising innovations, which can be used in everyday activity. *Technological* readiness for innovations perception is manifested in using a wide range of information sources and channels concerning innovation-based approaches and research in various spheres of activity (media, Internet, seminars, discussions, conferences, etc.). *Organizational* readiness for innovations perception and acceptance is revealed in purposeful activities of search for and estimation of innovations, as well as in making decisions concerning their practical development in research, technological, managerial activities.

Promotion of the readiness of an enterprise's or institution's personnel for innovation activity is inextricably linked to the realization of the employees' need for innovation and to the creation of innovation culture. Innovation culture of an employee is a system of heuristic qualities, typical of creative personalities; these qualities are manifested in various ways and forms of innovation activities carried out in research, educational, production, management, etc. processes. Innovation culture is based on: the thesaurus of innovation problems; object-subject fundamentals of innovation activity, i.e. a set of methods and techniques that provide an employee's innovation activity, first of all, comprehensive and creative methods. Only an engineer, designer, manager, researcher and any other employee with a sufficiently high level of innovation culture, is capable of understanding an emerging innovative problem, and finding adequate ways and methods of its solution.

Formation of creative thinking, which is a core of innovation culture, doesn't represent its total volume but should be complemented by the transition to the formation of innovative goals, as well as the ability and willingness to implement these goals in practical teaching and educational activity. But in order to make this transition from ideas to practical actions, it is necessary to develop and use the social mechanisms of overcoming the socio-psychological barriers to the successful development of innovations and their implementation. Such barriers are numerous, the main ones include:

- lack of awareness of enterprises' heads and their employees concerning the modern, first of all innovative trends of development in science, education and production;
- low innovative potential of the micro-environment in the majority of scientific-research and educational institutions and production enterprises;
- lack of reliable social mechanisms of distribution of innovative ideas and their implementation in the production activity;
- lack of creative thinking and actions among many workers in all spheres of activity;
- lack of such components of innovative activity as cognitive, motivational, reflexive, design, etc. among many organizations' heads.

Overcoming the above-mentioned social and psychological barriers that hamper the formation and development of innovation

activity becomes an urgent need and a powerful factor in the development of innovative qualities of employees in different spheres.

But for successful formation and use of such qualities in everyday professional life it is necessary to establish a national (state) innovation system. This system represents a complex of social institutions and organizations with different forms of ownership, interacting in the process of generating new scientific ideas, in personnel training. These institutions should possess developed innovative potential and innovation culture, production, transfer and realization of innovative products and carry out their activities in the framework of the state scientific-technical and innovation policy.

This innovation system has a multicomponent structure, its constituents fulfill a number of interrelated functions. The structural model of the system is represented in *figure 3*.

Figure 3. Structural model of the national innovation system

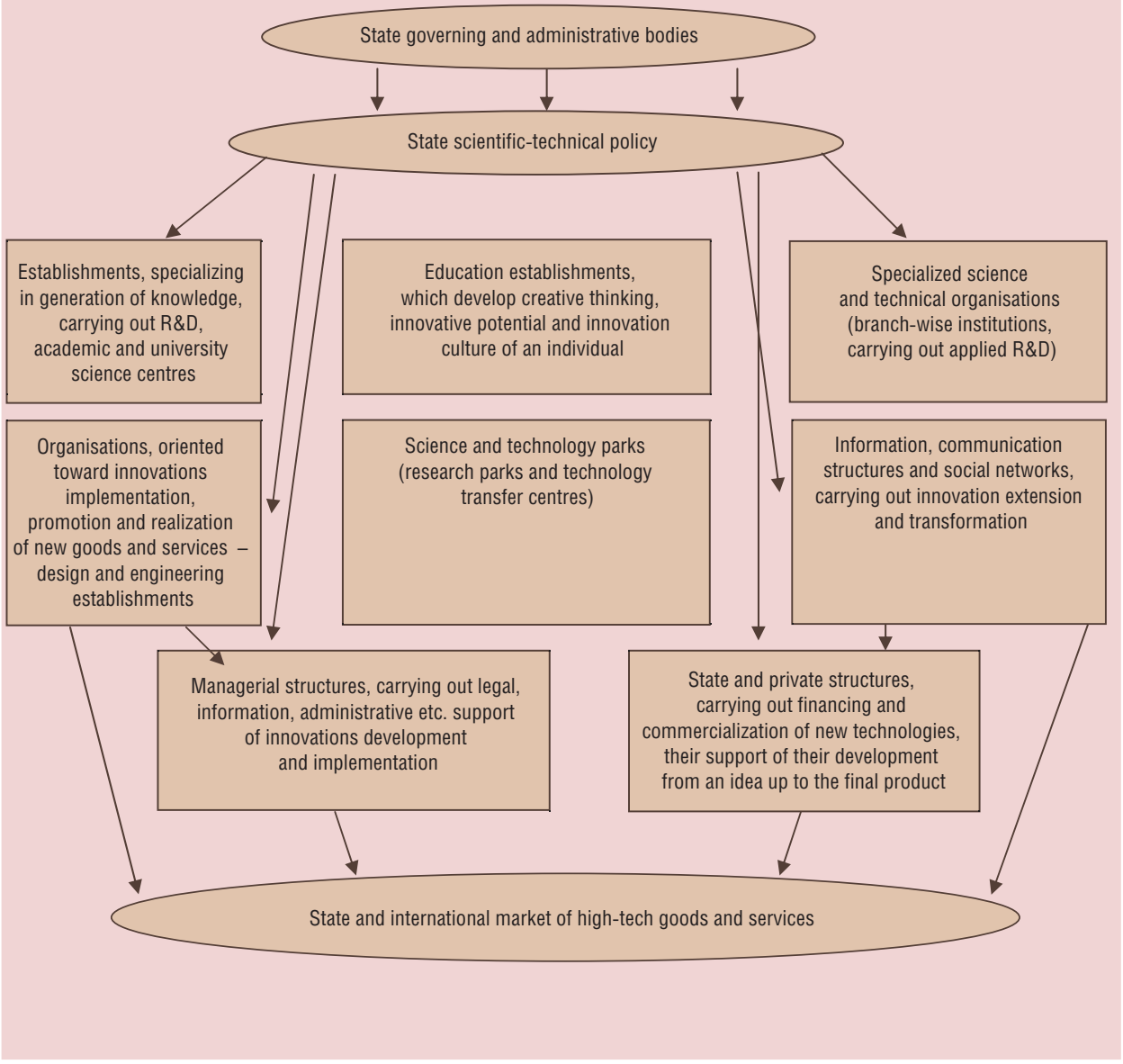
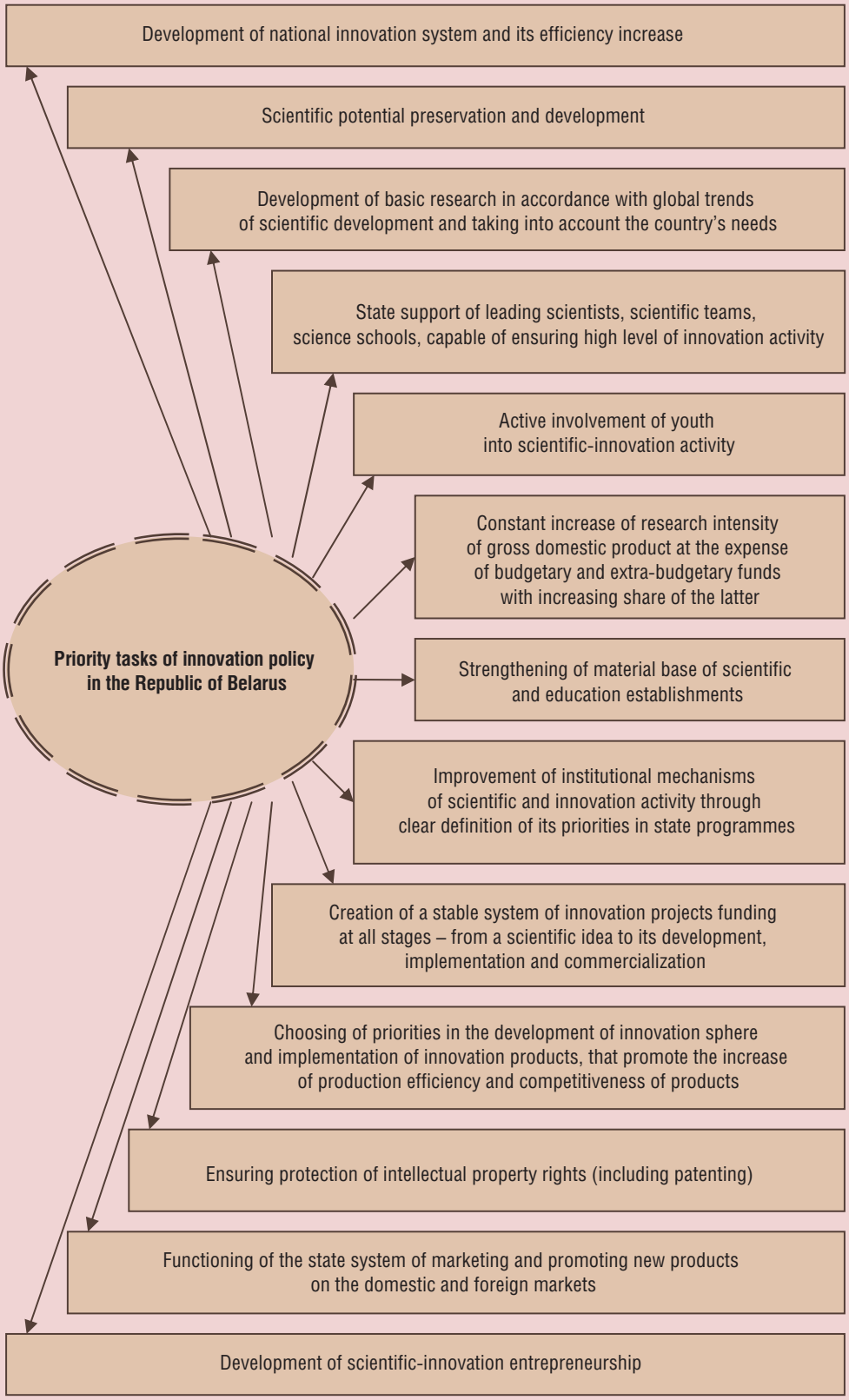


Figure 4. Priority tasks of innovation policy of a state



The structure of the national innovation system is smoothly interrelated with its functions. The most important of them are the following:

1. Formation and implementation of state scientific and technical policy as a guide for all its structural elements and carried out functions.
2. Definition of priorities in the field of scientific research and development, innovation activity.
3. Development and functioning of the regulatory-legislative base, creating a fair and equal social space for innovation activity.
4. Mobilization and concentration of human, financial, material-technical, organizational resources needed for the unfolding of innovative processes.
5. Stimulation of effective innovation activity.
6. Support of the development of new high-tech industries and agricultural production, construction and services.
7. Development of small innovation business, creation of small and medium-sized innovation enterprises and organizations.
8. Support of innovative processes with information resources.

In order to acquire a more specific character, these goals should be concentrated in different variants of strategic management of innovations, a crucial role in the implementation of which belongs to innovation policy, the main tasks of which are shown in *figure 4*.

In order to gain the desired effect from practical implementation of all the components of innovative strategy, it is necessary to solve a number of interrelated tasks. The following two are the most important of them. The first one is to increase motivation on all the stages of innovations implementation, starting with the development of new ideas and ending with the introduction of new technical and technological development results in the production of qualitatively more advanced products and services, attractive for consumers. The second and even more ambitious target is to carry out a qualitative shift in actual increase of innovation susceptibility of the enterprises. Indeed, the most important point concerning innovations is to make sure that an economy receives and absorbs them, making them into an actual innovative product. Only in this case the economy will become innovation, and its development will be sustainable.

References

1. Babosov Ye.M. Creation and operation of an effective innovation system – a powerful foundation of a country's sustainable development. In: Sociological essays of sustainable development of modern Belarus. Minsk, 2011.
2. Babosov Ye.M. Innovation management and its constructive role in the conditions of financial-economic crisis. In: Sociology of management. 6th ed. Minsk, 2010.
3. Myasnikovich M.V. Innovation activity in the Republic of Belarus. Minsk, 2004.
4. National innovation system and state innovation policy of the Russian Federation. Moscow, 2009.
5. National innovation system of the Republic of Belarus. Minsk, 2007.

UDC 332.14: 352

On the practice of strategic approach to administration in the municipalities of the Russian North

The article presents the results of the analysis of institutional prerequisites for and the practice of strategic planning and management in the municipalities of the Russian North. Implementation of a strategic approach in management is particularly important in the Northern municipalities, as it is an important means of tackling such negative trends, as depopulation, migration outflow of population and other socio-economic problems. The article defines the main factors promoting or hampering the application of strategic management technologies in Northern cities, towns and municipal districts.

Local self-government, strategic management, strategic planning documents, socio-economic development of cities and towns in the Russian North.

Vladimir V. DIDYK
Ph.D. in Economics, Deputy Director for Science at G.P. Luzin Institute of Economic Problems of Kola scientific centre of RAS (IEP KSC RAS)
didyk@iep.colasc.net.ru

The application of strategic approach, which implies the development and implementation of medium- and long-term strategies (strategic plans) of territorial entities' development receives acknowledgement and becomes more widespread in the theory and practice of territorial socio-economic systems governing (administration).

For Russian municipalities, especially cities and towns, strategic management, accumulating the most advanced management techniques, is regarded as an innovation type of management, the development and application of which begins with strategic planning as a component of one of the stages of strategic management. Application of the strategic management system in the municipalities of the Russian North is especially relevant, as it is an important means of overcoming depopulation and population's migration outflow, of solving the problems of single-industry towns and achieving sustainable development on the vast space of the Russian North and Arctic [1, p. 45-47].

In 2010 – 2011 the Sector for Socio-Economic Development of Municipalities, which is a subdivision of the IEP KSC RAS Regional and Municipal Management Department in the North of the Russian Federation, studied the practice of applying the strategic management tools in the municipalities of the Russian North. The present article is based on the results of this research.

* The abridged version of the article prepared for publication in the journal "Regional economy: theory and practice", Publishing House "Finances and Credit" (submitted to the editorial office in April 2012, confirmation of acceptance for publication has not been received yet).

Organization of strategic management at the municipal level has its own specific features. They mainly result from the fact that the role of the subject of management here belongs to local self-government bodies (LSG) that are not included in the system of state power, and the very LSG institution has a dual nature as a form of public authority and a civil society institution, providing self-government of local communities.

In the Russian Federation, the Federal law "On the general principles of organization of local self-government in the Russian Federation" No.154-FZ dated 12 August 1995 stated for the first time the task of *the comprehensive socio-economic development of the municipality* as one of the *issues of local importance*. Accordingly, it became necessary to apply the advanced technology of strategic planning and management. Obviously, big cities, possessing strong economic and intellectual potential, became pioneers in applying the strategic approach to the management of their own development. These municipalities have begun to work out the documents of strategic planning of socio-economic development (strategies, strategic plans, concepts, long-term comprehensive programmes) and organize their implementation.

In recent years, the practice of developing the strategic planning documents at the municipal level has not become common yet; however, according to some estimates, about one-third of Russian cities and towns use one or another type of strategic planning document. At the same time, strategic development plans are now appearing in the municipal districts as well.

The growth in the number of municipalities using a strategic approach in management practice, is to a certain extent determined by the requirements for the state power bodies at the Federal level.

Along with the factors stimulating the cities and municipal districts to engage in strategic planning, there is a considerable number of obstacles.

These include, first of all, the institutional, economic and personnel-related problems of establishing a local self-government system in Russia. Despite the constitutional principles of LSG independence, the state policy of centralization of power led to the fact that local authorities became actually "incorporated", both economically and politically, into the vertical power structure [2, p. 11]. The imbalance of LSG bodies' powers and available resources, mainly financial, leads to their strong dependence on the state authorities, the inability to form their own socio-economic policy and its implementation strategy. Due to severe budget restrictions, municipalities have to direct all the available resources to the handling of urgent current problems, which, as a rule, means ignoring the issues of development.

Unfavourable preconditions of using strategic planning and management in the municipalities of the Russian North, that are common for both Russian cities and municipal districts, are aggravated by a number of factors, impeding the formation and implementation of the socio-economic policy of the territories. These factors include harsh environmental conditions, remoteness from economic centres, underdeveloped transport and engineering infrastructure of settlements, which increases the cost of living, current and capital expenditures of local budgets, limits the opportunities for the development of entrepreneurship, aggravates demographic problems [3, p. 21-23].

Despite all the difficulties and restrictions, the municipalities of the North, as the analysis showed, have been already engaged in implementing the methods of strategic planning of their socio-economic development since the beginning of 2000s. Study of strategic planning and management practice in the Northern municipalities was based on empirical data – strategic planning documents and reports on the results of socio-economic development, presented at the official web sites of cities and municipal districts.

The sample of the research included the cities and towns with the population of 20 to 100 thousand people, located on the territories of the Far North and other areas equated to them. Out of the total number of the surveyed cities (51), 20 possess the approved strategic planning documents, i.e. the prevalence rate of strategic planning implementation in the Northern municipalities is not inferior to the average indicator for Russia. The majority of towns and municipal districts adopted strategic planning documents in the last years (2009 – 2011). Therefore, it was possible to analyze and evaluate only the content of the strategies (strategic plans)[1]. As for the towns, where several years have already passed since the adoption of the strategies, it was possible to assess some of their implementation results.

The experience of the Northern towns – the pioneers of strategic planning

Kostomuksha (Republic of Karelia) is one of the first Northern towns, which started implementing strategic planning methods. In 2002, the Strategic plan of socio-economic development of the town of Kostomuksha up to 2015 was worked out and approved. The scientists from Karelian research centre of RAS along with the representatives of the authorities, business, local community took part in the drafting of the plan. In 2006, the city strategic plan was adjusted and a new, supplemented version was adopted for the period up to 2020, as a number of tasks of the first phase of the plan had been solved [4].

In particular, considerable progress was achieved in the implementation of one of the main strategic directions of the plan – diversification of the economy, its reorientation from a single-industry specialization (ferrous metallurgy) to the development of other promising sectors, transport, trade and services. The policy of attracting investments in the framework of this direction was successful. The annual volume of investments in the town's economy has increased almost 6-fold for the 2002 – 2007 period. Due to the attraction of external domestic and foreign investments, a number of new, internationally competitive enterprises, including the producers of assembly parts for the automotive industry of the international concern PCS Group, the production of furniture of the Swedish company IKEA, etc.

There has been a noticeable decrease in the dependence of the town's economy on the local economic mainstay – the mining and metallurgical enterprise OJSC Karelsky Okatysh: the share of its personnel reduced from 43% in 2002 to 28% in 2007. This significantly reduced the threat of unemployment leap in 2008 – 2009, which was the period of decline in metallurgical production under the influence of the global financial and economic crisis.

The updated strategic plan of the town's development not only retains the importance of economy diversification, but also strengthens it with the emphasis on the need of establishing industrial clusters, as well developing other activities, including the use of the territory's transit potential (development of transport corridors). Due to the reorientation to new activities, it is planned to reduce the share of those employed in ferrous metallurgy to 17% to 2020.

Although it is obvious that definite progress has been achieved, not all the directions of Kostomuksha strategic development plan are being implemented consistently and efficiently. In general, one can hardly consider the city or town as an example of effective strategic management implementation. Firstly, in regularly published reports on the town's socio-economic development there is no linkage between the achieved results and the

[1] Such essential elements of a strategic planning document, as strategic analysis, the system of development goals and target indicators, the justification of the priority directions of the goals achievement, the mechanisms of implementation monitoring and control of the strategy were evaluated.

parameters and objectives set in the strategic plan, i.e. the reports do not contain the strategy implementation monitoring, though it is envisaged by the strategic plan. Secondly, despite the fact that the main mechanism of the strategy realization is the implementation of municipal target-oriented programmes, the scope of using this mechanism is clearly not wide enough. So, although the number of such programs is quite large (16 in 2010), the total amount of their annual funding (28.1 million rub.) is less than 3.5% of local budget expenses. In addition, not all the strategic directions are "covered" by target programmes.

Thus, one can conclude that the development of a strategic plan (and even its actualization in a certain period) is a necessary but not sufficient indication of the full-fledged application of strategic management methods. Strategic management efficiency is achieved when the whole range of its principles (and not its separate elements) is used in everyday management practice, which is the goal for local self-government bodies.

Another example of strategic planning is the town of Apatity in the Murmansk Oblast. In 2002 it adopted the Strategy of socio-economic development of the town of Apatity. Its development was facilitated by the grant received according to a competitive application of the administration in the framework of the programme "Towns of Russia" launched by the Open Society Institute (Soros Foundation). The programme envisaged the use of grant funds for working out the town development strategy and paying for the services of specialized scientific and advisory organizations attracted for this purpose.

The content and organization of the process of developing the strategy of the town of Apatity generally comply with the main methodological requirements to the strategic planning of the town development. In particular, a wide-scale participation of the town community in the strategy development was provided by conducting surveys, organizing seminars, discussions with the heads of enterprises, experts, and representatives of public organizations.

However, while assessing the implementation of this strategic document, one can point out a number of shortcomings. For instance, the system of target indicators, stated in the text of the strategy, hasn't been developed. Public monitoring of the goals and tasks realization and their updating are not carried out either. The features typical of the majority of Norhern towns comprise the lack of their own sources of municipal projects and programmes' funding, high subsidization of the budget under the volatile conditions of the provision of transfers from the regional budget. These features are the principal factors, which hamper the implementation of the strategy goals and objectives.

The pioneers of strategic planning among the Northern municipalities also include the town of Urai (Khanty-Mansi Autonomous Okrug), which in 2003 adopted the Strategy of socio-economic development of the town of Uray for 2004 – 2010. It was developed in line with the Concept of socio-economic development of the Khanty-Mansi Autonomous Okrug adopted in 2002.

The Uray strategy contains almost all the main elements of a strategic document, except for target indicators. It was proposed to achieve the strategic goals of the town's development by preserving orientation on the oil-extracting industry as the branch of production specialization, and also on the development of innovation potential and economy diversification.

In 2004 – 2010, the town's oil and gas complex (OGC) developed in accordance with the strategy guidelines. At the same time, no progress was achieved in the economy diversification. Such directions, stated in the strategy, as peat digging, timber harvesting and related productions were declining.

Some of the indicators of socio-economic development of the town of Magadan according to forecast scenarios and their actual values in 2010

Indicator	Scenarios		Reporting values according to years		
	inertial	positive	2005	2009	2010
Population size, thsd. p.	107.8	108.5	107.2	106.4	106.3
Unemployment rate, %	1.4	1.3	1.4	not available	0.94
Number of small enterprises	1000	1200	956	2048	not available

Food industry continued to partially satisfy only the town's internal needs. The problem of the town's transport isolation, as well as the task of innovation potential development, which was originally insufficiently grounded, were not solved. The town has only one branch of the university, which can hardly be regarded as a serious basis for R&D and innovation activities. The number of small enterprises and individual entrepreneurs has somewhat increased, but the main scope of their activities is trade and services.

In general, the strategy of town's development has not become a document, seriously taken into consideration in the activities of the local self-government bodies.

Northern towns' development strategies of 2006 – 2010

After the first examples of strategic planning implementation in the Northern towns in the early 2000s (i.e. before the entry into force of the Federal law No. 131, which launched a process of profound reforms in the system of local self-government in the country), the strategies for municipalities have not been developed for several years. In 2005 – 2006 this was, obviously due to the influence of a transition period and the adaptation of towns to the new legal requirements.

The towns that have adopted strategic documents under the already effective Federal law No. 131, include Magadan, where a strategic plan was adopted in 2007. Content analysis showed that the plan includes all the main elements of a strategic planning document. When assessing the organization of the plan's implementation, a number of positive moments can be pointed out.

This is, firstly, the close interdependence of all working target programmes and measures and the defined directions of the activities and secondly, the regular monitoring of the strategic plan targets' realization and disclosure of the relevant information on the official website of the town[2]. For example, the information published on the website in July 2010, shows that for the majority of indicators, according to 2 development scenarios (inertial and positive) envisaged by the strategy, the town implemented the positive scenario. Here are some control indicators of the plan and their actual achieved values *(table)*.

The experience of strategic planning in Magadan can be assessed as a positive one, both in the content of the strategic plan and in the organization of its implementation.

The analysis of strategic documents adopted in 2009 – 2010, by other municipalities allowed distinguishing several groups. The first one comprises strategic documents of municipal entities of the Komi Republic (the town of Usinsk, Pechora municipal district, the town of Inta), that have the same name (Concept of socio-economic development of the municipality...for 2011 – 2015 and for the period up to 2020) and which were worked out around the same time. Such uniformity is due to the fact that the development of the mentioned strategic documents had been organized in accordance with the Decree of the Government of the Republic of Komi No. 260-r dated 18 June 2010 and in the light of methodological recommendations of the Republic's Ministry of Economic Development.

[2] See e.g. the town news. Publication date 08 July 2010. Available at: http://www.magadangorod.ru/index.php?newsid=9427

The Decree execution was subsequently controlled by the region's authorities. Accordingly, in November 2010, the Head of the Komi Republic held the meeting of Coordination Council on the issues of local self-government, where the decision was made obliging all the municipal regions and urban districts to adopt the development concept before 1 January 2011[3]. In addition, the meeting participants criticized quite a few of the already developed concepts, not complying with the requirements set for strategic documents. They also criticized the low publicity of the drafting process of the concepts, which sometimes weren't even brought to public attention.

It is obvious that the efforts of the Government of the Komi Republic are caused by the desire to speed up the introduction of strategic management methods in the work of local authorities. Meanwhile, the acceleration of this work was hardly justified, as it hampered the local community involvement in the strategic planning process, and it is the most important condition for strategic management efficiency.

The second group, which is also the largest one, comprises seven towns of the Khanty-Mansi Autonomous Okrug (KMAO). The content of the strategic documents of these towns varies greatly. For instance, the development strategy of the town of Langepas can hardly be regarded as a proper strategic document. Despite its size (three volumes of text), the final third volume contains only the system of general goals, without the definition of target indicators, and the list of formal descriptions of the proposed (hypothetical, expressed only as ideas) "investment projects". This strategy doesn't link the established system of targets and the activities aimed at their achievement; the mechanism of the strategy implementation and monitoring is not defined either.

[3] The Komi Republic municipalities should adopt the concepts of socio-economic development before 1 January 2011. The report of the Komiinform news agency dated 12 November 2010. Available at: http://www.komiinform.ru/news/72387/

There are no such faults in the strategic documents of the towns of Megion and Nyagan. The analysis of the Strategic development plan of the town of Nyagan municipality for the period up to 2020, approved by the Town Duma in October 2010 is of a particular interest.

The following features of this document can be highlighted:

1. *The high level of the strategic plan's preparatory work*: the drafting was supervised by the Coordination Council on the town's strategic development (co-chairmen: the Head of the Town and the Deputy Head of the KMAO Governor's Administration). The Council included a large group of scientists, mainly the specialists from the Institute of Strategic Planning under the Ural State University of Economics, entrepreneurs, the representatives of public organizations and town administration. In the framework of the Coordination Council 6 expert councils were created for each of the priority development directions.

2. The wide-scale public discussion of the draft strategic plan that resulted in a great number of proposals and requests contributed by the townspeople and taken into account by the developers, which ensured its status as a document of the whole urban community.

3. *A clear, but not quite traditional structuring and interpretation of some concepts of the strategic plan*: among 6 sections the largest is the section, in which for each of the major (strategic) development directions, simultaneously treated as sub-targets of the first level, the programmes are determined and in their structure – the related projects as sub-targets of the second level.

The experience of the town of Dudinka located in the Taymyrsky Dolgano-Nenetsky Municipal District (Krasnoyarsk Krai) is one of the special cases in the strategic planning practice. Firstly, it is one of the few cities of the Arctic zone of the Russian Federation that has its own strategic planning document.

Secondly, it is an *urban settlement* in the municipal district, the functions and economic base of which are significantly inferior to the municipalities with the status of town districts. Nevertheless, the strategic document of the town of Dudinka[4] has almost all the major elements of a strategic document. Local self-government bodies of the town were able to organize the successful implementation of the plans on a number of directions. Economic growth is ensured in the major sectors of the economy (gas output, heat production, fishery), the unemployment rate has been reduced (from 6.3% in 2007 to 3.7% in 2010), the problem of housing conditions improvement is being handled, although the rates of improvement are not equal to those stipulated by the target indicators.

In general, by 2010, the level of achieving the target (control) indicators of the Comprehensive programme on the socio-economic development of the town of Dudinka had amounted to 40%. Low degree of achieving the set goals is caused not only by objective difficulties of solving socio-economic development tasks in the extreme environment of the Arctic.

Additional difficulties are caused by organizational problems, emerging due to the imperfection of legal regulation of the relations between LSG bodies of the urban settlement and the municipal district, especially in the issues of budget planning and execution[5].

[4] The Comprehensive programme on the socio-economic development of the municipal entity the town of Dudinka for 2008 – 2017. Available at: http://www.gorod-dudinka.ru/administracziya-goroda/programma-soczialno-ekonomicheskogo-razvitiya

[5] The Head of the urban sellement Dudinka A.M. Dyachenko in the report published in the collection of Parliament hearings in the Council of Federation dated 25 November 2010 "On the problems of realization of powers of the local self-government bodies in the regions of the Far North" gives a detailed analysis of the legal and practical conflicts in the relations between the government authorities of the municipal district and settlements. Available at: http://www.severcom.ru/analytics/

Thus, the following conclusions can be made on the basis of the analyzed practice of strategic planning (as the first stage of strategic management) in the municipalities of the North, and on the basis of the other, more general information concerning the institutional conditions of strategic management at the municipal level.

1. The first examples of strategic planning in the towns of the Russian North can be found in the early 2000s, and by 2010, this advanced management method has been implemented in approximately one third of the total number of towns. At the same time, the territorial distribution of these towns is rather uneven. The factors facilitating the expansion of strategic planning include either relatively favourable economic conditions in a region (as the case of the Khanty-Mansi Autonomous Okrug), or the active position of the regional authorities (as in the Komi Republic, where, however, the administrative pressure is used unreasonably).

2. Despite the growing number of methodological recommendations for the strategic planning documents drafting, their content remains very uneven, due to the fact that municipalities have no methodological foundations for strategic planning that are generally recognized by the expert community and approved at the federal level.

3. It is the town districts that mainly apply strategic planning methods. Other types of municipal entities, i.e. municipal districts and their comprising settlements face contra-dictions due to the division (and in some cases, combination) of the subjects of control and powers in the framework of one and the same territory. These contradictions impede not only strategic planning and development management, but also current working issues.

The fact that some municipal districts have strategic plans is conditioned, as a rule, by the requirements of the regional power bodies, as

they, in fact, continue to function as the administrative-territorial units of the RF subject and their bodies in many aspects acquired the status of the territorial bodies of the regional authority.

4. The practice of attracting external scientific and advisory organizations to the drafting of strategic plans is now used widely.

This may produce a positive outcome only if the Head of a municipal entity, the local self-government bodies as well as the local community including entrepreneurs' associations, the representatives of science, education and public organizations will be actively involved in the process of drafting and implementing the strategic plan.

References

1. Ryabova L.A. Problems of application of the sustainable development concept in the Russian Federation: from the national level to the Northern aspect. North and market: formation of economic order. 2010. No. 1 (25). P. 44 – 49.
2. Starodubrovskaya I.V., Glazychev V.L. Real federalism, local self-government, inter-budgetary policy. Issues of local self-government. 2011. No. 3 (37). P. 11 – 20.
3. Selin V.S. Economic crisis and sustainable development of the Northern territories. North and market: formation of economic order. 2010. No. 1 (25). P. 20 – 25.
4. Zamula A. Kostomuksha: the experience of the territory's development. Available at: http://www.regionpr.ru/page271.html

UDC 332.146.2:911.372.32

Measuring the dynamics of agglomerative processes in the regional economy

The article deals with an approach to studying agglomerations' socio-economic characteristics on the basis of criterial indicators system. The regional agglomerative process has been measured by calculating numerical scores and generalized estimates according to 16 indicators that correspond to the criteria of agglomerative development. The calculations are based on the statistical data of the Federal State Statistics Service.

Calculated estimates allow to measure the dynamics of regional agglomerative process, fix recession and growth periods, understand the specifics of this process in every region and manage it.

It becomes possible to obtain information not only about the quantitative but qualitative changes in the regional agglomerative process: one can see the areas of region's lagging or leading and use this information in developing regional policy, strategic planning and management.

Region, agglomeration, regional development, regional agglomerative process.

Boris M.
GRINCHEL
Doctor of Economics, Professor, Chief Scientific Associate, RAS Institute of the Problems of Regional Economy
boris.grinchel@mail.ru

Alina A.
ANTONOVA
Junior Scientific Associate, RAS Institute of the Problems of Regional Economy
kcn-c4@inbox.ru

The Russian economy is trying to get away from its spatial non-concentration. The changing paradigm of regional development focuses on the agglomerative-nodal type of spatial structure, and at the moment agglomeration, which is a form of spatial organization of economy and population settlement, is a central unit. We consider the regional agglomerative process as an integral part (component) of the innovation-oriented transformation process of Russia's socio-economic space.

If economic space is understood as "a set of the features of region's socio-economic environment, where the economic activity takes place and people live" [2, p. 47], then we

will understand the structural, technological and institutional changes in the socio-economic space of the Russian Federation in the sphere of innovation development as a transformation of economic space in the context of the problem.

Thus, talking about the study of agglomerative process as a component of transforming social and economic space in the regions of the Russian Federation, first of all, we mean measuring the dynamics of the regional agglomerative process.

Region's agglomeration can not be considered only in the territorial aspect. This is a qualitative, integral feature of highly urbanized territory; this is a multilevel feature, without which such territory is only a big city that is not necessarily an agglomeration.

Today, the main obstacle to research agglomerations is the lack of a common approach to the analysis of statistics and the lack of statistics as such in some cases. In Russia, the problem is aggravated by the fact that there is no normative basis to regulate agglomerations against the background of a constant conflict field around the issues of budget flows redistribution and managers' wage rates. According to the only today's guidance manuals for measuring agglomerations, the method of Central Scientific-Research and Design Institute for Urban Planning of the State Committee for Civil Construction and Architecture under the State Committee for Construction of the USSR (1984) and the method of the RAS Institute of Geography (1988), "developed and developing agglomeration can be considered as a group of cities and settlements if the population of its largest city is not less than 250 thousand people, and there are at least two urban territories in its population settlement area (limited by 2-hour access isochrones by any public land and water transport)" [4].

Agglomerations are changing and evolving now, but all the methods to study them have not changed since the earliest times, or they are descriptive in nature, and sometimes researches are based only on expert judgments. The biggest challenge in their research is a fact that they do not have their statistical base, because they are not the unit of observation.

Despite the fact that the description and methodological basis stay put, regional agglomerative process can is continuously extending: old agglomerations are breaking up, new ones are developing, their specialization and life-supporting mechanisms are changing, but nowadays there is no efficient instrument to measure the dynamics of this process. There is a need to have a formal measuring mechanism that can be used to fix these processes, understand the specifics and manage them.

In this regard, the focus of attention can be removed from considering agglomerations as a territorial unit of economic space to studying the properties of region(s) containing it. Regional agglomerative development affects the regional statistics, so we can try to track down this process and study it by selecting the most representative statistical indicators.

Assessing the degree of regional agglomeration, we get a new concept – "agglomerated region" and, therefore, we get a possibility to study it. We have an opportunity to identify the regions that show a high level of agglomeration capacity. We can follow the dynamics of the agglomerative process on both sides – both development and decay.

The following principles were used in selecting the indicators of regional agglomerative development:

- indicators' belonging to the characteristics of developed agglomeration, according to the definition of agglomeration;
- the availability of official statistics for 5years that allow us to calculate the dynamics in integrated assessment by the indicators;
- the availability of statistics on the absolute values of indicators for a target year.

According to the principles mentioned above, we have selected a number of indicators that allow us to consider the regional agglomerative process in its complexity *(tab. 1)*.

Table 1.Indicators of regions' agglomerative development

№	Indicator
1	The share of people engaged in the economy in the total population of the region
2	The share of urban population in the total population of the region
3	Gross regional product per 1 employee in the economy
4	Issuing newspapers per 1000 people
5	Setting out passengers by public rail transport
6	The number of registered mobile personal terminals
7	Putting dwelling houses into service per 1000 people
8	The share of state officials and local government officials in the total employment in the economy
9	The share of students who are going into higher education per 1000 people
10	The share of employees with higher education in the total employment in the economy
11	The share of enterprises and organizations that use special org. means in the areas of activities
12	Marker branches' contribution to GRP per capita*
13	Average consumer expenditure per capita per month
14	Trapping of air pollutants from stationary sources
15	The volume of paid services per capita
16	Catering turnover

* Marker branch is a sector that usually has a significant share in the economic structure of agglomerations. Accordingly, a high share of this branch in GRP is a sign (marker) of agglomeration in the region. Marker branches include the following industries: manufacturing; production and distribution of electricity, gas and water; construction; wholesale and retail trade; repair of motor vehicles, motorcycles, personal and household goods; hotels and restaurants; transport and communication; financial activities; real estate; renting and services; public administration and defense, compulsory social security; education; health and social services; other community, social and personal services.

The attractiveness of agglomeration (the term means both the object and process) is based on a range of additional economic effects: people go to big cities to take advantage of the benefits that are caused by agglomeration as a form of production distribution and people settlement:

✓ a high degree of production concentration and diversification, which makes it the most effective;

✓ the concentration of qualified personnel;

✓ close relationship between production, science and training centers;

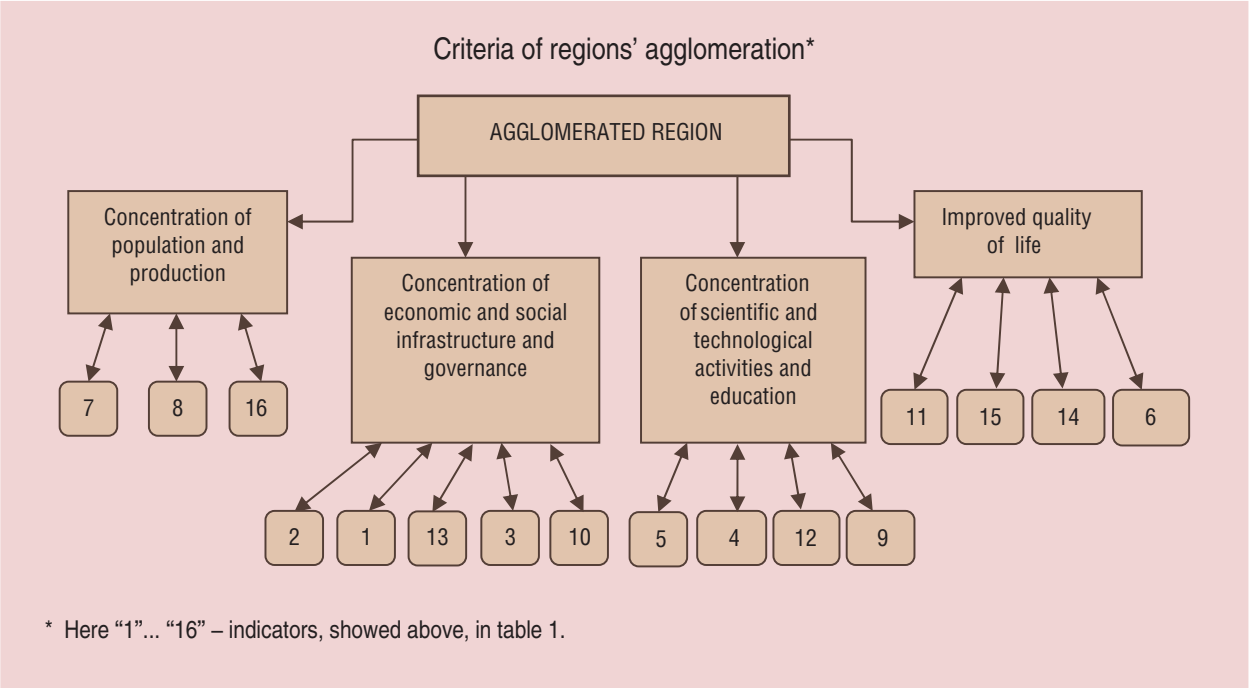
✓ efficient using the systems of production and social infrastructure, etc.

These advantages "work" on both sides – they are provided by extensive agglomeration, and they, in turn, contribute to its further development. All of these benefits are also the prerequisites of innovation development in the region.

It is desirable for regions to have a so-called agglomerative effect; it is a term used by A. Weber in his "scheme of production distribution" and pronounced as "a savings index".

As for today's agglomerations, this effect reflects not only in the summation of potential of some territorial entities that are included in the agglomeration due minimizing transport costs, but also in the synergistic multiplication of these territories' potential properties – achieving maximum efficiency by reallocating resources and minimizing costs. This is the property that turns urban agglomerations into the points of economic growth, ensuring the social and economic development of a region.

Based on this, we have identified four criteria of regional agglomeration, which are conjugated with the opinions of other authors who give the definition of agglomerations and agglomerative processes.



* Here "1"... "16" – indicators, showed above, in table 1.

Each indicator in table 1 can characterize one or another criterion of agglomeration, as it is shown in the *figure*.

The regional agglomerative process has been measured by calculating numerical scores and generalized estimates according to 16 indicators, which correspond to each criterion, on the base of the Federal State Statistics Service's data [5].

When calculating numerical scores according to the indicators *(tab. 2)*, we were guided by the following principles:

- considering the methodological guidelines for determining agglomerations (the population of a core city ≥ 250 thousand people, there are at least 2 urban settlements in the attracted area);
- considering the specific features of the region (cost of living, "northern allowances", etc.);
- limiting the number of statistical data by the data distribution area of 80 – 85%; limiting extreme or extraordinary values.

The calculation of numerical scores for the selected indicators was carried out by using the following formulas:

$$R_i = (P_{max} - P_{min})/10, \qquad (1)$$

where R_i – interval range of the *i-th* index, $i \in (1.16)$;

P_{max} and P_{min} – averaged value for five best and worst regions, the maximum and minimum values of the indicator;

$$I_j = (\sum K_{ij})/n, \qquad (2)$$

where I_j – normalized numerical score of agglomerative development in the each of 78 regions[1], $j \in (1.78)$ by *i-th* index, $i \in (1.16)$;

K_{ij} – numerical score of *j-th* region by *i*-th index, $i \in (1.16)$;

n – total number of indicators.

[1] In the calculation Moscow's indicators were combined with the Moscow Oblast's indicators, and St. Petersburg's indicators were combined with the Leningrad Oblast's indicators. These cities are powerful centres of attraction, and it greatly affects the statistics of their surrounding areas in all the spheres. There are no cities in the Moscow and Leningrad Oblasts that are able to serve as an alternative to these centres of attraction, and these oblasts can not avoid the influence of these centres on their statistics.

Table 2. Groups of regions in terms of agglomerative development

Group	No.	Region	Agglomerations that are included in the region	The share of regions that have big agglomerations	Rank
Regions with a **HIGH** level of agglomerative development	1	St. Petersburg and Leningrad Oblast	St. Petersburg agglomeration	**61.5**	10
	2	Moscow and Moscow Oblast	Moscow agglomeration		10
	3	Sverdlovsk Oblast	Yekaterinburg agglomeration		10
	4	Tyumen Oblast			10
	5	Nizhny Novgorod Oblast	Nizhny Novgorod agglomeration		10
	6	Novosibirsk Oblast	Novosibirsk agglomeration		10
	7	Primorsky Krai	Vladivostok agglomeration		10
	8	Murmansk Oblast			10
	9	Republic of Tatarstan	Kazan Nizhnekamsk Almetyevsk agglomerations		10
	10	Khabarovsk Krai			9
	11	Chelyabinsk Oblast	Chelyabinsk agglomeration		9
	12	Magadan Oblast			9
	13	Kamchatka Krai			9
Regions with an **INCREASED** level of agglomerative development	1	Rostov Oblast	Rostov agglomeration	**87.5**	8
	2	Samara Oblast	Samara-Tolyatti agglomeration		8
	3	Krasnodar Krai	Krasnodar Sochi agglomerations		8
	4	Perm Krai	Perm agglomeration		8
	5	Krasnoyarsk Krai	Krasnoyarsk agglomeration		8
	6	Omsk Oblast	Omsk agglomeration		7
	7	Kaliningrad Oblast			7
	8	Irkutsk Oblast	Irkutsk agglomeration		7
Regions with a **MIDDLE** level of agglomerative development	1	Republic of Bashkortostan	Ufa agglomeration	**50**	6
	2	Kemerovo Oblast	Novokuznetsk agglomeration		6
	3	Sakha (Yakutia) Republic			6
	4	Sakhalin Oblast			6
	5	Komi Republic			5
	6	Arkhangelsk Oblast	Arkhangelsk agglomeration		5
	7	Chuvash Republic			5
	8	Yaroslavl Oblast	Yaroslavl-Rybinsk agglomeration		5
	9	Saratov Oblast	Saratov agglomeration		5
	10	Volgograd Oblast	Volgograd agglomeration		5
	11	Lipetsk Oblast			5
	12	Smolensk Oblast			5

Continuation table 2

Regions with a **DECREASED** level of agglomerative development	1	Vologda Oblast		**29.4**	4
	2	Orenburg Oblast			4
	3	Chukotka Autonomous Okrug			4
	4	Tomsk Oblast	Tomsk agglomeration		4
	5	Voronezh Oblast	Voronezh agglomeration		4
	6	Kursk Oblast			4
	7	Tula Oblast	Tula-Novomoskovsk agglomeration		4
	8	Novgorod Oblast			4
	9	Stavropol Krai	Caucasian Mineral Waters		4
	10	Vladimir Oblast			3
	11	Belgorod Oblast			3
	12	Kaluga Oblast			3
	13	Republic of Karelia			3
	14	Kirov Oblast			3
	15	Bryansk Oblast	Bryansk-Lyudinovsk agglomeration		3
	16	Orel Oblast			3
	17	Ulyanovsk Oblast			3
Regions with a **LOW** level of agglomerative development	1	Pskov Oblast		**7.1**	2
	2	Udmurt Republic	Izhevsk agglomeration		2
	3	Ivanovo Oblast			2
	4	Astrakhan Oblast			2
	5	Republic of Dagestan			2
	6	Mari El Republic			2
	7	Penza Oblast			2
	8	Tambov Oblast			1
	9	Amur Oblast			1
	10	Kostroma Oblast			1
	11	Tver Oblast			1
	12	Republic of North Ossetia–Alania			1
	13	Ryazan Oblast			1
	14	Republic of Mordovia			1
	15	Republic of Buryatia			1
	16	Tyva Republic			1
	17	Altay Krai			1
	18	Republic of Adygea			1
	19	Jewish Autonomous Oblast			1
	20	Republic of Ingushetia			1
	21	Republic of Khakassia	Abakan agglomeration		1
	22	Kurgan Oblast			1
	23	Zabaykalsky Krai			1
	24	Kabardino-Balkar Republic			1
	25	Karachay–Cherkess Republic			1
	26	Altai Republic			1
	27	Republic of Kalmykia			1
	28	Chechen Republic			1

The points from 1 to 10 were assigned to statistics for indicators in such a way that each pair of points characterized its group most clearly.

The assessments, which were calculated for all the regions of Russia, allowed us to reveal the developmental level of agglomerative process in the regions as a component of transforming social and economic space.

1 and 2 points are typical for the regions with **low** agglomerative development. This group consists of 23 regions, including almost all the regions of the North Caucasian Federal District (except Stavropol Krai that is included in the group of regions with a decreased level of agglomerative development), a half of the Siberian Federal District and Southern Federal District, as well as a number of the regions of the Central and North-West Federal Districts: the Pskov, Ivanovo, Tver, Ryazan, Tambov, Kostroma Oblasts.

There are two agglomerations in the group of regions with a low level of agglomerative development: the Udmurt Republic (Izhevsk agglomeration, maximum population is about 944.2 thousand people, 2 points) and the Republic of Khakassia (Abakan agglomeration, population of Abakan, economic and cultural center of the agglomeration, is only 171 thousand, 1 point).

These points reflect clearly a number of negative features in the "agglomerative" history of the region: Abakan agglomeration is formed from the cities and towns that were non-diversified in the past, its population size is significantly smaller that population of other RF agglomerations; the development of Abakan agglomeration is complicated by its interregional nature (Krasnoyarsk Krai is attracted by Minusinsk). Despite all the negative trends mentioned above, today this agglomeration is considered as one of the most important "growing points". According to the press, striking illustration of this is 8.7 billion rubles that were allocated from the federal budget by V.V. Putin to develop transport, engineering and social infrastructure of the Republic and present a project of Abakan-Chernogorsk agglomeration at the Ninth Economic Forum in Krasnoyarsk on 16 – 18 February 2012 [7].

3 and 4 points are typical for the regions with a decreased level of agglomerative development. There are 22 regions in this group, 6 of them are agglomerations. They are the Tomsk, Voronezh, Tula, Bryansk Oblasts, Stavropol Krai and the Udmurt Republic.

There are 14 regions with a middle level of agglomerative development (5 – 6 points); there are large agglomerations in the territories of a half of them.

Two leading groups of regions (7 – 8 and 9 – 10 points, respectively) include Saint-Petersburg and the Leningrad Oblast, Moscow and the Moscow Oblast, the Sverdlovsk Oblast, the Nizhny Novgorod Oblast, the Novosibirsk Oblast, Primorsky Krai, the Republic of Tatarstan, the Chelyabinsk Oblast, the Rostov Oblast, the Samara Oblast, Krasnodar Krai, Perm Krai, Krasnoyarsk Krai, the Omsk Oblast and the Irkutsk Oblast.

There is a large agglomeration, which population is not less than 1 million people, in the territory of all these regions. But there are regions that have their own specific features and do not have any agglomerations-millionaires in their territories among these successful regions in the leading groups.

They include:

- the regions with low population density and the limited number of centers that concentrate economic activities and population settlement, attracting people from a wide area of the region (Khabarovsk Krai, the Magadan Oblast, Kamchatka Krai);
- important economic, transport and manufacturing "control points" and "nodes" (the Tyumen Oblast, the Murmansk Oblast);
- progressive Euro-regions (the Kaliningrad Oblast, Euro-region "Baltic").

The calculated estimates give the possibility to measure the dynamics of regional agglomerative process when calculating the indicators over a certain period. This method allows to fix recession and growth periods, understand the specifics of each region and, thus, manage it.

In this case, it is possible to obtain information not only about quantitative but also about qualitative changes in the regional agglomerative process: one can see the areas of region's lagging or leading, and use this information in developing regional policy, strategic planning and management.

Thus, on the basis of calculations, we can identify a number of promising cities that have some potential to lead in terms of agglomerative development *(tab. 3)*. The core cities are marked in bold type; there are population size figures here (according to Rosstat data on January 1, 2011 [4]); there are the names of satellite towns.

Table 3. Promising cities or group of cities in the region with a middle, increased and high level of agglomerative development

Group	No.	Region	Agglomerations that are included in the region	Perspective in the region or group of cities that are included in the region and their population size, thsd. pers.
Regions with a **HIGH** level of agglomerative development	1	St. Petersburg and Leningrad Oblast	St. Petersburg agglomeration	
	2	Moscow and Moscow Oblast	Moscow agglomeration	
	3	Sverdlovsk Oblast	Yekaterinburg agglomeration	
	4	Tyumen Oblast		**Tyumen – 580.2**
				Tobolsk – 99.7
				Yalutorovsk – 36.5
				Zavodoukovsk – 25.7
	5	Nizhny Novgorod Oblast	Nizhny Novgorod agglomeration	
	6	Novosibirsk Oblast	Novosibirsk agglomeration	
	7	Primorsky Krai	Vladivostok agglomeration	
	8	Murmansk Oblast		**Murmansk – 309.4**
				Apatity – 61.3
				Severomorsk – 53.3
				Monchegorsk – 47.6
				Kirovsk – 29.8
				Olenegorsk – 22.0
	9	Republic of Tatarstan	Kazan Nizhnekamsk Almetyevsk agglomerations	
	10	Khabarovsk Krai Chelyabinsk Oblast Magadan Oblast		**Khabarovsk – 577,7**
				Komsomolsk-on-Amur – 263.9
				Amursk – 43.0
				Bikin – 17.2
	11	Republic of Tatarstan	Chelyabinsk agglomeration	
	12	Khabarovsk Krai		-
	13	Chelyabinsk Oblast		-

Continuation table 3

Regions with an **INCREASED** level of agglomerative development	1	Rostov Oblast	Rostov agglomeration	
	2	Samara Oblast	Samara-Tolyatti agglomeration	
	3	Krasnodar Krai	Krasnodar Sochi agglomerations	
	4	Perm Krai	Perm agglomeration	
	5	Krasnoyarsk Krai	Krasnoyarsk agglomeration	
	6	Omsk Oblast	Omsk agglomeration	
	7	Kaliningrad Oblast		**Kaliningrad – 431.5**
				Sovetsk – 41.7
				Baltiysk – 32.7
				Svetlyy – 21.4
				Zelenogradsk – 13.0
				Guryevsk – 12.4
				Pionerskiy – 11.0
	8	Irkutsk Oblast	Irkutsk agglomeration	
Regions with a **MIDDLE** level of agglomerative development	1	Republic of Bashkortostan	Ufa agglomeration	
	2	Kemerovo Oblast	Novokuznetsk agglomeration	
	3	Sakha (Yakutia) Republic		–
	4	Sakhalin Oblast		–
	5	Komi Republic		Syktyvkar – 235.0
				Yemva – 14.6
				Mikun – 10.7
	6	Arkhangelsk Oblast	Arkhangelsk agglomeration	
	7	Chuvash Republic		**Cheboksary – 453.6**
				Novocheboksarsk – 124.1
				Kanash – 45.6
				Alatyr – 38.2
				Shumerlya – 31.7
				Tsivilsk – 13.5
	8	Yaroslavl Oblast	Yaroslavl-Rybinsk agglomeration	
	9	Saratov Oblast	Saratov agglomeration	
	10	Volgograd Oblast	Volgograd agglomeration	
	11	Lipetsk Oblast		**Lipetsk – 508.1**
				Yelets – 108.4
				Gryazi – 46.8
				Dankov – 21.1
				Lebedyan – 21.0
				Usman – 18.8
	12	Smolensk Oblast		**Smolensk – 326.9**
				Vyazma – 57.1
				Roslavl – 54.9
				Yartsevo – 47.9
				Safonovo – 46.1

The number of satellite towns is approximate, as they have been selected as the settlements that formally meet the requirements described in the method [3], as urban settlements that are situated in the zone of "2-hour access by any type of public land and water transport". The precise determining the boundaries of developing agglomeration requires a depth analysis of region's administrative and territorial structure, delimitation of attraction and interference zones among settlements, accurate information daily and weekly population's migration and more detailed calculation of isochrones of agglomeration center availability by all the means of transport.

The number of promising regions with a middle level of agglomerative development join the leading regions here. They are the Sakha Republic (Yakutia), the Sakhalin Oblast, the Komi Republic, the Chuvash Republic, the Lipetsk and Smolensk Oblasts.

Despite the high ratings of the regions in almost all the indicators, only some of them meet the formal characteristics of agglomerations (the population size of a core city should be at least 250,000 people and at least two satellite towns should be situated in the zone of 2-hour access by any type of public transport).

The population density is not sufficient in the Sakhalin Oblast, the Magadan Oblast and Kamchatka Krai to speak about developing active agglomerative process in their territories. Despite the rather favorable territorial organization of Yuzhno-Sakhalinsk urban settlements, which satellites include such towns as Korsakov (33.5 thousand people), Kholmsk (30.9), Dolinsk (12.2), Nevelsk (11.7) and Aniva (9.1), the population of city's core is only 181.7 thousand people. Magadan's population is not sufficient (95.9 thousand people), and there is only one satellite town of Susuman near it. Petropavlovsk-Kamchatsky has two satellites which are the towns of Elizovo and Vilyuchinsk, but it does not meet the criterion of core population size: its population is only 179.5 thousand people.

According to the Regional Department of the Federal State Statistics Service of the Komi Republic, as of January 1, 2012 the population of Syktyvkar has exceeded 254.5 thousand people. This means that "territorial ligament" between the cities of Syktyvkar, Yemva and Mikun can already afford to consider the Komi Republic as a promising region with an average level of agglomerative development.

Though the population of Yakutsk, the economic and cultural center of the Sakha Republic, is 269.5 thousand people, the city has not enough satellite towns. Only sparsely populated town of Pokrovsk, which is located 78 km south-west of the city core, can be considered as its satellite town. In future it is necessary to explore the specificity of these regions in order to improve this approach and limit the impact of socio-economic non-agglomerative indicators.

Besides the regions mentioned above, a list of promising regions include the Tyumen, Murmansk, Kaliningrad, Lipetsk and Smolensk Oblast, as well as the Chuvash Republic and Khabarovsk Krai. These regions meet all the formal criteria and have high ratings in a number of key indicators, so they can be considered as promising regions for the further development of agglomerative processes.

References

1. Gubanova E.S., Selyakov S.A. Urban agglomeration issues. In: Region's economy: problems and prospects. Vologda: ISEDT RAS, 2009. No. 46 (April - June). P. 30-40.

2. Zhikharevich B.S. The institutional dimension of regional socio-economic space: an approach to studying. North-West Economy: Challenges and Prospects. 2011. No. 2-3 (45). P. 46-50.
3. Polyan P.M. The method of selecting and analyzing the settlement supporting framework. Part 1. Moscow: IG USSR, 1988. 220 p.
4. Regions of Russia. The main socio-economic indicators of cities, 2011. Federal State Statistics Service. Available at http://www.gks.ru/bgd/regl/b11_14t/Main.htm
5. Regions of Russia. Socio-economic indicators, 2011. Federal State Statistics Service. Available at: http://www.gks.ru/bgd/regl/b11_14p/Main.htm
6. Federal government will fund the Abakan-Chernogorsk agglomeration. Siberian news agency. Khakassia. Available at: http://abakan.sibnovosti.ru/politics/195323-federalnye-vlasti-profinansiruyut-abakano-chernogorskuyu-aglomeratsiyu

UDC 316.334.56(510)

Acceleration of urbanization process and alteration of underdeveloped status

Ma Xuesong
Jiangxi Academy of Social Sciences (Nanchang, Jiangxi, China)
ncmxs@126.com

In comparison of provincial developments in China, Jiangxi Province belongs to the underdeveloped region. The following data analysis can explain the underdeveloped status of Jiangxi. First, its total economic output is small. In 2011, Jiangxi's GDP reached 1.15838 trillion Yuan, ranking No. 18 of 31 provinces in the whole country; Guangdong's GDP (No. 1) was 4.5 times that of Jiangxi, and Jiangsu's GDP (No. 2) was 4.1 times that of Jiangxi. Second, its per capita GDP is lower than the average level of the whole country. In 2011, the per capita GDP of the whole country was 35,198.57 Yuan, and Jiangxi was 25,988 Yuan, which was 9,210 Yuan less than the average level of the whole country, ranking No. 25 of 31 provinces in the whole country. Third, its urbanization rate is lower than the average level of the whole country. In 2011, the urbanization rate of the whole country was 51.3%, and Jiangxi was 45.7%, which was 5.6% less than the average level of the whole country.

According to the international experience, the urbanization process is generally divided into three stages, including the development stage during which the urban population is less than 30% of the total population, the accelerated development stage during which the urban population is 30%-70% of the total population, and the mature stage during which the urban population is more than 70% of the total population. The above data show that Jiangxi Province has entered the acceleration period of urbanization, which will provide the sustained power for Jiangxi to change the underdeveloped status.

First, the acceleration of urbanization process is beneficial to the expansion of investment demand. The urbanization makes decisive contribution to GDP; according to the estimated index specified by the relevant experts, an increase in urbanization growth rate of 1% could lead to a further increase of 140 billion Yuan in urban infrastructure investment, which will bring 336 billion Yuan of GDPs eventually. The total investment made for the urban public infrastructure construction reached 134.6 billion Yuan during the "Eleventh Five-Year Plan" period, which still has a larger investment space during the "Twelfth Five-Year Plan" period, and will makes a contribution to the expansion of investment demand in Jiangxi Province.

Second, the acceleration of urbanization process is beneficial to the expansion of consumer demand and the increase in endogenous power of economic development. The industrialization generates the supply, and the urbanization generates the demand.

The urbanization rate of Jiangxi will reach an average annual increase of 1.6% during the "Twelfth Five-Year Plan" period, and there must be at least 3.5 million farmers going to town within five years, which will bring the huge consumer demand for Jiangxi's development. Therefore, it shall comply with the laws, grasp the opportunities, and accelerate the urbanization process to fundamentally solve the contradictions brought by the social transformation.

Third, the acceleration of urbanization process can promote the development of tertiary industry and expand the employment. The tertiary industry and the urbanization interact as both cause and effect, and promote each other. The urbanization produces the concentration of population and promotes the development rate and quality of the tertiary industry; the tertiary industry not only expands the city scale, but also promotes the city function reinforcement and the city image improvement so as to attract the funds and population concentration and become the follow-up power of the new stage of the urbanization.

Last but not the least, the acceleration of urbanization process is beneficial to the increase of farmers' incomes. At present, the income gap between urban and rural areas is increasing year by year, the rural social security system has not perfect yet, and the trials of farmers' endowment insurances have just been started. The income gap between urban and rural residents reaches 3.33:1 currently. The primary cause of the increasing gap is that the farmers have not completely transferred from the rural areas to the urban areas and from the agricultural industry to the non-agricultural industry. People have reached a consensus that farmers can become rich by decreasing the farmer population, and the effective way to decrease the farmer population is to accelerate the urbanization process.

As an underdeveloped province in the central region, the acceleration of urbanization shall be taken as the breakthrough and focus of the structure adjustment at present, the structure adjustment shall be realized in the urbanization process, and the accelerated development of urbanization shall be promoted in the process of structure adjustment.

First, it is necessary to seek a breakthrough in the development concept of urbanization. Since China has implemented the policy of "strictly controlling the scale of big cities and reasonably developing the medium and small cities" for a long time, it is afraid of the big cities and controls the big cities in the development concept, and always has the idea that "the city disease" must occur with the rapid development of the cities. In fact, the practice has proved that the larger the city is, the better the economies of scale will be, and the stronger the concentration and radiation function will be.

Meanwhile, the development of urban corridor and urban agglomeration taking the metropolis as the center has become the successful experience and rule of urbanization in the country and in the world. The small towns with thousands of residents cannot gather the industries and people, which has been proved through the migrant workers' selection of their working places for 30 years, and also been proved through the development process of the small towns, and the average population of more than 19,000 designated towns in the whole country has not exceeded 10,000 so far.

Therefore, the central cities shall be made bigger and stronger unswervingly and several metropolises and big cities such as Nanchang, Jiujiang, and Ganzhou shall be formed in the whole province as to construct the economic highland of the whole province and mobilize the rapid development of the economic society.

Second, it is necessary to seek a breakthrough in the development pattern of urbanization. At present, the main characteristic of urbanization pattern in China is incomplete urbanization. Farmers are free to find jobs or go into busi-

nesses in the cities, realize the transfer from the agricultural industry to the non-agricultural industry, but they cannot realize the identity transformation and become the real citizens of a city. For this reason, they cannot enjoy the equal pay for equal work, equal guarantee and equal consumption as the local employees. During the acceleration period of urbanization, the breakthrough in urbanization pattern must be realized, to make the city farmers get jobs and social securities, realize the continuous income growth with their efforts, social status rise and the settlement in cities by purchasing houses. The goal of structure adjustment can be achieved only through the continuous improvement of the urbanization quality.

Third, it is necessary to seek for a breakthrough in the system mechanism of urbanization. The process of urbanization is the process of transfer from the famers to the citizens, and from the rural lifestyle to the urban lifestyle. The transfer from farmers to citizens is not enough to just have the occupation transformation and the space flow, and is still not complete even with the household registration transformation. If the city farmers cannot settle down or migrate into cities with the whole families and obtain the reliable social securities, the farmers' transformation into urban inhabitants cannot be completed at last. Therefore, the household registration reform must be conducted together with the supporting reforms of housing and social security systems.

1. The pace of the household registration system reform shall be accelerated. The management system for household registration, which makes a strict distinction between the permanent urban residence certificate and the permanent rural residence certificate and controls farmers' transformation into urban inhabitants, shall be abolished. The national treatment difference between the agricultural residence certificate and the non-agricultural residence certificate shall be cancelled. A consolidated urban and rural household registration management system shall be implemented, and the supporting policies (such as the various interests in employment, social security, education, welfare, and veteran placement) attached to the household registration used for urban-rural segmentation shall be separated from the household registration as to make the household registration system become (or just become) the population registration system, but not the hierarchical system differentiating the "identity".

2. The ownership of the rural housing site and its building shall be confirmed as to promote the market access of the rural collective construction land use rights, and realize the reclamation and dynamic balance of urban and rural construction land. The "right to contracted management of rural land, right to use of rural collective construction land, right to earnings of rural collective assets, farmhouse ownership and right to use of forest land" are confirmed to each household in the form of ownership certificate, to make it become the legal assets of farmers, realizing the transformation from the resources to the capitals. All the effective property rights must be transferable, and the nontransferable property rights are the incomplete property rights. The farmhouses and housing sites with identified ownerships can enter the transfer market to get the cash under certain specified conditions, and the farmers can go into town with funds. The farmhouses which are not cashed in the market after right confirmation shall be combined with the town planning and new rural construction, to encourage the farmers to move to the central village or replace for the prefabricated houses (apartments) with the government subsidies; some or all farmhouses are encouraged to replace for the standard industrial houses in the industrial functional areas. After the right confirmation of farmhouses, the original housing sites shall be re-ploughed whether they are used for transfer transaction or migration and new construction. The re-ploughed evaluation index system shall be established.

The qualified re-ploughed housing sites after the evaluation and acceptance can be converted into the urban construction land index within the province, which can meet the needs of urban construction land via the certain replacement mode.

3. Migrant workers shall enjoy the same housing security policies with the urban residents. The barriers of household registration restriction shall be gradually broken and more and more low and middle income families including "permanent rural residence certificate" are incorporated into the security scope of "urban housing security system". Based on the mode of original low-rent housing and economically affordable housing, the security way of public rental housing shall be added and migrant workers shall be incorporated into the supply scope to make them settle down by learning from the successful experience of the relevant cities.

4. The compulsory education of the accompanying children of the migrant workers shall be effectively solved. With the acceleration of urbanization process, a lot of migrant workers find jobs or go into businesses in the cities, and the education of their accompanying children becomes a big issue. It suggests that the entrance requirements of the compulsory education of the migrant children should be further relaxed so that the migrant children can enjoy the same compulsory education as the urban children if their identities can be proved. At the same time, according to the urbanization process of each region, and combining with the formation of economic and social development plan during "Twelfth Five-Year Plan" period, the planning and construction of school network adjustment, teacher allocation and other aspects shall be well prepared on the basis of the scientific prediction to truly meet the requirements of urbanization to education.

5. The coverage of social security shall be expanded to complete the transfer and continuation work. The coverage of the workers' social security shall be expanded in accordance with the law so that the so-called investment environment cannot be exchanged at the expense of the workers' rights; the development of the social security of the migrant workers shall keep pace with that of the urban workers, which is "equal pay and equal guarantee for equal work"; the insurance rate of all employees shall be incorporated into the government performance assessment.

At present, the migrant workers can only transfer the amount in their personal accounts, and the social pooling part cannot be transferred after they return home. The insurance funds shall be fully transferred while the transfer and continuation of the migrant workers' social security is well completed, to effectively alleviate the financial pressure on the due payments of the migrant worker export place.

6. The urban and rural convergence of various systems of social undertakings shall be completed. The urbanization acceleration is not only the process of the expansion of city space scale, but also the process of the rapid agglomeration of rural population to cities. With the rapid and abundant agglomeration of rural population to cities, the problems related to the convergence of the rural and social system with the urban system will be caused. For example, how does the rural endowment insurance converge with the endowment insurance for urban workers? How does the new rural cooperative medical service converge with the medical insurance for urban residents or urban workers? The relevant functional departments shall take precautions to prepare for the docking or convergence of urban and rural system as to promote the rapid and stable development of urbanization.

UDC 338.45:69.003(470.12)

Construction complex of the region: current state and innovative potential

Construction industry has traditionally established itself as a leading choice; it is designed to reproduce fixed assets, carry on renovation, modernization, technical re-equipment of material goods production and solving social issues on the modern technical basis. Despite the profound crisis of the industry associated with the transition to a market economic model such as a high degree of fixed capital assets depreciation, the low investment activity of construction companies, a high materials output ratio, etc., the growth potential of construction industry is sufficient. It is possible to solve these problems by promoting innovation activity of construction companies, aimed at reducing the cost of finished products, shortening of construction time and enterprises' competitive recovery.

Construction complex, construction materials producing industry, Vologda Oblast, innovation activity.

Tatyana V.
VORONTSOVA
ISEDT RAS Research Engineer
s.t.v.-@mail.ru

Elena S.
GUBANOVA
Doctor of Economics, Professor of the Vologda State Technical University
gubanova_elena@mail.ru

Nowadays, the sustainable development of socio-economic systems is largely dependent of the effective use of innovations (technological, social, administrative, etc.). Moreover, it should be noted that individual levels of such systems should become a motive power of innovation development, as they are designed to create the necessary conditions for innovation activity in other parts of the system in order to overcome the fragmentariness of the innovation processes.

All this is fully applicable to the construction complex that always plays a key role in solving social and economic problems of Russia and its regions.

Hence, it is clear that there is an increase of innovation processes in the construction industry, which is characterized not only by a certain inertia and conservatism, but by a number of features that differentiate it from other sectors: they are the type of final products, specific working conditions, the length of product life cycle, pricing that is tightly bound to the place of product development, nonstationarity and heterogeneity of production, organization and management system, a variety of high risks.

All these things have a significant impact on the implementation of innovations in other spheres.

Firstly, innovations in the construction industry are the part of innovations in the economy, because buildings can be considered the same innovations as produced cars, equipment, new TV models, etc. And it is difficult to anticipate the innovations in other economical sectors without construction innovations.

Secondly, construction facilities in different industries are upgraded innovations. For example, such an innovation in the field of "transportation" as a monorail consists of a flyover and monorail, i.e. the products of construction sector, as well as a carriage, i.e. machine-building products.

Thirdly, the implementation of new technologies for launching new products and improving their quality in most industries requires the construction of new production facilities. It should be noted that high technology development requires ultrapure production facilities which are the innovations in construction and which are necessary to implement innovations in electronic, aviation, aerospace, biomedical, pharmaceutical and other industries.

Fourthly, the introduction of innovations in construction, which is associated with the use of up-to-date designs, materials and technologies, results in improving the living conditions of citizens. Thus, the use of radiation-efficient wall constructions and materials improves housing comfort, as well as it helps to reduce the number of cancer diseases among the population [3].

Fifthly, the construction of innovative buildings and social facilities (schools, hospitals, clinics, sanatoriums, recreation centres, kindergartens, stadiums, etc.) improves the quality of investment in human capital and upgrade the standard of population's living.

All the facts that were mentioned above allow us to understand not only the importance of innovative changes in the construction industry for the economy, but their complexity in terms of implementation and management. Therefore, firstly, it is necessary to evaluate the potential of construction industry in the region that can be used by the sectoral enterprises to brisk up innovation processes.

It must be emphasized that the period of market reforms has worsened the economic situation in the vast majority of domestic construction companies. The graph data *(fig. 1)* clearly show that the dynamics of volume of construction and installation operations in the Vologda Oblast and Russia is synchronous in nature. It allows us to draw a conclusion about the unprecedented fall in construction volume over the period from the early 1990s until 2000 in the Vologda Oblast and in the whole country. This indicator had been growing only since the 2000s, and it lasted until 2007. There was another recession with the beginning of a new crisis in 2008. The 1990 indicators have not been achieved by today.

Reduced volume of work performed has resulted in the decrease in the number of employees in the industry (by 28 thousand people over 10 years). In the following decade, despite the revival activity of construction

Figure 1. Dynamics of volume of construction and installation operations, % to 1990

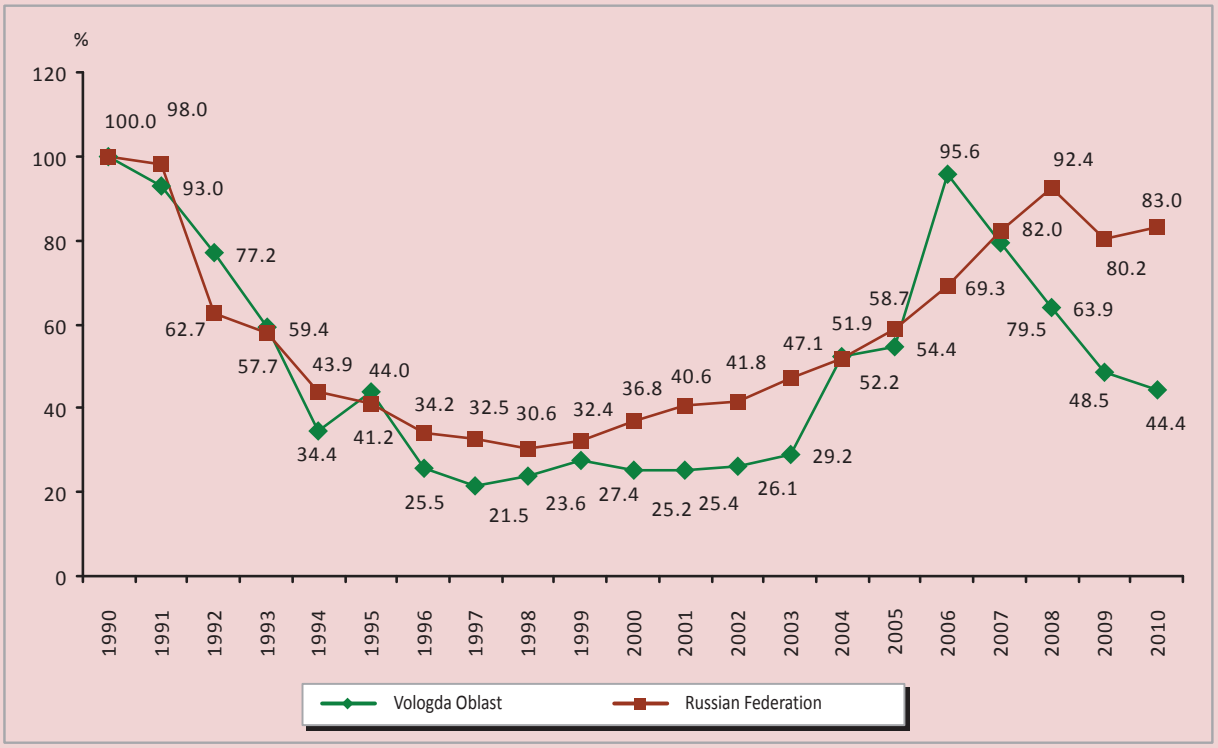


Table 1. The main indicators of the construction complex in the Vologda Oblast

Indicator	1990	1993	1995	2000	2003	2005	2006	2007	2008	2009	2010
The hare of construction in GRP,%	-	-	8.14	5.25	5.9	10.40	9.70	9.70	6.60	6.80	7.50
The volume of construction and installation operations, bln. rub. at comparable 2010 prices	61.9	35.7	26.5	15.2	17.5	32.7	57.5	47.8	38.4	29.2	26.7
Average number of employees, thsd. pers.	69.5	70.4	55.5	41.1	31.9	26.2	29.0	26.3	31.3	20.5	20.7
Output per 1 employee, bln. rub./pers. at comparable 2010 prices	0.89	0.51	0.48	0.37	0.55	1.25	1.98	1.82	1.23	1.42	1.29
Work labour input, pers./bln. rub.	1.12	1.97	2.10	2.71	1.82	0.80	0.50	0.55	0.82	0.70	0.78

companies, the employment rate continued to decline and it amounted to 20.7 thousand people at the end of 2010 that was only 30% of the 1990 level *(tab. 1)*.

One reason for this was the privatization of regional construction enterprises and organizations, which began at a quickened pace in 1992 and resulted in the significant changes in complex's management. Territorial building associations ceased to act as the main control organizations and most of them were abolished.

A lot of trusts were liquidated, and their subdivisions were transformed into independent non-state organizations [6]. A lack of qualified personnel and organizational changes led to a decrease in the quality of construction work and non-compliance with construction time. The construction complex of the region had entered a phase of stagnation by the mid-1990s: the share of construction value added in the gross regional product volume decreased from 8.1% in 1995 to 5.9% in 2003.

However, the number of building companies of different forms of property increased during the economic reforms that indicated the increase in competition in the regional construction market *(tab. 2)*.

With the general increase in the number of organizations, the number of small businesses with the staff less than 100 people increased: their share in the total number of building organizations extended from 60.9% in 1991 to 96.6% in 2010. It should be noted that today the majority of construction organizations are privately owned (98.3% in 2010), accordingly, the share of private sector in the total construction contract work amounts to 90%.

Table 3, showing the dynamics of fixed assets in construction as a major factor of production of the industry, convinces us that it is one of the greatest challenges of the complex.

The depreciation of fixed assets and the share of fully depreciated fixed assets are increasing, which result in the negative impact not only on the construction business but on the regional economy on the whole. The economic potential of business assets reproduction is characterized clearly by renewal and retirement indicators. Construction assets renewal rates are slow. In the most favorable for the construction industry period from 2005 to 2008, the coefficient of renewal increased to 23.3% from 15.6% in 2005. Due to the economic crisis that resulted in the customers' insolvency, construction companies had to send more funds to meet their current needs, so the coefficient of renewal reduced to 6.4%. Such a situation in funding was a result of low investment activity in construction. Thus, the share of building investment in the total investment declined from 21.3% in 1991 to 0.7% in 2010.

Table 2. The number of building companies in the Vologda Oblast

Indicators	1991	1993	1995	2000	2003	2005	2006	2007	2008	2009	2010
Total number of building companies, un.	786	1027	1098	1108	1039	876	809	798	865	921	930
Including (in % to the total number): - sate and municipal	45.1	8.3	2.6	1.0	0.9	1.0	1.2	1.3	0.9	0.8	0.6
- privately owned	10.6	73.1	90.4	92.1	96.6	97.1	97.5	97.5	98.2	98.4	98.3
- mixed patterns of ownership	44.3	18.6	6.9	6.9	2.5	1.8	1.2	1.3	0.9	0.9	1.1
The share of building organizations with the number of employees up to 100 pers.,%	60.9	68.8	87.2	94.4	95.1	94.9	93.3	93.4	94.6	96.2	96.6

Table 3. Indicators of capital assets state and flows in the construction complex

Indicators	1990	1993	1995	2000	2003	2005	2006	2007	2008	2009	2010
Fixed assets, bln. rub.	1.0	32.8	1625.0	2038.0	1895.0	2856.6	4368.0	5317.9	4193.8	4434.0	4774.0
Structure of fixed assets by type, in%	100	100	100	100	100	100	100	100	100	100	100
- buildings, facilities	39.0	30.5	56.2	51.9	46.1	43.1	46.7	51.5	47.1	48	44.1
- machinery and equipment	44.0	40.2	30.4	34.4	37.1	39.5	38.6	34.9	31.9	31.9	36.6
- transport	16.0	27.6	12.5	12.2	14.5	15.6	12.5	12.3	19.6	18.5	17.6
- other	1.0	1.7	0.9	0.5	2.3	1.8	2.2	1.3	1.4	1.6	1.7
Deterioration of fixed assets,%	n/a	33.8	43.9	46.9	33.1	33.1	32.5	35.1	29.7	35.0	44.1
Coefficient of renewal, %	6.2	23.2	4.7	3.6	4.7	15.6	12.2	13.9	23.3	8.4	6.7
Retirement rate, %	2.0	12.5	6.1	7.6	13.5	5.6	11.3	5.1	12.7	8.4	8.9
* Before 1995 – bln. rub.											

It is important to note that the volume of production and other economic indicators of the construction industry significantly depend on the size of active capital assets directly involved in production. The growth trend in active capital assets due to the increase in the share of machinery and equipment and the excess of passive part is certainly positive in recent years. However, active capital assets are the most depreciated ones. *Table 4* shows that there was an increase in the share of equipment with expired terms of office during the period under our study. Such a state of fixed assets is not able to provide efficient and competitive operation of construction companies in the region.

The objective necessity of rapid updating and restructuring of fixed assets in the construction sector is caused by the necessity [2]:

– to raise competitive capacity of most construction organizations in the region and their ability to take part in tenders in other regions;

– to implement new innovative technologies in construction, providing the high quality of facilities under construction and reducing construction time. This requires equipping organizations with specialized machinery and tools, technical innovations in the mechanization means of production and labour.

The main indicators of construction efficiency are the cost of installation and construction works and profit of building companies per one ruble of construction spread. *Figure 2* shows two trends – cost escalation and earnings dilution.

Throughout the period under our study there were the changes in the cost structure of contract installation and construction works *(fig. 3)*.

There was a decrease in the share of material expenses in the cost of installation and construction works from 50% to 47% in the first half of the 1990s, which can be explained by directive targets to reduce the cost of work (up to 1992), reduction in the share of new construction, decrease in the building volume of public facilities that are constructed with the use of expensive finish materials; increase in the share of overhead expenses; using accumulated inventory accounted in the cost of lower prices, etc.

Since 2000, materials expenses escalation in the cost of installation and construction works is caused by the increase in the construction of apartment houses that have improved layout and "European-style finishing decoration", excessive growth of prices for building materials over the rising cost of construction and installation works, increase in shipping costs of building materials and constructions, reduction in the value of depreciation charges due to the ageing of equipment and machinery, etc. Reducing the share of material expenses in 2009 – 2010 is connected with the increase in the share of labour and other costs.

Table 4. Availability and condition of the main building machines in construction organizations

Indicators	Availability of construction machinery, pieces							Share of cars beyond their service life, %						
	1991	1995	2000	2005	2008	2009	2010	1991	1995	2000	2005	2008	2009	2010
Excavators	1172	850	358	249	197	168	120	14.6	20.8	44.4	47.8	54.3	47.6	32.5
Cranes: - tower	231	194	80	20	19	21	17	33.5	38.7	63.8	59.2	62.2	60.9	63.2
- rubber-tired	153	114	46	13	5	6	4	24.2	53.5	67.4	69.9	60.0	66.7	100.0
- crawler-mounted	263	235	117	92	50	60	65	17.4	50.6	73.1	87.0	82.0	70.0	58.5
Bulldozers	1325	810	328	302	259	239	118	13.0	18.6	54.0	62.6	67.2	62.8	51.7
Tractors	784	822	374	273	202	164	71	n/a	12.4	40.9	57.1	55.9	61.6	32.4

Figure 2. Changing the cost per one ruble of installation and construction works and building companies' profitability in the Vologda Oblast

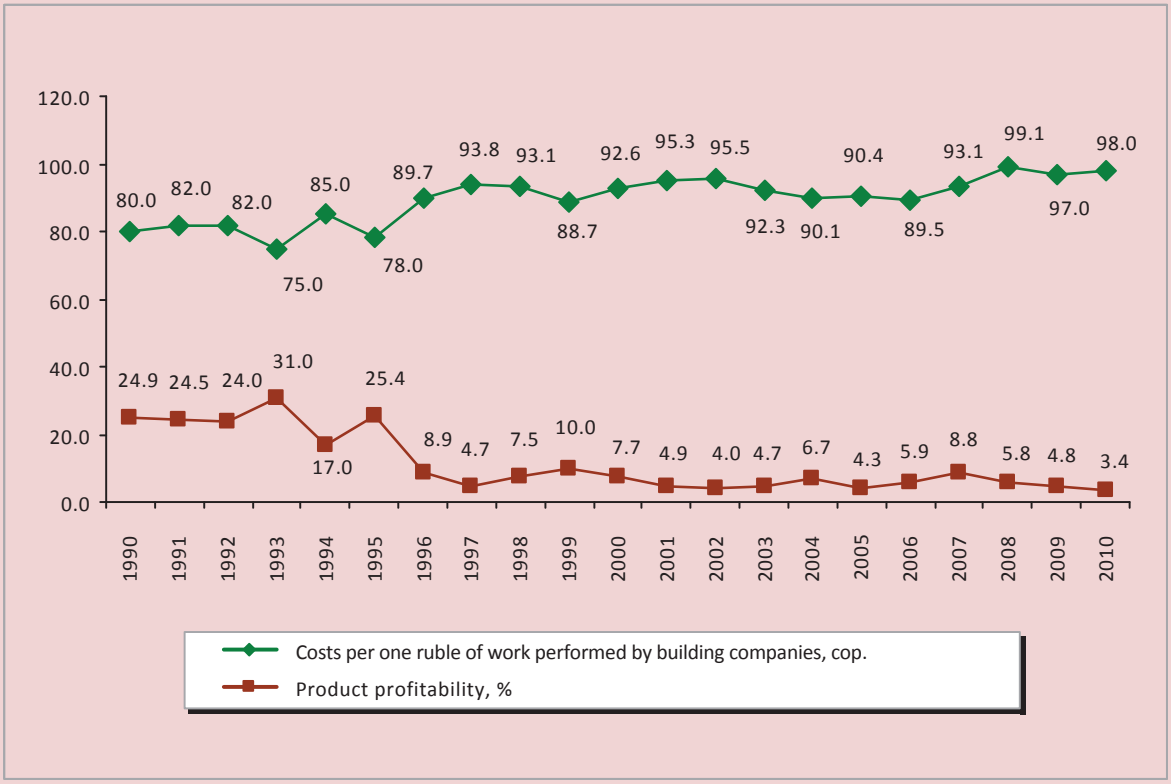
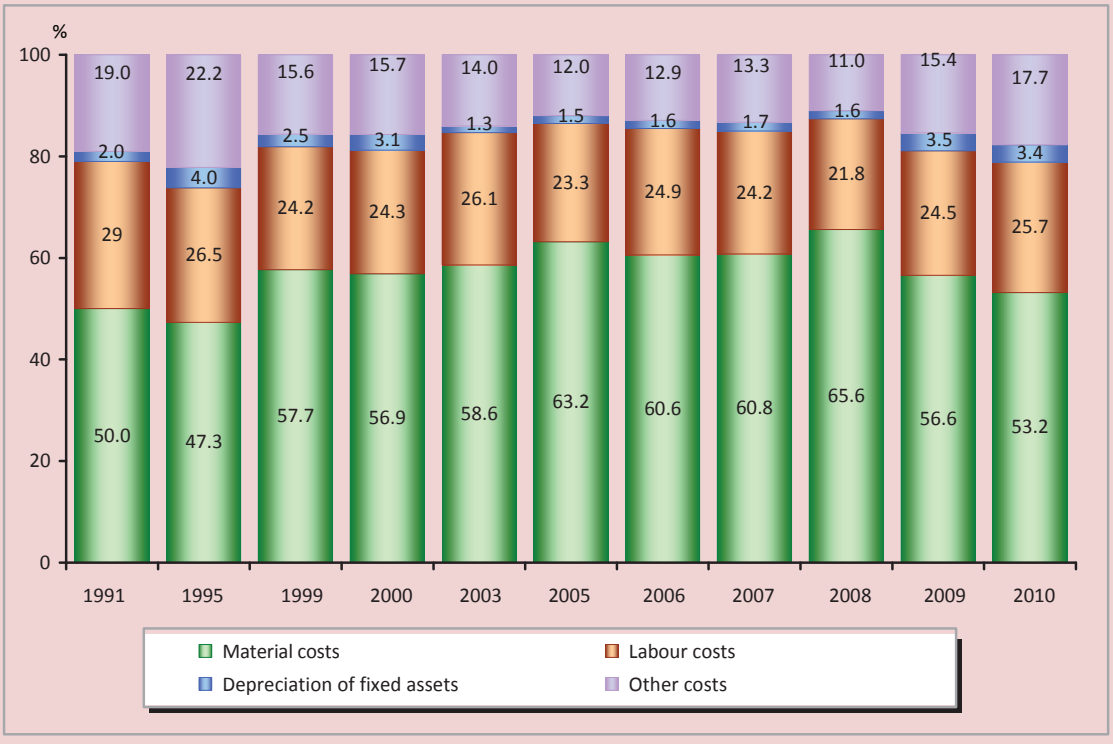


Figure 3. Cost structure of installation and construction works in the Vologda Oblasts, %



The share of labour costs in the cost of installation and construction works has not changed, and it ranges from 22 to 29%. Therefore, it is necessary to pay special attention to the problems of reducing material costs.

The indicators that characterize the efficiency of material resources in the construction complex of the Vologda Oblast are presented in *table 5*.

Dynamics of changes in the materials output ratio is determined by the interaction of various factors, the effect of which may be implemented in opposite directions. The growth of construction materials output ratio in 1995 – 2010 was caused by the use of high-quality and durable building structures and details with a high degree of prefabrication, higher technical and operating characteristics, as well as by exceeding the growth rates of prices for building materials and building structures over the growth in the cost of installation and construction works, increase in transport tariffs, rise in prices for fuel, etc.

Since construction is one of the raw material intensive productions, reducing a materials output ratio is an important factor in increasing its efficiency. This will give the opportunity to cut the cost of construction and installation works and increase production profitability. The following ways can actively contribute to reducing the consumption of materials by the construction complex: implementing innovative technologies and structures in construction, improving building designs and constructions, excessing the growth rates of installation and construction works over increasing material costs, etc.

An important part of the construction complex is the industry of building materials, which in the Vologda Oblast is largely provided with raw materials containing own timber and non-metallic minerals (sand, gravel, clay, limestone). Production is oriented to manufacturing of precast concrete products and structures, small-sized wall materials, wooden and plastic windows and doors, wood-based slabs, plywood, millwork products and mouldings *(tab. 6)*. Over last two decades the production of the main kinds of construction products was significantly reduced in 2010 in comparison with 1990: bricks – almost by 10 times, precast concrete products and structures – by 7.5 times, non-metallic materials – by 5.3 times respectively. This can be explained largely by the decline in construction companies' demand for building materials, as well as by solvent debalance of financial and credit organizations that have lowered the amount of credit for the key builders due to the crisis. All facts mentioned above allow us to draw a conclusion that there is no enough capacity to produce competitive, import-substituting and innovative products to provide the construction sector with modern high-quality materials.

Despite the deepest crisis phenomena in the construction sector associated with the transition to the market economy, there is a significant growth potential in the construction industry:

– sufficient number of construction companies, which indicates a competition increase in the industry;

– mineral and resource base is enough to produce a wide range of materials, products and structures;

– sufficient volume of contract work that increases due to the expansion of consumer market and adoption of regional programmes on the development of house building.

However, there are some problems in the regional construction complex along with the positive aspects, overcoming of which can make the development of the industry more dynamic.

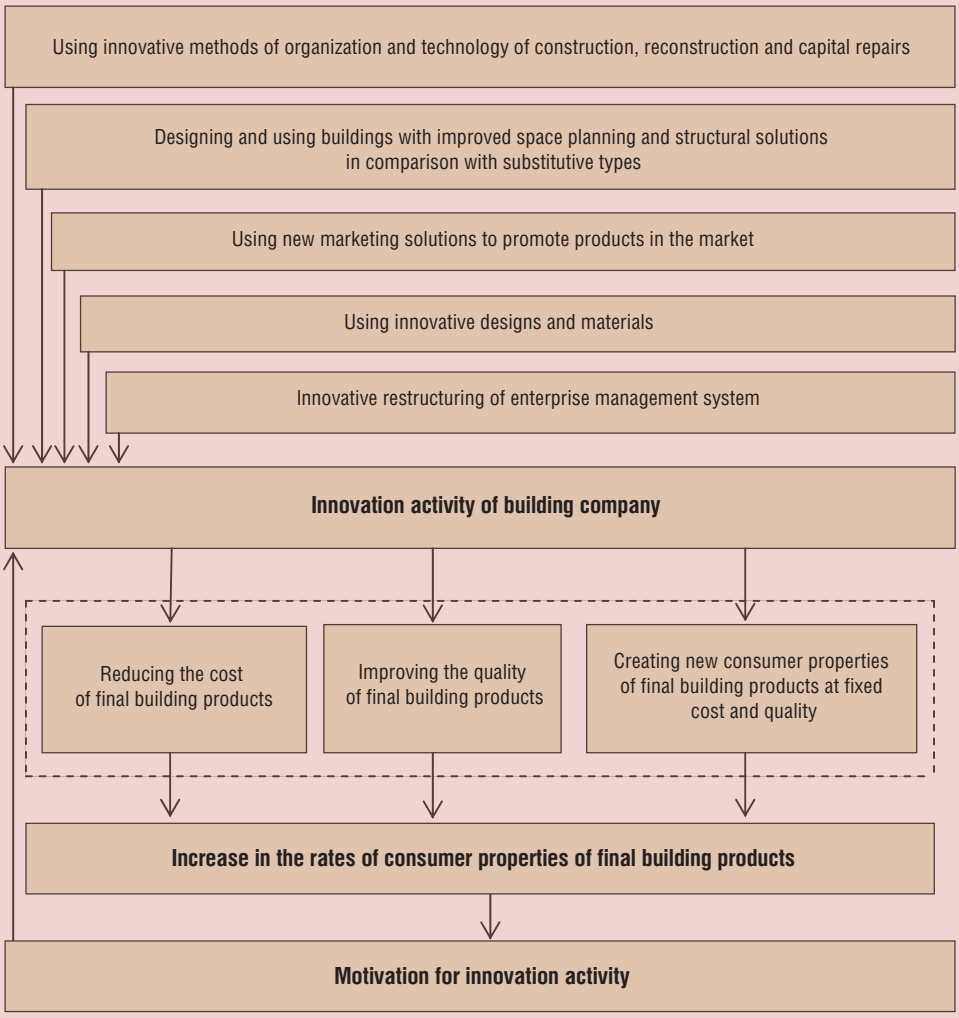
Table 5. Indicators of using material resources in the construction in the Vologda Oblast

Indicators	1990	1995	2000	2003	2005	2006	2007	2008	2009	2010
Volume of construction and installation operations, bln. rub. at comparable 2010 prices	61.9	26.5	15.2	17.5	32.7	57.5	47.8	38.4	29.2	26.7
Material costs, bln. rub.	2406.3	9776.7	7994.3	9487.7	18703.0	31195.5	27055.2	24982.2	16034.5	13917.2
Materials output ratio, rub.	0.40	0.37	0.53	0.54	0.57	0.54	0.57	0.65	0.55	0.52
Material efficiency, rub./rub.	2.50	2.71	1.90	1.85	1.75	1.84	1.77	1.54	1.82	1,92

Table 6. The main kinds of building materials industry's products in the Vologda Oblast

Indicators	1990	1995	2000	2003	2005	2006	2007	2008	2009	2010
Construction brick, mln. piec. of conv. brick	359	144	80.9	98.5	100.4	99	131.3	104.6	40.3	35.3
Precast concrete products and structures, thsd. $м^3$	936	246	153.3	181	224.3	263.5	318	281.2	111.2	124.9
Construction non-metallic materials, mln. $м^3$	11.3	3.1	1.3	1.4	2.3	2.1	2.4	2.4	2.3	2.1

Figure 4. Incentives and direction of innovation process in construction



They include a high degree of plant and equipment depreciation, low investment activity of enterprises, high materials output ratio of finished products and, as a result, its low profitability.

Solving these problems is possible by promoting innovation activity of building companies, aimed at reducing the cost of final products, reducing construction time, increasing the competitiveness of industries through more efficient resource-saving *(fig. 4)*.

The figure shows that the incentives for construction companies' innovative activity include the growth of quality and cost reduction as the factors that quantitatively change in assessing consumer properties of final building products, as well as establishing the new consumer properties of products at constant cost and quality as a factor that changes a rate of consumer characteristics of final construction products.

The incentive for implementing innovative products in construction is market competition that forces to cut down production costs and decrease the prices for products. The enterprises, which pioneered competitive innovation, have the opportunity to reduce production costs and, consequently, the cost of sales. As a result, they can strengthen the competition with the organizations offering the similar products. Thus, enterprises and organizations' innovation activity contributes to their survival.

References

1. Abbasov G.A. Improving the management of investments in construction. Journal of Economic Integration. 2012. No. 2. P. 7-11.
2. Aganbegyan A. Housing construction as a driver of socio-economic development of the country. Problems of Economics. 2012. No. 5. P. 59-70.
3. Buresh O.V., Zelentsov D.G. Statistical analysis of seasonal dynamics indices of construction development. Journal of Economic Integration. – 2011. No. 9. P. 51-57.
4. Vorontsova T.V., Sorokina I.V. The use of innovation in construction by improving the pricing system. Bulletin of the Cherepovets State University. 2012. No. 3 (40). P. 25-29.
5. Denisov G.A., Kamenetskiy M.I.The organization of innovation activity in the construction industry. Problems of forecasting. 2003. No. 3. P. 50-63.
6. Kamenetskiy M.I. Construction sector and national economy: current trends, topical issues of perspective development. Problems of forecasting. 2011. No. 1 (124). P. 79-91.
7. Kotlyarova S.N. Innovation barriers and developmental prospects for industrial markets in the case of the construction industry. Economy of the region. 2010. No. 3. P. 250-254.
8. Manakov L.F., Faltinskiy R.A. Crisis in the investment and construction industry: sources, threats, new opportunities. Russia's economic recovery. 2009. No. 1 (19). P. 58-70.
9. Statistical Yearbook of the Vologda Oblast. 1995-2001: Stat. Col. The Vologda Oblast Committee of State Statistics. Vologda, 2002. 294 p.
10. Construction activity: Stat. Col. In: Territorial agency of the Federal State Statistics in the Vologda Oblast. Vologda, 2011. 90 p.
11. Construction complex of the region: Stat. Col. In: Territorial agency of the Federal State Statistics in the Vologda Oblast. Vologda, 2004. 49 p.
12. Federal State Statistics Service. Available at: http://www.gks.ru

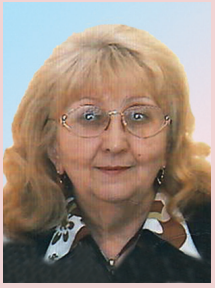
UDC 339.13

Increasing the competitiveness of preserved milk products on the food market

The article deals with the assessment of the product quality of some milk canneries in the Vologda, Belgorod, Moscow, Smolensk Oblasts, etc. It shows that the quality of Sukhonsky Dairy Plant's products is the best one. Most consumers trust just these products.

Respondents' preferences have been revealed by the survey; they allow the authors to draw a conclusion about the characteristics of a competitive product that should be considered when designing new kinds of canned sweetened condensed milk.

Preserved milk products, competitiveness, quality of products.



Anna I.
GNEZDILOVA
Doctor of Technical Sciences, Professor of the Vologda State Dairy Farming Academy named after N.V. Vereshchagin
gnezdilova.anna@mail.ru

Vladimir N.
TUVAYEV
Doctor of Technical Sciences, Professor, Head of the Department of the Vologda State Dairy Farming Academy named after N.V. Vereshchagin

Vladimir N.
OSTRETSOV
Doctor of Economics, Professor of the Vologda State Dairy Farming Academy named after N.V. Vereshchagin

The competitiveness of the goods is a set of product characteristics and services related to the sale and consumption of this product that distinguish it from analogous products in terms of satisfying the customer needs and the level of cost for its purchasing and operating.

It is a product's ability to meet customer expectations and the ability of goods to be sold. The quality of a product is a key component of its competitiveness. It is necessary to select the most preferable product characteristic for the consumers when determining the

quality of products. Quality consists of many components. First of all, they include the technical and economic parameters of product quality, quality of its manufacturing technology and servicing characteristics, as well as indices of reliability and durability, labour input, material capacity and science linkage. Such properties and characteristics of products as environmental, ergonomic and aesthetic features are becoming more important today.

This research is aimed at studying the competitiveness of canned condensed sweetened milk and milk-containing products on the food market in Vologda.

Production of canned milk is continuously growing in the world [2, 6, 7]. There was an increase in the production amount of canned milk in Russia during the period from 2007 till 2009, but the production almost stabilized in 2010 and there was a slight decline, which amounted to -0.3% in 2009 [1, 3]. However, the main problem here is a tendency to the deterioration of canned milk quality. National Association for Genetic Safety has inspected the quality of condensed milk in the Russian retail stores and found that 80% of these products do not meet quality standards [5]. According to surveys, almost 85% of the people, who bought canned milk at least one time per the last two years, faced the problem of poor quality. Today, the information on State Standard on the label of the product, according to which this product is made, does not exclude the risk of purchasing low quality products.

Recently, the development of the dairy industry in the country and in the world is characterized by the tendency to increase the production of sweetened condensed milk through a new technology of mixing the components (dried unskimmed and skim milk, dry whey, etc.) with the partial replacement of milk fat in vegetable oils [4]. This trend is primarily caused by a lack of raw milk, its high cost and producers desire to reduce the cost of final goods.

The advantage of a new technology is its ability to expand a range of products; it allows the producers to exclude the seasonality of production, install energy-intensive expensive equipment (vacuum evaporators) and reduce the production areas.

In our region canned condensed milk is produced by Sukhonsky Dairy Plant and Kaduysky Dairy Plant. The volume of their production amounted to 14.5 thousand tubes in 2011. The part of canned condensed milk produced by these enterprises is exported. As a result, only 88% of the regional population's demand for canned condensed milk is met. Therefore, today the Vologda market is full of canned condensed milk with sugar produced in other regions such as the Belgorod Oblast, the Moscow Oblast, the Smolensk Oblast, Belarus, etc.

We have assessed the production quality of the dairy plants of these regions in comparison with the products of Sukhonsky Dairy Plant that is located in the Vologda Oblast. Physical and chemical parameters that largely determine the quality of the final products have been used as evaluation criteria in accordance with the State Standard R53436-2009. The results of analyzes are presented in the table.

There was fat and crystals sediment in condensed milk produced by Alekseyevsky and Gagarinsky dairy plants, which was caused by the lower viscosity of products.

The products of Voskresensky Dairy Plant were characterized by caramel flavor and black discoloration. In addition, the products had increased viscosity.

The products of Rudnyansky and Voskresensky dairy plants had mealy texture caused by the presence of crystals that were larger than 10 – 15 microns. The share of these crystals was more than 20%.

However, it was found that the primary defect in quality is insufficient product texture due to the presence of large lactose crystals. This fact indicates the procedural violations

Physical and chemical quality parameters for canned sweetened condensed milk of various plants

Plant, technical documents	Product name	Physical and chemical quality parameters			
		Dry olids weight ratio, %	Fat weight ratio, %	Viscosity, Pa s	Average size of crystals, microns
Alekseyevsky DP, Belgorod obl. TS 9226-011-00417266-2004	Milk-containing product "Sweetened condensed milk"	67.7	8.5, incl. 0.85% of milk fat	1.8	3.8
Rudnyansky DP, Smolensk Obl. TS 9226-004-18649215-2002	Vegetable sweetened condensed milk product "Condensed cocoa milk"	70.6	9.0, incl. 4.6% of milk fat	5.7	8.4
Glavproduct, Moscow, Verkhovsky DP, Orlov Obl., TS 9226-005- 70145024-2005	Vegetable milk-containing product "Glavproduct condensed sweetened and cocoa milk"	69.7	8.5, incl. 5.1% of milk fat	4.1	4.6
Gagarinsky DP, Smolensk Obl. TS 9226-017-25801132-2006	Condensed sweetened milk-containing product "Condensed milk "Mashutka"	70.9	8.5, incl. 0.85% of milk fat	1.9	3.2
Voskresensky DP, Moscow Obl. TS 9227-013- 46834992-2002	Sweetened condensed milk	70.9	8.5 of milk fat	19.5	9.9
Sukhonsky DP, State Standard 2903-78 Vologda Obl.	Sweetened condensed milk	73	8.5 of milk fat	3	3.8

in producing sweetened condensed milk-containing products on the stage of lactose crystallization.

The products of Sukhonsky Dairy Plant had the best physico-chemical and organoleptic qualities. It is this product that is in great demand among the consumers.

At present, the producers are going to expand a range of foodstuffs that are balanced in terms of nutritional value and affordable for the consumer. In order to develop the products that can meet the customer needs and find a ready market, they have been studied through a questionnaire.

The main factors affecting the demand, as it is known, are:

- consumers' incomes;
- consumers' tastes and preferences;
- prices for substitutional and complementary products;
- consumers' stocks of goods (consumer expectations);
- information about product;
- the time spent on consumption.

According to the above-mentioned factors, the questionnaire was developed. 100 people of all ages were interviewed during the survey. The age structure of respondents is shown in *figure 1*.

The main respondents included people at the age from 38 to 45. All respondents have a positive attitude to the enrichment of foods with vitamins and prefer them as a source of natural products rather than ready-made pre-mixes *(fig. 2)*.

Most potential buyers (89%) have a negative attitude to the products containing natural colouring agents and flavours; they prefer a clean milk flavour, and if the products have fillers, their colour and taste should match the fillers. 87% of respondents prefer a product with a viscous texture.

98% of respondents prefer the products made according to the State Standard, and only 2% of respondents trust the products made by the Technical Specifications. In terms of product calorie content the opinions of res-pondents were divided almost evenly: 47% of respondents preferred low-calorie products, and 53% of respondents preferred high-calorie products.

Figure 1. Age structure of respondents

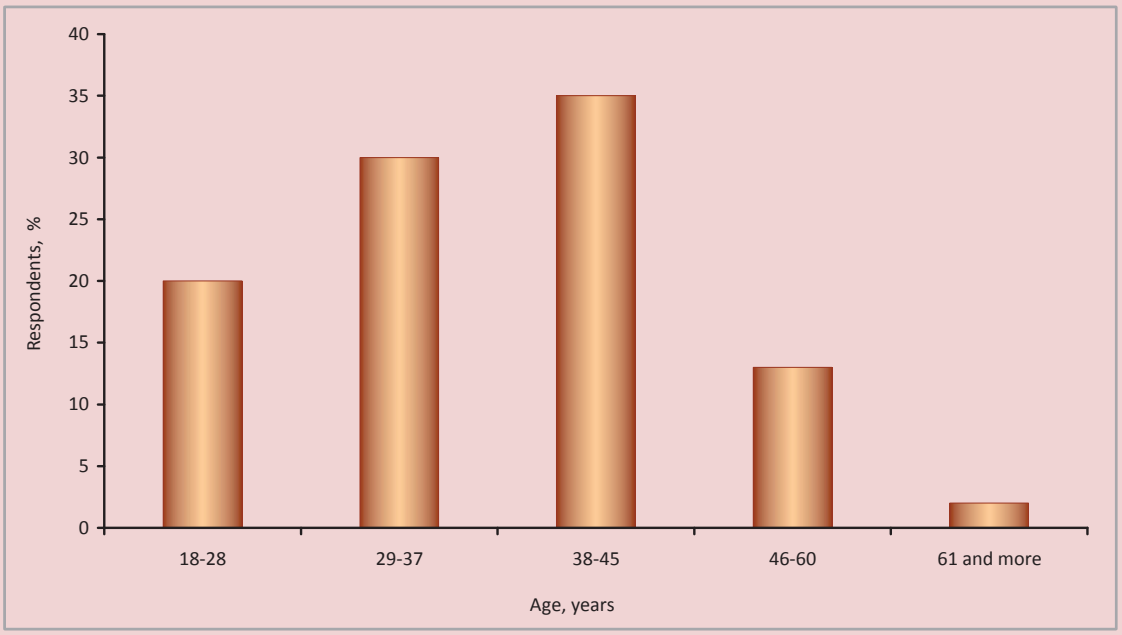
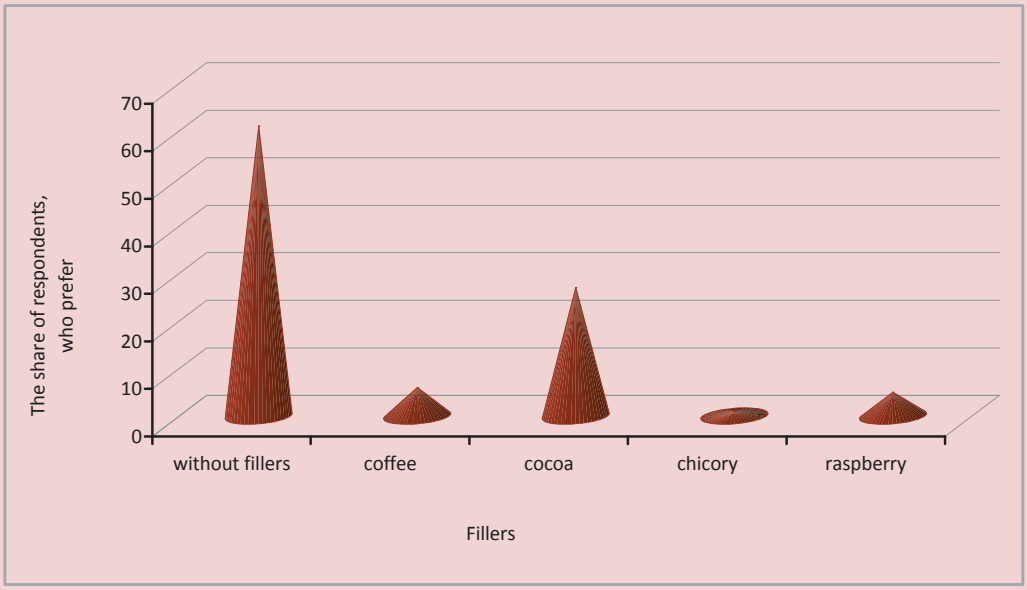


Figure 2. The structure of consumer preferences for fillers



There was the similar correlation of opinions on the addition of vegetable fat: 49% of respondents preferred vegetable fat preference, 51% of respondents preferred milk fat.

The content of preservatives in the products is an important factor in determining their quality. Respondents' attitude towards them is presented in *figure 3*.

Figure 3. The influence of the preservatives in the products on the choice of respondents:
1 – attach importance to the presence of a preservative, 2 – do not attach importance to the presence of preservative, 3 – with indifference

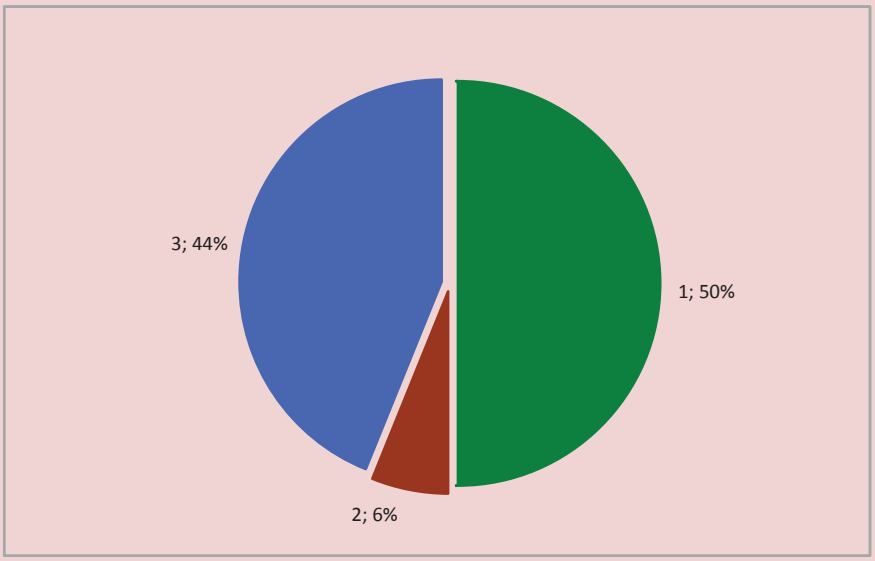
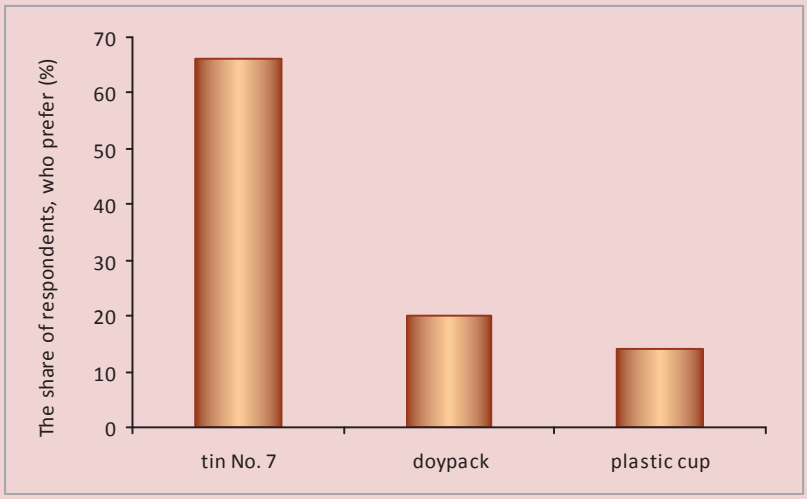


Figure 4. Packaging preferences of the respondents

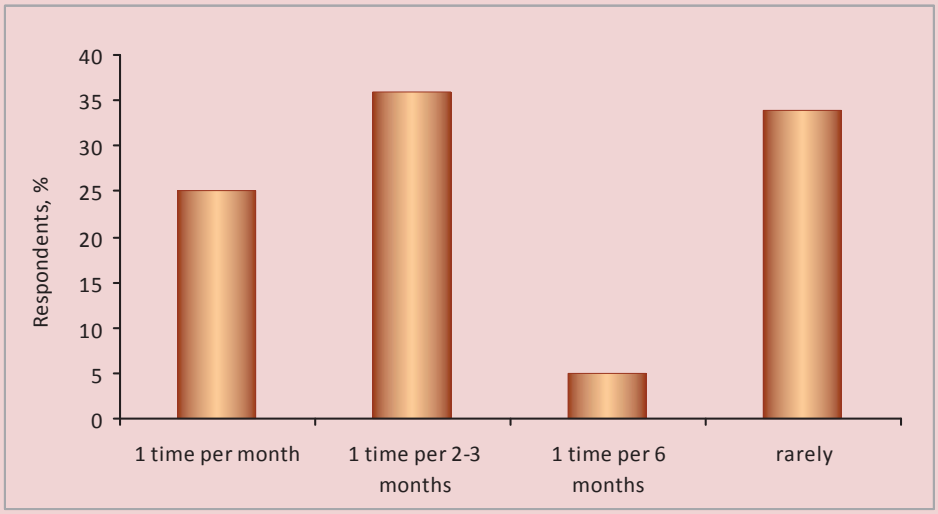


Packing has a great impact on the product competitiveness. The most popular packing includes the usual tin number 7, plastic cups and doypacks. The diagram *(fig. 4)* shows the preferences of the respondents. Reliability is marked as an advantage of a tin, but it is difficult to open it. Doypacks and plastic cups were recognized as the most convenient packaging.

It is very important for the producers to know how often consumers will buy their products, i.e. they want to know the size of demand for their products. The following information about the regularity of condensed sweetened milk consumption was founded during the survey *(fig. 5)*.

The competitiveness of a product depends not only on consumer preferences and taste,

Figure 5. The frequency of product consumption



but also on its price. The results of the survey have shown that the most reasonable price for a package of sweetened condensed milk enriched with vitamins ranged from 41 to 50 rubles.

Most consumers (72%) trust the products of Sukhonsky Dairy Plant; 27% of respondents trust the production of Glavproduct.

Thus, this survey has revealed the preferences of respondents, which allow us to make a conclusion about the characteristics of a competitive product that should be considered when developing new types of sweetened canned milk.

In particular, it is concluded that the milk-containing products of natural origin, which are enriched with vitamins and which have viscous texture, as well as flavour and color corresponding to the filler, would be in demand. The cost of this product should not exceed 41 – 50 rubles.

References

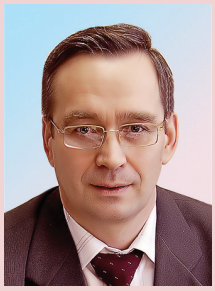
1. Goroshchenko L.G. The trends in the development of dairy production in Russia. Dairy Industry. 2011. No. 4. P. 5-9.
2. Labinov V.V. Dairy market: current status and forecasts. Dairy Industry. – 2009. No. 3. P. 7-9.
3. Labinov V.V. Dairy market: current status and prospects. Dairy Industry. – 2011. No. 3. P. 26-27.
4. Petrov A.N., Galstyan A.G. Production of sweetened condensed milk products. Food Industry. 2008. No. 3. P. 28-29.
5. The finest hour has passed. The Russian market of canned milk and meat. Russian food and drinks. 2008. No 4. P. 88-90.
6. Rybalova, T.I. Major trends in the global dairy market in the period from 2008 to 2017. Dairy Industry. 2008. No. 12. P. 11-13.
7. Smirnov E.R. The 2010 World Dairy Market . Dairy Industry. No. 2. P. 5-6.

UDC 631.145

Intensification and innovation approach toward the dairy livestock breeding in Vologodsky District

Using an example of farms located in Vologodsky District, the article reveals the state of affairs and the ways of modernization concerning dairy cattle husbandry, which is the Vologda Oblast's leading branch of agroindustrial complex. The basis for modernization includes innovations in breeding, fodder production, feeding and milking technologies, loose cow housing, personnel training, optimal work organization at dairy farms and complexes, improvement of the quality of raw milk. All these factors promote the intensive development and competitiveness of the region's agricultural organizations.

Vologodsky District, dairy cattle husbandry, stock breeding, intensification, modernization, raw milk quality, competitiveness.



Valentin A.
BILKOV
Doctor of Agricultural Sciences, Head of Animal Breeding Section of the Vologda Oblast Department of agriculture, food stocks and trade
v.bilkov@vologda-agro.ru

Marina V.
SHAVERINA
Head of Animal Husbandry and Breeding Section of the Department of Socio-Economic Development of the Village of the Vologda municipal district
vologda@vologda-agro.ru

Nataliya A.
MEDVEDEVA
Ph.D. in Economics, Associate Professor, Head of the Department of Statistics and Economic Analysis at the Vologda State Dairy Farming Academy named after N.V. Vereshchagin
medvedevana@molochnoe.ru

At present, Russia's economy is undergoing the transition to an innovation type under the programme documents of federal and regional levels. Modernization of major industries, the necessity of environmental protection and natural resources conservation are highlighted as priority issues in the Concept of Long-Term Socio-Economic Development of Russia up to 2020.

When working out the development scenarios, a target scenario was proposed, which is based on the transition of the Vologda Oblast's agro-industrial complex to innovation development. This option envisages the establishment in the medium term of the powerful research facility in the Oblast, which should become the point of technologies transfer, the source of scientific personnel and ideas. It is expected that the share of agricultural goods produced with the use of resource-saving technologies will reach 35 – 40%, and the share of food products – 70 – 80%. Livestock breeding will also experience a transition to new, resource-saving technologies. Average milk yield per 1 cow in the oblast's agricultural enterprises will exceed 6 thousand kg a year. Retaining the cow population in the agricultural sector at 98 thousand head will provide for the production of 600 thousand tons of milk to 2020. In line with the Food Security Doctrine, the main directions of state economic policy comprise:

- accelerated development of cattle breeding;
- development of scientific potential of the agro-industrial complex, support of new research areas in allied sciences and the implementation of measures preventing brain drain;
- increase in structural and technological modernization rates of agro-industrial and fishery complexes, the reproduction of natural and ecological potential;
- development of the system of training and improving the professional skills of personnel, capable of implementing the tasks of the innovation development model of agricultural and fishery complexes with regard to food security requirements [6].

The Vologda Oblast dairy cattle breeding farms introduce measures significantly increasing their competitiveness on the basis of an innovation approach. The experience of Vologodsky Dictrict is of special scientific and practical interest, as its enterprises produce 28.5% of the total oblast milk volume, the average milk yield in 2011 reached 6397 kg (2.5 times higher than in 1990), gross milk output – 119.5 thousand tons (+ 22% as compared to 1990), the number of cows – 18.7 thousand head (-18% as compared to 1990). Labor costs per 1 centner of milk decreased from 4.69 to 1.98 man-hours (-67.8%) [5].

The leaders in milk yield are: Collective farm Rodina – 8389 kg, agricultural production cooperative (APC) Prisukhonskoye – 7671 kg, agricultural production cooperative horse stud farm (APCHSF) Vologodsky – 7622 kg, APC Peredovoy – 7130 kg, agricultural production cooperative breeding farm (APCBF) Maisky – 7297 kg [1, 4]. Milk production has increased in 17 farms out of 22. The following enterprises account for the highest increase rates: APCBF Prigorodny +775 tons, or 105%; collective farm Rodina – +761 tons, or 105%; APCBF Maisky – +528 tons, or 105%; CJSC Agrofirm Severnaya Ferma – + 470 tons, or 105%; APC Agrofirm Krasnaya Zvezda – +458 tons, or 105%, etc.

The main and interrelated directions of livestock breeding intensification include selection, complete and balanced feeding, scientifically grounded production technology and the optimal organization of labour on farms and complexes [3, 8, 10]. The district farms implement activities aimed at dairy cattle breeding intensification, the main of them include:

- innovations in breeding (use of the most valuable bulls, intensive calf rearing with the use of milk acidification);
- modern technologies of silo and haylage pitting, harvesting of fodder grain crops with high humidity;
- balanced diets, including protein feed;
- technological modernization of the farms;
- improvement of the staff's professional skills.

The high organizational level of breeding work is of paramount importance [8, 10]. In dairy cattle breeding, 8 farms have a status of a breeding farm (APCBF Prigorodny, APC Peredovoy, Collective farm Rodina, APCBF Maisky, APC Agrofirm Krasnaya Zvezda, APCHSF Vologodsky, Federal state unitary enterprise scientific-experimental farm Molochnoye, APC Prisukhonskoye); 7 farms have a status of a breeding reproductor (APCBF Ilyushinsky, APCBF Novlensky, LLC Projector, CJSC Agrofirm Severnaya Ferma, APCBF Teplichny, Fetinino Department, CJSC Nadeyevo, LLC Agricultural enterprise Kurkino).

APCBF Plemptitsa Mozhayskoye and CJSC Vologda Poultry Farm have a status of a breeding farm in poultry breeding, and in horse breeding – APCHSF Vologodsky.

The share of breeding farms in the total volume of milk production equals 57.7%. At the same time, they provide milk-processing enterprises with raw milk of the highest and the first grade only.

The cattle on the breeding farms is of the highest quality. The enterprises that successfully combine animal feeding and housing with efficiently organized breeding work achieve the greatest success.

The influence of breeding farms on the improvement of pedigree and productive qualities of dairy cattle in the Vologda Oblast has increased significantly through the sales of pedigree livestock to agricultural production enterprises and the replacement of low-productive animals.

The district's breeding enterprises sale more than 1500 (about 50% of the total sales of all breeding farms in the Oblast) head of cattle annually.

The provision of pedigree cattle with high genetic potential allows for constant increase in cow productivity and milk production volumes in the region.

Breeding work with a herd of cattle is kept according to the plans of breeding work, developed for each breeding farm, as well as for the district as a whole. Breeding records are kept at a high level with the use of "SELEX" software. All the livestock is valuated. In 2011, 36776 head of breeding stock and heifers was valuated, including 18765 head of cows. Pure bred and fourth generation cattle comprise 99.1% of valuated livestock. The number of high quality cattle is increasing each year. The number of cows and heifers belonging to "elite" and "elite record" classes equaled 95.2% in 2011. The number of cows with record-breaking productivity has increased.

The best cows produce more than 11 thousand kg of milk for 305 days of lactation (*tab. 1*).

Vologodsky District farms had 5385 cows (36%) with milk yield exceeding 7 thousand kg, 326 cows – with milk yield exceeding 10 thousand kg in 2011 (*tab. 2*).

Considerable attention is paid to young stock rearing. [8, 10]. Average daily calf performance in the best district's farms equals 650 – 750 grams. The average live weight of 10-month-old heifers equaled 244 kg, of 12-month-old heifers – 283 kg, of 18-month-old heifers – 388 kg for 2011, which exceeds the standard parameter of the breed. Over the last few years the semen of foreign stud bulls has been widely used. 9718 cows and heifers have been inseminated by the bulls improving the genetics and performance of livestock. The use of immunogenetic expertise is becoming more widespread in the region (it is carried out by the State Scientific Establishment Northwestern Scientific Research Institute of the Dairy and Meadow-Pasture Economy) of the Russian Academy of Agricultural Science) in order to confirm the origin of the breeding stock.

The leading farms have accumulated great experience of breeding work, which is being studied and used in the Vologda Oblast and other regions (*tab. 3*).

Table 1. Record productivity of cows according to their breeds for the last completed lactation

Cow's name and number	Farm	Year	Milk yield for 305 days, kg	Share of protein in milk	
				%	%
Travina 3174	APCBF Maisky	2	12812	4,41	3,5
Silva 20568	CJSC Agrofirm Severnaya Ferma	3	13539	3,99	3,54
Otvaga 5030	Collective farm Rodina	3	11847	3,99	3,33
Izumrudnaya 4320	APC Agrofirm Krasnaya Zvezda	4	10326	5,22	3,29
Stranichka 6200	APC Agrofirm Krasnaya Zvezda	3	9764	4,93	3,05

Table 2. Dynamics of the number of high-producing cows and their share in Vologodsky Dictrict farms for 2006 – 2011

Indicators	2006		2007		2008		2009		2010		2011		Difference (%)
	Head	%	Head	%	Head	%	Head	%	Head	%	Head	%	
Number of cows with milk yield exceeding 6 thsd. kg for 305 days of lactation	6448	40.3	10880	65.8	7827	49	8627	55	8536	58	8723	58.1	+17.8
Number of cows with milk yield exceeding 7 thsd. kg for 305 days of lactation	3387	21.2	4160	25.1	4497	28.2	5213	33	5285	36	5385	36	+14.8
Number of cows with milk yield exceeding 10 thsd. kg for 305 days of lactation	96	0.6	140	0.8	194	1.2	249	1.6	269	1.8	326	2.2	+1.6

Table 3. Dairy efficiency of cows of different breeds in average for 305 days of the last completed lactation (2011)

Breed	Number of cows	Milk yield for 305 days, kg	Fat in milk		Protein in milk		Average live weight of a cow, kg
			%	kg per year	%	kg per year	
Vologodsky District							
Ayrshire	2326	6571	4,27	280,9	3,37	221,4	510
Black motley	12511	6422	3,66	235,7	3,29	211,7	536
Vologda Oblast							
Ayrshire	5360	5148	4,25	219,0	3,31	199,7	471
Black motley	38297	5702	3,73	212,7	3,25	206,1	520

There are 21 agricultural enterprises and 2 of peasants (farmers) households engaged in milk production in the district. Almost all of them supply milk for the Vologda Dairy Plant.

High-quality milk (including VDP, first quality, premium, extra, classic) realized by the district farms in 2011 equaled 94.5%, which exceeds the previous year level by 5%. Fat content of milk for all farms in average amounted to 3.75%, average protein content – 3.24%.

The farms were able to achieve such results due to the high efficiency of dairy cattle breeding, the use of advanced technologies, modern refrigerating systems and well-established control over milk quality, modernization and technical re-equipment of farms and complexes [2, 8, 12].

At present, all the agricultural enterprises of the district are provided with Russian and foreign cooling tanks, their number amounts to 98 units with overall capacity of 436 tons;

130 milk line washers and coolers are in operation. There are 23 fully equipped milk laboratories determining milk quality.

Some farms in Vologodsky District (APCBF Ilyushinsky, APC Agrofirm Krasnaya Zvezda, APCBF Maisky, APC Novlensky, APC Peredovoy) use a luminometer for determining the quality of milking equipment sanitation and quick decision-making in case of emergency. 98% of the milk realized by these agricultural enterprises for 2011 is of high quality.

The all-year stable housing and uniform feeding is used for the cattle stock in 17 farms of the district. 19 farms use 49 domestic and foreign mixing feed distributors.

Free stall cattle housing is being actively implemented. At present, 9 farms in the district have 13 milking parlors. Collective farm Rodina uses the voluntary milking system where 6 robotic milkers operate.

Vologodsky District agricultural enterprises started to modernize and reconstruct their cattle-breeding facilities in 2004 – 2005. CJSC Nadeyevo, Collective farm Rodina, APCBF Ilyushinsky (Gridenskoye Complex), APC Novlensky (Sholokhovo farm), OJSC Zarya were the first to introduce free stall cattle housing and milking parlors. The milking parlors in APCBF Prigorodny (Nepotyagovo Complex), APCBF Ilyushinsky (Vladychnevo Farm), APC CJSC Nefedovo, APC Novlensky (Filutino Farm) put milking parlors into operation in 2006 – 2010. The peasant (farm) enterprise Torosyan opened the cattle-breeding complex with free stall cattle housing and milking parlors in 2010. APC Agrofirm Krasnaya Zvezda launched the first in the North-West of Russia advanced cattle-breeding farm with a linear installation, where the herd management system Del – Pro is used.

The reconstruction of cattle-breeding facilities, operating in the region, was continued in 2011, and the construction of new modern milk production complexes was set up. For instance, APCBF Maisky launched the construction of a new cattle-breeding complex with free stall cattle housing and a 470-head milking parlor. CJSC Agrofirm Severnaya Ferma completed the reconstruction of Makarovo cattle-breeding complex: a 160-head cow shed with free stall cattle housing and a milking parlor has been put into operation. Collective farm Rodina is reconstructing Vasilyevskoye farm for introducing free stall cattle housing and robotic milking. The peasant (farm) enterprise Torosyan is constructing a modern maternity barn and calf-barn. All these activities, undoubtedly, are aimed at increasing production volumes and obtaining high quality milk.

Every agricultural enterprise in Vologodsky District carries out annual studies – re-certification of machine milking operators in the fields of milking technology, cattle housing and feeding. According to re-certification results, animal husbandry workers are assigned classes: 60% out of 578 machine milking operators have the title of "Master of livestock breeding" (of the first and second class). Annually, more than 300 people study in the Vologda agricultural technical college to obtain such specialties as machine milking operator, laboratory technician determining milk quality, mechanic for milking equipment maintenance within the framework of the target program "Staffing of the Vologda Oblast agro-industrial complex for 2009 – 2011" [2, 4, 9].

The Department of socio-economic development of Vologodsky Dictrict villages annually organizes the district competition of machine milking operators and in cooperation with the Vologda Dairy Plant (VDP) – the review-contest of milk quality and training seminar for agricultural specialists on improving raw milk quality. In 2011, the district initiated the contest for the best laboratory technician controlling raw milk quality. Such contest took place for the first time in October 2011 on the premises of the Vologda Dairy Plant.

The programme on the modernization of dairy cattle breeding is being implemented in Vologodsky District, its main goal is the increase of production and improvement of raw milk quality. The activities planned to be implemented in 2012 – 2015 include:

- construction of milking parlors in APC Peredovoy, LLC Prozhektor, APCHSF Vologodsky, APC Prisukhonskoye, CJSC Agrofirm Severnaya Ferma, CJSC Nadeyevo;
- introduction of five robotic milkers in the Collective farm Rodina;
- purchasing of 4 mixing feed distributors;
- purchasing of ice generators: for APCBF Maisky, APCBF Ilyushinsky, APCHSF Vologodsky;
- purchasing of 3 milk cooling tanks for CJSC Nadeyevo in 2012;
- equipping of laboratories for determining milk quality at OJSC Zarya, Vologda Oblast State Agricultural Enterprise (VOSAE) Osanovo, LLC Agricultural enterprise Kurkino;
- purchasing of instruments: somatos, lactometer, clover, luminometer, etc.;
- introduction of advanced experience: organization of seminars for improving milk quality, visiting advanced farms and studying the experience of high quality milk production.

The high quality of milk at the Vologda Oblast farms is the result of the complex work of scientists and experts, including the increase of the dairy cattle productivity, improvement of animal housing and feeding, equipping of dairy farms with modern milking facilities, product quality control.

Scientists of the Vologda State Dairy Farming Academy named after N.V. Vereshchagin, All-Russia Research Institute of Animal Husbandry in cooperation with the specialists of the Department of Agriculture, the main farms and dairy plants of the Vologda Oblast held in the period from 1990 to 2011 comprehensive studies on evaluating the quality and safety of raw milk produced in the region [2, 12].

Here are some of the research results based on the data of the Vologda Dairy Plant for 1999 – 2011 on all deliveries of milk out of sixteen basic farms.

The Vologda Dairy Plant is equipped with the most advanced technological and laboratory equipment. Production laboratory of the plant is a modern mobile mechanism, equipped with advanced instruments and means of operative control over the quality of raw milk and finished dairy products. This includes 7 express-control analyzers by the world-famous Danish company FOSS electric. In August 2011, another instrument produced by this company – Kjeltec – was introduced for the control of weight ratio of protein.

Analysis of this information enables us to draw a conclusion, that milk supplied by all farms is of the highest quality, and has high protein and fat content: 3.157 and 3.694% respectively in 2010; 3.216 and 3.716% in 2011.

Additionally, the dynamics of the quality of milk realized by these farms in 1999 – 2011 was studied.

Weight ratio of protein in milk for all the households increased in average from 3.106% in 1999 to 3.157% in 2010 and 3.216% in 2011; fat – from 3.649 to 3.694% and 3.716%, respectively.

In the same period, a clear tendency of increasing the quality of milk can be seen. So, the milk of the grade "extra" amounted to only 1.26% in 1999; the milk of 2 premium quality grades – VDP and "extra" – amounted to 22.65% in 2002, including VDP – 6.75%; and in 2011 – 86.2%, including VDP – 36.2%.

The given data demonstrate the target-oriented and efficient work of experts and heads of farms aimed at improving the quality of milk in accordance with strict present-day requirements. The effect and value of this work are especially noticeable on the background of significant milk yield increase during this period.

In the course of research on milk safety, scientists and practitioners have developed and are implementing measures aimed at improving its quality. In particular, permanent monitoring of the quality of milk sold to all the dairy plants of the region is carried out on a set of standardized indicators, including analyses of the content of contaminants. Measures, promoting the improvement of milk quality, included: preparing and distributing to all the farms of information on milk quality, its analysis and recommendations for elimination of deficiencies; training of more than 250 employees of dairy farms at the advanced training courses including the studies of new standards on milk and Technical regulations, training and certification of experts on the organoleptic estimation of milk, technological modernization of the more than 100 dairy farms, which are now equipped with new modern milking facilities; modernization of 125 milking machines with milk delivery lines; installation of more than 200 units of new refrigeration equipment on dairy farms; establishment of 125 dairy laboratories on the farms; organizing farm, district and regional competitions of milking machine operators, and for the last seven years – the district and regional contests of quality of raw milk "Best milk".

Monitoring of veterinary and sanitary conditions of dairy farms, research on the presence of antibiotics and inhibitory substances are carried out; conformance of the quality and safety of raw milk with the requirements of technical regulations was organized. In the majority of farms, programmes of production control are developed and approved by the Heads, control over the observance of production technology, milk storage and transportation is systematically carried out.

As a result of these activities, the share of the first-grade product has increased from 73.8 to 88%, the share of off-grade milk has decreased from 2.5% to 0.3% over the period from 1990 to 2002. Since 1998, with the introduction of GOST 13264-88 and more strict requirements for labeling milk as being of the "highest grade", the quality of milk began to improve more rapidly. Over 2003 – 2007, the share of the highest grade milk (highest, euro, extra) has increased from 46.1 to 77.1%, in 2008 – up to 83%, and the share of off-grade milk decreased from 0.8 to 0.4%. For the year 2011, farms have sold 95.3% of raw milk of the highest and the first grade (for 2010 – 94.6%), including the premium quality milk – 50.5% (in 2010 – 24.6%).

In May 2011, the all-Russian contest of quality of butter-making and cheese-making products was held within the framework of the annual International week of butter- and cheese-making, which took place in the city of Uglich, the Yaroslavl oblast. The Vologda Oblast was represented by 12 milk processing enterprises. Most of the prizes were awarded to the products of Vologda enterprises (out of 25 samples of oil, 20 were awarded gold and silver medals). The jury pointed out the high quality of butter and cheese, made by Vologda specialists, and the Oblast received appraisal as one of the few Russian regions where natural products are produced in accordance with the traditional technologies.

However, the production volumes stated above, despite their exceptional importance from the point of view of meeting the needs of society in certain types of products, do not provide an answer to the question concerning the economic efficiency of production *(tab. 4)*.

The analyzed period shows a tendency of increase in the gross and commodity production volumes. Reduction of return on assets is connected with the updating of the basic production assets. The analysis of financial situation showed that the current liquidity ratio and asset/equity ratio exceed normative values, therefore, the enterprises are solvent *(tab. 5)*.

Quick assets ratio and asset coverage are below the normative ones, which indicates the insufficiency of highly liquid current assets of the enterprises and low supply of own working capital.

Table 4. Main indicators of economic activity at Vologodsky District enterprises

Indicators	2008	2009	2010	2011	2011 in % to 2008
Gross production of agricultural enterprises in comparable prices of 1994, thousand rub.	2659.7	2706.2	3050.5	3130.1	110
Goods in selling prices, thousand rub.	128139.5	142063.3	173186.2	197371	154.0
Average annual cost of BPA, thousand rub.	164838.1	150342.0	155128.8	176810.2	107.2
including in 2011 estimates	114205.6	145681.4	145128.8	176810.2	154.8
Basic production assets in agriculture, thousand rub.	142377.9	117194.6	148658.4	166114.1	116.7
including in 2010 estimates	98644.4	113561.6	128658.4	166114.1	168.4
Labor productivity, rub./pers.	20.8	21.4	22.1	24.6	118.2
Capital-labor ratio, thousand. rub./pers..	0.72	0.73	0.78	0.99	137.5
Capital-labor ratio per 100 ha of agricultural land, thousand rub.	1.50	1.71	1.94	2.1	140
Yield of capital investments, rub. per 100 rub.	2.9	2.3	2.4	2.5	86.2
Profitability (loss ratio), %:					
General, including	11.9	7.5	7.3	5.1	×
milk	30.5	21.2	19.0	19.0	×
cattle meat	-23.0	-28.0	-29.0	-27.0	×

Table 5. Main indicators of financial condition of enterprises of Vologodsky District

Indicators	Standard	Year		
		2009	2010	2011
Ratios:				
– current liquidity ratio(coverage)	≥ 1.5 – 2.0	2.92	4.13	3.10
– quick assets ratio	0.7 – 0.8	0.38	0.47	0.53
– asset coverage	≥ 0.1	-0.01	-0.01	-0.13
– asset/equity ratio (financial leverage)	0.5-1.0	0.49	0.61	0.53

Table 6. Evaluation of financial stability of Vologodsky District enterprises

Indicators	Standard	Year		
		2009	2010	2011
Ratios:				
– equity ratio	≥ 0.5	0.49	0.61	0.53
– leverage ratio	≥ 0.5	1.57	1.64	1.89
– current assets to equity ratio	0.2 – 0.5	-0.21	-0.19	-0.67
– debt to equity ratio	≥ 1	1.17	1.25	2.35

In general, one can point out a relative financial stability of Vologodsky District enterprises, as well as their wide-scale attraction of borrowed funds for maintaining their sustainable activity *(tab. 6)*.

According to forecast estimates, the volume of agricultural production in 2020 will exceed the 2009 level by almost 40%. To achieve the set tasks, it is necessary to develop the following directions of the Oblast's agro-industrial complex:

1. The raise of products' competitiveness on the basis of financial stability and modernization of production facilities, the accelerated development of priority sub-sectors and production facilities, quality improvement.

2. The increase of competitiveness of agricultural products in the Oblast consists in reducing their production costs and establishing the prices depending on the products' quality and consumer demand.

For implementing these activities, it is planned to set conditions for attracting investments into production facilities modernization, the rapid development of priority sub-sectors and state support of these activities.

Thus, the development of the Vologda Oblast's agroindustrial complex according to the target scenario will allow to avoid market and administrative risks, to receive significant positive social, economic and environmental benefits in future.

References

1. Agro-industrial complex and consumer market of the Vologda Oblast in figures. Department of agriculture, food stocks and trade of the Vologda Oblast. Vologda, 2012.
2. Bilkov V.A. Role and achievements of the Vologda Oblast scientists and experts in the development of dairy cattle breeding. In: Modern aspects of dairy business in Russia: collection of reports of III Dairy forum and scientific and practical conference dedicated to the 170th anniversary of the birth of Nikolay V. Vereshchagin (1837 – 1907). Vologda. Molochnoye: VSDFA, 2010. P. 19-22.
3. Bilkov V.A. Innovations in the agricultural complex of the Vologda Oblast. In: Development of innovation activity in the agro-industrial complex: materials of the International scientific-practical conference. Moscow: FSSI "Rosinformagrotekh", 2003. P. 77-79.
4. Bilkov V.A., Kiselev V.A., Legoshin G.P. Economic efficiency of milk production in the Vologda Oblast. Milk and meat cattle breeding. 2008. No. 5. P. 5-7.
5. Bilkov V.A., Medvedeva N.A. Sustainable production of milk as a factor of food security of the region. Agro-industrial complex: economy, management. 2012. No. 3. P. 69-72.
6. Russian Federation Food Security Doctrine: approved by the Decree of the President of the Russian Federation No. 120 dated 30 January 2010.
7. On the strategy of the development of the Vologda Oblast agro-industrial complex and consumer market for the period up to 2020: Decree of the Vologda Oblast Government No. 591 dated 30 May 2011.
8. Bilkov V.A., Legoshin G.P. Main directions of technological progress in dairy farming: recommendations. Vologda: LLC PF "Polygrafist", 2007.
9. Bilkov V.A., Shishigina A.A. Livestock breeding as the leading link of the intensification of dairy cattle breeding: recommendations. Vologda: LLC PF "Polygrafist", 2007.
10. Prokhorenko P.N. Impact of the gene pool of the Holstein breed on the improvement of the genetic potential of the productivity of black-motley cattle in Russia. Acute problems of genetics, breeding and reproduction of farm animals: collection of scientific works VNIIGRZH. Saint-Petersburg, 2011. P. 8-13.
11. Improvement of black-motley and ayrshire dairy cattle in the Vologda Oblast: academic edition. Moscow: FSSI "Rosinformagrotekh", 2011.
12. Management of the quality of raw milk: practical recommendations. Ed. by L.A. Builova. Vologda. Molochnoye: VSDFA, 2011.

UDC 338.463. 33: 330.34 (470. 1-17)

Problems of agri-food sector in the Pechoran Arctic region *

The article shows the significance of providing people with fresh products in the development of mineral resources base in the Arctic subregion of the European North-East. The article describes the environmental conditions of the region, analyses the labor and agricultural resources. It reveals the forms of business ownership and their place in the production of certain types of goods. The article shows the influence of 1990 – 2000 transformation processes on agricultural production dynamics and the state of the industry's production capabilities. Analytical data allowed to reveal present-day social and economic problems of the agrarian sector that are connected with macroeconomic and inter-sectoral deformation.

Agri-food sector, Pechoran Arctic region, environmental conditions, specialization, resource potential, agrarian reforms, socio-economic problems.

Valentin A.
IVANOV
Doctor of Economics, Professor, Chief Scientific Associate at the Institute of Socio-Economic and Energy Problems of the North Komi Science Centre, the Ural Branch of RAS
ivanov@ iespn.komisc.ru

Vitaliy V.
TERENTYEV
Ph.D. in Economics, Leading Scientific Associate at the Institute of Socio-Economic and Energy Problems of the North Komi Science Centre, the Ural Branch of RAS

The Arctic sub-region of Russia's European North-East (Pechoran Arctic region) comprises the following municipalities: the towns of Vorkuta, Inta, Usinsk, the Izhemsky and Ust-Tsilemsky rural districts of the Komi Republic, and the Nenets Autonomous Okrug (NAO). We included these municipal entities into the Pechoran Arktic region on the basis of their soil, climatic and economic conditions of agricultural production. This region is rich in mineral, fuel and energy resources. It contains significant reserves of coal, oil, gas, chrome, manganese, diamonds, vermiculite, nickel, copper and other rare metals.

* The article has been prepared in the framework of RAS Ural branch research projects No. 12-U-7-1013 "Opportunities for the preservation and sustainable development of the agri-food sector in the sub-arctic regions of the European North-East" and No. 12-7-8-006-Arctic "Pechoran-Ural Arctic. Role in the economy of the Republic of Komi, problems and directions of development".

The development level of sub-arctic regions' industry allows to allocate a considerable part of financial resources to the development of agri-food sector and rural areas.

Enhancing the role of arctic regions and adjacent territories in the country's socio-economic development depends on the participation of the indigenous peoples of the North, whose lifestyle, traditions and culture are based on traditional activities: hunting, reindeer breeding, sea hunting, fishing. The native minorities of the North are mainly employed in agriculture, hunting and fishing. The share of their employment in these activities equals 79 – 90% in some of the rural municipalities in the Nenets Autonomous Okrug [1, p. 7].

An important factor determining the mineral and raw-materials capacity development is the provision of the sub-arctic population with fresh wholesome foodstuffs: milk, meat, eggs, fish, potatoes and vegetables. The livestock products produced in the North contain more polyunsaturated fatty acids, essential for the prevention of cardiovascular diseases, than those produced in the Southern and Central regions of Russia. In addition, fresh and chilled meat preserves more vitamins than frozen meat.

The sub-arctic zone agriculture provides the population with fresh wholesome foodstuffs and promotes the development of food industry, ensures employment, prevents monopolization of the local food markets by individual suppliers, keeps down the prices for food products, imported from outside the region, preserves the traditional lifestyle of rural population, contributes to preservation of the indigenous peoples' spirituality, culture, traditions, improves the demographic situation, people's settlement pattern, promotes the preservation of environment and natural landscape. Agriculture also satisfies the recreational needs of population (tourism in the traditional industries).

The history of the Pechoran Arctic agriculture is deeply rooted. It developed along with the development of the territory and was aimed at providing the population with wholesome foods not subject to long-range transportation. The practical guidelines for the provision of the Pechora Coal Basin population with foodstuffs, reindeer breeding development, fodder production by meadow formation in tundra in the North-East of the Republic of Komi are described in the works [2, 3, 4].

The main agricultural branches include meat and dairy cattle breeding, poultry farming on a commercial basis, fodder production. Potatoes and vegetables production is concentrated in the population's farms and households.

Conditions and resource potential of agriculture

Agricultural climatic conditions in the Pechora Arctic region, such as short, cool summers, long, severe winters, do not promote the wide-scale arable farming. Permafrost covers most of the Nenets Autonomous Okrug territory, and only in the river valleys, especially in the lower reaches of the Pechora River and its estuary it is present in small patches. Soil on the vast territory of tundra thaws in the range of 30 – 40 cm. The mean annual temperature in the Kanin Peninsula is 1.3° C, in the town of Naryan-Mar – 3.3° C, in the urban-type settlement of Amderma – 4.1° C. Winter lasts 7 months, summer – 3 months, spring and autumn – 1.5 – 2 months. Vegetational season is 60 – 100 days with the accumulated temperatures of 800° C in the north and 1200° C in the south. The frost-free season is short. The frosts occurring in late spring and early autumn, sometimes in July and August, are damaging for crops [5, p. 9-10, 17-18].

The mean annual temperature in the sub-arctic zone of the Komi Republic is 3.2° C, average annual precipitation is 420 – 460 mm. The frost-free season lasts 70 – 80 days, the period of stable snow cover is 190 – 200 days.

The period with average daily temperature above 10° C (active vegetation period for the majority of cultivated plants) lasts only 64 – 76 days at the accumulated positive temperatures of 800 – 1000° C [6, p. 33].

Thus, the environmental conditions, and first of all, climate, soil quality and short vegetation period impede the efficient development of agricultural production. The conditions for arable farming are particularly unfavorable in the Nenets Autonomous Okrug and the municipalities: the town of Vorkuta and the town of Inta with prevailing tundra soils and extremely limited heat resources. The majority of the territory is permafrost. However, it should be noted that the conditions in the Pechora River basin are favourable for the development of cattle breeding (a sufficient amount of precipitations provides a relatively high efficiency of fertilizers; an almost continuous light stimulates the rapid growth of plants; large areas of floodplain meadows). The estimated forage yield from floodplain meadows of the sub-arctic zone in the Republic of Komi exceeds 17 thousand tons of fodder units.

Labour resources. According to the all-Russian agricultural census data as of 1 July 2006, in the Nenets Autonomous Okrug the share of people employed in large and medium-sized agricultural organizations reached 92%, in small enterprises – 4%, in farming enterprises – 1% and in individual enterprises – 3%. The share of the average annual number of employees of large and medium-sized agricultural enterprises of the okrug, engaged in fishing, was 0.9%, in the processing of products of traditional and other sectors – 28.7%. All the employees of small agricultural enterprises were engaged in processing of agricultural and fishing products [7].

Only 1.8 thousand people were employed in the agricultural sector of the sub-arctic zone in Republic of Komi in 2011, whereas in 1989 this figure exceeded 8 thousand people. The share of municipal unitary enterprises for agricultural products processing accounted for 12.4% of the total number of people employed in the agrarian sector, 46.9% – limited liability companies, 19.2% – co-operatives, 10.2% – peasant (farmer) enterprises, 11.3% – joint-stock companies.

At present, the agricultural sector of the zone lacks specialists – zootechnicians, veterinarians, engineers, accountants, middle managers. It experiences personnel turnover, low education level of managers and specialists.

For example, in 2011 the share of heads of the enterprises in the food sector with the length of employment under 3 years was 26.9%, and with that of 10 years and more – only 3.8%; over 2/3 of the senior management staff didn't have core education. Among all the managers and specialists, every fourth had no higher or secondary professional education, among the specialists (other than senior ones) – 29.8%, among middle managers – 37.3% *(tab. 1)*. At the same time, only 2% of managers and specialists improved their qualification in the system of continuing professional education.

Agricultural organizations in the sub-arctic regions experience the shortage of qualified personnel – farm machinery operators, machine milking operators, reindeer herders. It is conditioned mainly by the discontent with the remuneration of labour. The level of nominal gross payroll for agricultural workers in 2011 was 2 times lower than the average one in the republic's economy.

For instance, in the Izhemsky and Ust-Tsilemsky districts the average monthly wages of agricultural workers were only 34% of the average wages in these rural areas, 48% of the average wages in the republic's agriculture, 78% of the subsistence level. The average monthly salaries and wages in the republic's agriculture were 15.0 thousand rubles, in agricultural organizations of the sub-arctic regions – 14.6 thousand rubles and in the republic's economy – 28.8 thousand rubles.

Table 1. Education level of managers and specialists in agricultural organizations of sub-arctic zone in the Republic of Komi in 2011, %

Managers and specialists	Education		
	Higher	Specialized secondary	Without higher or secondary vocational
Managers and specialists	32.7	42.7	24.6
Heads of organizations	52.0	32.0	16.0
Chief specialists, among them:	50.9	41.5	7.6
agronomists	100.0	-	-
zootechnicians	42.8	57.2	-
veterinarians	25.0	75.0	-
engineers	50.0	33.3	16.7
economists	100.0	-	-
accountants	33.3	57.1	9.6
Specialists, excluding chief	24.4	45.8	29.8
Middle managers	19.4	43.3	37.3

It should be noted that the unemployment level in rural areas is rather high. In 2010, the number of registered unemployed was about 500 people in Izhemsky District, it exceeded 300 people in Ust-Tsilemsky District. There are also many unemployed who don't care to register themselves. All this indicates the potential for creating new jobs in the agricultural sector.

Land resources. The zone occupies the area of 32.7 million ha, including 18.5 million ha of reindeer pastures, 55% of which are located in the Nenets Autonomous Okrug, 45% – in the Republic of Komi. Only a small part of land resources is used for agricultural purposes – 0.4%, and the share of arable land is only 0.04% of the land area. A higher proportion of developed cropland is characteristic of Izhemsky (1.5%) and Ust-Tsilemsky (1.0%) districts. These territories account for only 0.3 ha of agricultural land and 0.03 ha of arable land per one resident.

The agricultural lands consist mostly of forage grasslands – hayfields and pastures *(fig. 1)*. So, there are 9.2 ha of meadows per one ha of arable land in the sub-arctic zone, 113 ha – in the Nenets Autonomous Okrug, 7.5 ha – in the Republic of Komi.

The analysis of agricultural resources showed that in the sub-arctic areas, in comparison with the Arkhangelsk Oblast and the Republic of Komi, the availability of biological resources is lower, except for the deer population per capita *(tab. 2)*.

Organizational and legal structure of agriculture

43 collective organizations, 22.9 thousand private households and 111 peasant (farmer) households are engaged in the production of agricultural products in the sub-arctic area. Forms of business ownership for the region in general, the sub-arctic areas of the Republic of Komi and the Nenets Autonomous Okrug are presented in *table 3*.

As the above data shows, in the sub-arctic area of the European North among the agricultural organizations, agricultural production cooperatives accounted for 60.5%, limited liability companies – 30.3%, joint-stock companies – 4.6% and state unitary enterprises – 4.6%.

Agricultural organizations had the leading part in egg production (Inta Poultry Farm) and meat production, and private households – in the production of potatoes and vegetables. The share of agricultural organizations in the total volume of milk production was 47%, the share of private households – 46%; the role of peasant (farmer) households in the production of agricultural products was minor. They accounted for 7% of milk, 4% of meat; 0.4% of eggs; 1.4% of potatoes and 0.2% of vegetables *(fig. 2)*.

Figure 1. Structure of agricultural lands in the sub-arctic area of the European North-East, %

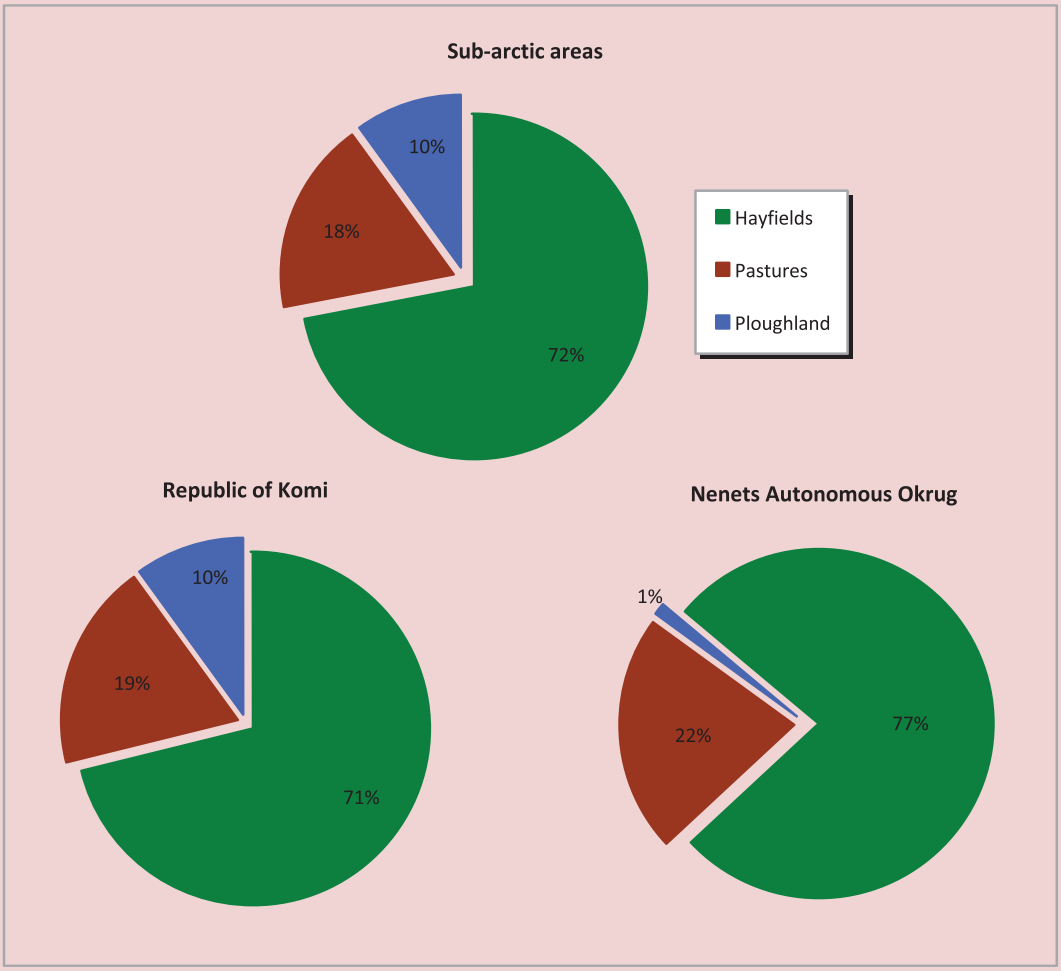


Table 2. The availability of agricultural resources (per 100 pers.) in 2010

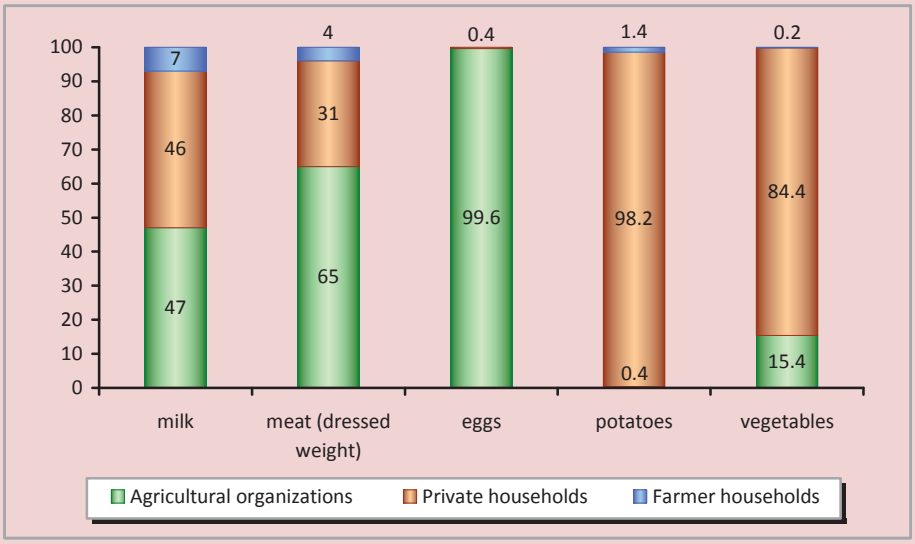
Municipal entity, region	Agricultural land, ha	Including ploughland	Cattle	Including cows	Deer, head	Swine, head	Sheep and goats, head
Vorkuta	3.8	2.1	0.02	0.02	6.7	0.2	0.003
Inta	30.9	3.1	2.1	1.0	88.8	0.17	0.6
Usinsk	26.7	2.9	4.1	1.5	58.3	0.1	0.7
Izhemsky District	139.2	15.7	15.5	10.2	40.6	0.3	4.1
Ust-Tsilemsky District	341.8	10.8	25.0	11.8	6.4	0.09	11.5
Sub-arctic regions of the Republic of Komi	28.2	3.3	2.4	1.2	22.9	0.3	0.8
Nenets Autonomous Okrug	53.6	0.5	4.0	1.6	404.9	0.0	0.2
Sub-arctic area of the European North-East	30.9	3.0	2.6	1.3	62.9	0.3	0.7
Arkhangelsk Oblast	37.6	18.1	4.6	2.1	0.2	2.0	1.5
Republic of Komi	33.3	11.4	4.3	2.0	9.3	2.8	2.0

Calculated: 1. Agriculture in the Republic of Komi. 2011: stat. digest. Komistat. Syktyvkar, 2011.
2. Regions of Russia. Socio-economic indicators. 2011: stat. digest. Rosstat. Moscow, 2011.
3. Agroindustrial complex of Russia in 2010. Moscow: Ministry of Agriculture, 2011.

Table 3. Forms of business ownership in the sub-arctic area in 2010

Municipal entity, region	State unitary enterprises	Agricultural production cooperatives	Joint-stock companies	Limited liability companies	Peasant (farmer) households	Private households, thsd.
Vorkuta	-	1	-	1	1	0.4
Inta	-	-	2	1	6	11
Usinsk	-	-	-	2	11	2.6
Izhemsky District	-	2	-	2	24	7.2
Ust-Tsilemsky District	-	2	-	7	35	6.2
Republic of Komi	-	5	2	13	77	17.5
Nenets Autonomous Okrug	2	21	-	-	34	5.4
Sub-arctic area	2	26	2	13	111	22.9

Figure 2. Share of different types of households of the sub-arctic area in the production of products in 2010



During the transition period, the region should develop large collective farms, with the simultaneous restructuring of production relations, as well as private households and peasant (farmer's) way of life. Small-scale commodity sector should be viewed not as an alternative to large-scale production, but as an addition, providing for the full disclosure of agricultural potential. Vorkuta and Inta, which experience an acute shortage of dairy products and lack their own fodder base, should have state-owned enterprises. Limited liability companies, agricultural production cooperatives and private subsidiary plots of the population will prevail in rural areas.

Influence of market reforms on the situation in the agrarian sector

The highest indicators in agriculture were achieved in the late 1980s – early 1990s. In 1990, the average annual milk production was 79.3 thousand tons, meat production (in live weight) – 19.3 thousand tons, eggs production – 132.2 million pieces; potato production – 12.0 thousand tons, vegetables production – 2.1 thousand tons. Almost all farms were profitable and all the kinds of products found a market. 176 kg of milk and dairy products, 25 kg of meat, 29 pieces of eggs, 27 kg of potatoes and 5 kg of vegetables were produced per capita of population.

In the total production output in 1990, agricultural enterprises accounted for 87% of meat, 86% of milk, 100% of eggs, 13% of potatoes and 97% of vegetables.

The transition to market economy had a negative impact on the agrarian sector, especially on the livestock breeding in the sub-arctic area. In 1990 – 2010, milk production in all categories of farms decreased 4.5-fold; meat production – 3.1-fold; eggs production – 2.4-fold; potatoes production – 1.4-fold; vegetables production – 1.3-fold. Changes in the volumes of animal husbandry production output are shown in *figure 3*.

The period under consideration shows a sustained reduction of livestock production per capita. Given the significant reduction in the number of population, milk production per one resident of the area decreased from 176 to 68 kg, meat production (in live weight) – from 43 to 24 kg, eggs production – from 29 to 22 pieces.

Reduction in the agricultural products production led to a steady decline in the provision of population with food resources, especially livestock products. Basic food resources of this area are imported from other regions of the country and from abroad.

In the years of reforms there has been a reduction of cultivated areas and livestock population. In 1990 – 2010, the areas under crops decreased from 13.4 to 2.0 thousand ha; cattle population decreased from 59.4 to 10.6 thousand head, including cows – from 25.2 to 5.3 thousand head; pigs – from 14.5 to 1 thousand head; sheep and goats – from 11.7 to 2.9 thousand head; deer – from 309.9 to 256.7 thousand head.

Fixed capital investment in agriculture decreased significantly. The basic funds of industry are worn out by more than half. It is in the state of organizational, technical and technological backwardness. Tractor fleet decreased 6.9-fold, energy facilities – 6-fold.

In 1998 – 2011, in the sub-arctic regions of the Republic of Komi, the number of tractors has decreased 4.5-fold, pickup balers – 2.5-fold, milking machines – 7.8-fold. In 2011, the power capacities accounted for only 48.7 thousand h. p.

When power capacities reduce significantly, machinery and equipment at the agricultural enterprises and households experience drastic deterioration. The All-Russian agricultural census data show that in the large and medium-sized agricultural organizations of the Nenets Autonomous Okrug there are only 2% of tractors aged less than 3 years old, the share of tractors aged 9 years and older is 80%.

Figure 3. Dynamics of animal husbandry production in all categories of farms in 1990 – 2010 (1990 = 100)

For small enterprises and private households these indicators were 0.54% and 0.40% respectively.

Application of organic and mineral fertilizers for 1990 – 2010 decreased considerably: if in 1990 the amount of applied organic fertilizers was 159 thousand tons, then in 2010 – only 3.7 thousand tons, mineral fertilizers –16 030 and 69 centners respectively. This leads to the fact that the removal of nutrients from the soil exceeds their input with fertilizers.

During the years of agrarian reforms, the subsidiary husbandries of industrial enterprises were virtually eliminated. For instance, in the town of Vorkuta in 1990 there were 7 agricultural enterprises and over 20 subsidiary husbandries. They contained 9.5 thousand head of cattle, including 4.8 thousand cows; more than 7 thousand head of pigs. 17.5 thousand tons of milk and 3.0 thousand tons of meat in live weight were produced. 1758 centners of milk and 298 centners of meat in live weight were produced per 100 ha of agricultural land. 13.6 kg of meat in live weight, 80 kg of milk and 6.4 kg of vegetables grown indoors were produced per capita of population of the municipal entity. By 2011 only two agricultural enterprises have remained. Cattle population decreased to 61 head, including cows – to 54 head; pigs – to 479 head. In 2010, only 16 centners of milk and 44 centners of meat in live weight were produced per 100 ha of farmland.

In agricultural organizations of the area the principle of self-repayment and self-financing is violated. In 2011, in the sub-arctic regions of the Komi Republic the share of unprofitable organizations increased from 30% to 42%. Profitability level is 23 times lower than the one necessary for implementing the expanded reproduction.

The profitability of cattle-breeding remains extremely low *(tab. 4)*. Beef production is unprofitable in the majority of agricultural organizations. Half of agricultural enterprises are in a critical condition.

Present-day socio-economic problems of agrarian sector development

The village is undergoing a systemic crisis, caused by historical events, as well as market reforms. The drastic market reforms in the Northern areas were accompanied by the decline in agricultural production, deterioration of the production potential as well as the peasant community. The impact of market reforms on the state of agrarian sector in the Northern area is shown in the publications [8, p. 41-51; 9, p. 45-59].

The rural areas of the sub-arctic zone in the European North-East have the following socio-economic problems:

1. Decrease in population number due to migration and natural decline: in 1990 – 2011, the number of rural population decreased by one third.

2. Low incomes of the rural population, significant wage gap between agricultural workers and those in other industries.

The average per capita incomes of the rural population in the sub-arctic area of the Republic of Komi in 2010 were 2.5 times lower than those in the towns and 2 times lower that in the republic in general.

In 2011, the average monthly wages of those employed in agriculture in the sub-arctic area equaled only 14.6 thousand rubles, or slightly more than half of the average wage in the republic's economy, the wages of tractor drivers equaled 10.4 thousand rubles, milking machine operators – 9.8 thousand rubles, reindeer breeders – 13.3 thousand rubles, poultry-raisers – 17.5 thousand rubles. In Izhemsky and Ust-Tsilemsky districts the average monthly wages of agricultural workers amounted to only 7.1 – 7.2 thousand rubles, while the subsistence level of the able-bodied population is 8.3 thousand rubles and the average wage in the republic's agriculture is 16.4 thousand rubles. The average amount of pensions is below the average republican indicators. Poverty is destroying the labour and genetic potential of the village.

Table 4. Profit and profitability of production in agricultural organizations of the sub-arctic area in the Republic of Komi in 2011

Region, town, organization	Net profit, loss (-), thsd. rub.	Level of profitability, loss (-), %					
		Excluding subsidies			Including subsidies		
		all activities	milk	beef	all activities	milk	beef
Izhemsky District							
Agricultural Production Co-operative (APC) Agro-Centre	2413	-24.0	-13.5	-50.3	18.8	37.3	49.5
APC Borovaya	-1096	-36.5	…	…	-14.7	…	…
LLC Zarechye	4285	-19.3	…	…	57.9	…	…
APC Collective Farm Mokhcha	3941	-8.7	-8.2	-11.1	88.0	…	…
Ust-Tsilemsky District							
APC Zarya-1	3422	-10.2	…	…	23.8	…	…
LLC Rochevo	1422	-31.0	-49.2	-16.2	19.3	8.1	…
APC Mayak	68	-40.0	28.6	-20.9	1.9	85.7	…
LLC Rybak Pechory	5056	-16.7	-	-	107.5		
LLC Filipovo	196	-33.2	-47.1	-11.8	5.1	12.5	…
LLC Trusovo	1255	-27.2	-53.9	6.6	17.1	-4.8	8.4
LLC Zvezda	1007	-23.7	…	…	15.4	…	…
Usinsky District							
LLC Severnaya	-154	-29.9	-59.0	…	-0.1	…	…
LLC Kolva	-1226	-39.9	41.2	-65.3	-5.9	65.2	…
town of Vorkuta							
APC Olenevod	10743	11.1	-	-	23.3		
LLC Sovkhoz Gorodskoy	-423	-29.0	…	…	-5.0	…	…
town of Inta							
LLC Agrocomplex Inta Pripolyarnaya	-3089	19.2	…	…	-1.4	…	…
State Unitary Enterprise (SUE) RK Petrunskoye	1571	-9.5	…	…	10.7	…	…
SUE RK Abez	1176	-24.3	-24.3	…	22.3	…	…

3. High unemployment rate and weak social security of rural population. So, in Izhemsky and Ust-Tsilemsky Districts for the end of 2010 the number of people registered in the state employment agencies was 0.8 thousand, with the 4 months duration of a job search by the unemployed. The number of the unemployed per one vacant position was 12 people.

4. Shortage of qualified personnel, low level of professional training of managers and specialists, low level of management in organizations. In 2011, among the employees with professional education in the sub-arctic area of the Republic of Komi, there were only 6.9% with higher education, 15.4% – with secondary education, 20.2% – with elementary education.

For the republic in general, these indicators were higher: 10.2%, 20.8% and 28.4% respectively. Professional education level is especially low in peasant (farmer) households. Here the share of employees with higher education equals 5.0%, with secondary education – 10.1%, with elementary education – 9.6%.

Monitoring of quantitative and qualitative characteristics of personnel potential showed that the total number of managers and specialists at agricultural enterprises decreased sharply. It is conditioned by the reduction in the number and size of agricultural organizations, as well as the high turnover rate of personnel. In 2011, the number of dismissed managers and specialists exceeded the number of recruited ones by 7.7%.

5. A considerable lagging of the rural areas behind the towns and suburban southern regions in the social infrastructure development and the quality of services. Individual housing stock in the village virtually lacks utilities. In Izhemsky District only 7% of residential quarters have running water, 3% – sewage system, 20% – central heating, 1% – hot running water, 1% – baths and showers, 0% – gas (piped and liquefied). In Ust-Tsilemsky District these figures are 14.7; 47; 1.1 and 0% respectively.

6. Extremely low transport accessibility of the rural population and a lack of opportunities for obtaining the main types of social benefits (health care, education, culture, public services). No municipality of the sub-arctic area has a hard surface road transport connection with the city of Syktyvkar. For 1990–2010 in Izhemsky and Ust-Tsilemsky districts, the number of preschool facilities has decreased by 25%, the number of educational institutions – by 14%, the number of hospitals – by 27%. In comparison with the republican level, the provision of rural population with doctors is 2–3 times lower, with paramedical staff – 1.6 times lower.

Due to the insufficient volume of construction and in connection with the heading toward the concentration of education, health care and culture, under the conditions of poor development of the road network and mobile forms of servicing, territorial availability of these kinds of services for the rural population is reduced.

7. Considerable production decline in cattle breeding, which is the leading branch of the area. For the twenty-year period, milk and beef production has decreased 4 – 5-fold.

8. Great dependence of the village on the agrarian sector, the low efficiency and competitiveness of agriculture.

9. Extremely low level of innovation activity in the agrarian sector. Restriction in the use of innovations is connected with the unstable financial status of economic entities, the lack of highly skilled managers, specialists, lack of state support, lack of state innovation policy and innovation infrastructure.

10. Unfavourable external environment, characterized by non-equivalent cross-sectoral exchange, flaws in pricing and taxation policies, the lack of loans, the monopoly of procurement, processing and trade organizations, insufficient government support, the displacement of local agricultural producers from food markets.

11. Modern policy, based on the use of branch-wise approach to territorial development, holding back the sustainable development of rural areas.

12. The absence of a system of scientific and information-advisory support and personnel training for the agricultural sector and rural areas sustainable development management.

At present, an attempt is made to work out the state policy of the sustainable development of the agricultural sector and rural areas. The implementation since 2006 of the national project "Development of Agricultural Complex" promoted the increase in eggs and poultry production in the sub-arctic areas, as well as the increase in profits, the reduction of the share of unprofitable agricultural organizations.

At the same time, certain negative trends still exist, for instance, the reduction of the livestock population, milk and beef production. The level of profitability in agricultural organizations and farmer households is 4 – 5 times lower than the one required for expanded reproduction.

The quality of life in rural areas has not undergone any significant positive changes either. The RF Government Decree dated 30 November 2010 approved the Concept for the sustainable development of the rural areas of the Russian Federation for the period up to 2020. At present, the Concept of preservation and comprehensive development of rural territories of the Republic of Komi for 2012–2020 is being worked out. But this is clearly not enough. It is necessary to work out a strategy and programme for sustainable agricultural and rural development of the sub-arctic areas.

Thus, the study of the conditions and acute problems in the agri-food sector of the sub-arctic area of the European North-East allows to make the following conclusions:

• the area's agrarian sector provides the population with fresh wholesome food products, it also provides employment of population and performs the functions of a traditional way of life of indigenous peoples;

• environmental conditions, and first of all, climate, soil quality, vegetation period, impede the efficient development of agricultural production; conditions for arable farming are most unfavourable in such municipalities as the town of Vorkuta and the town of Inta and in the most part of the Nenets Autonomous Okrug; conditions in the Pechora River basin are favourable for cattle breeding (almost continuous lighting, sufficient amount of precipitation, vast floodplain meadows);

• insufficient provision of population with biological resources (except for the deer population) hinders self-sufficiency with local food products;

• environmental conditions, geographic location, natural-historical and socio-economic factors and social needs caused agricultural specialization on cattle breeding, poultry breeding and production of traditional branches; agricultural organizations play a leading role in livestock products production, and individual households – in crop husbandry (potatoes and vegetables); the role of farmer households in the production of agricultural and fishing products is minor.

• evaluation of agrarian sector development shows that its highest indicators were achieved in the pre-reform period; the 1990 – 2000 transformation processes led to a slump in production, the deterioration of resource potential and decrease of the level and quality of life of peasants;

• the main problems still include extremely low incomes of agricultural workers, the high level of unemployment, poor development of social sphere in the village, shortage of qualified personnel, low level of management, a considerable lag of rural areas from urban areas concerning the development of infrastructure and quality of services, significant decline in production of cattle breeding products (one of the leading branches of the area), and the unfavourable external environment.

References

1. Ivanov V.A., Mikusheva T.Yu., Yevdokimova T.V. Socio-economic development of indigenous peoples of the North: state of affairs, problems and implementation mechanisms. In: Socio-economic development of the Northern regions. Syktyvkar: Komi science centre, Ural branch of RAS, 1991. P. 5 – 20.
2. Rochev P.A., Torlopov F.P., Shekhunov A.F. Experience of creation of the own food base in the Pechora coal basin region. In: Agricultural development of the North of the USSR. Vol. 1. Novosibirsk: Western-Siberian publishing house, 1973. P. 72 – 86.
3. Belyayev V.V., Lapshin M.A., Tsypanov A.M. Northern reindeer breeding – a profitable sector. Syktyvkar: Komi publishing house, 1971.
4. Kotelina N.S., Archegova I.B., Ivanov V.A. Fodder production in conditions of the Far North. Agricultural science bulletin. 1985. No. 7. P. 37 – 44.
5. Agriculture and fishing in the Nenets Autonomous Okrug (Methodological recommendations). 3rd ed. Naryan-Mar: Naryan-Mar agricultural experimental station, 1975.
6. System of agriculture of the Komi SSR for 1991 – 1995 (Scientific recommendations). Syktyvkar: Komi publishing house, 1991.
7. The results of the 2006 all-Russian agricultural census: in 9 vol. Vol. 7. Agriculture of the Far North and areas equated to it. Federal state statistics service. Moscow: IRC "Statistics of Russia", 2008.
8. Ivanov V.A., Terentyev V.V., Maltseva I.S. et al. Factors and conditions of the sustainable development of the agri-food complex and rural territories of the North Syktyvkar: Komi science centre, Ural branch of RAS, 2011.
9. Ivanov V.A. Agrarian sector of the North of Russia: transformation processes, prospects and mechanisms of sustainable development. Syktyvkar: Komi science centre, Ural branch of RAS, 2012.

UDC 631.358:633.521

Optimization of carrier vehicles for the transportation of rotted straw

The use of roll technology in our country's flax cultivation is hampered due to the lack of special transport. The article analyses and determines the volumes and legs of transporting rotted straw from fields to the Vologda oblast flax-processing plants; several perspective options for using technical means available at enterprises are proposed for transportation of flax rolls. Their influence on saving of time, fuel, and on labour productivity increase is shown.

Flax growing rotted straw rolls, optimization of transportation.

Dmitry F.
OROBINSKIY
Doctor of Technical Sciences, Professor at the Vologda State Dairy Farming Academy named after N.V. Vereshchagin
ic1@mf.molochnoe.ru

Roman A.
SHUSHKOV
Senior Lecturer at the Vologda State Dairy Farming Academy named after N.V. Vereshchagin
roma970@mail.ru

Flax is a multi-purpose plant, and in recent years it has been used for producing new kinds of commodity products in various spheres, from medicine to automotive industry. Flax has turned into a strategic crop.

Fiber flax in the North-West region of Russia accounting for about 15 % of all flax crops in the country is grown in special climate and environmental conditions. They influence the choice of technology, machines and labour organization [6].

Flax cultivation and processing in the Vologda Oblast historically is deeply rooted and has great economic and social importance.

The following data shows the peasants' incomes from flax cultivation in tsarist Russia: in the Pskov province they reached 7.5 million rubles, in the Yaroslavl province – about 6 million rubles in the Tver province – 10.8 million rubles, in the Vologda province – 3.5 million rubles.

The price of dew retted flax (vilegodsky, lalsky, sukhonsky, brusenetsky, verkholalsky) produced in the Vologda province was much higher than that of Pskov and Livland water retted flax. The annual revenues of Russian treasury from flax sales reached up to 90 million rubles in gold [1].

Head of the oblast agricultural administration Yu.A. Yarushnikov described the economic importance of flax for Vologda Oblast farms in the 1970-s as follows, "There is no other branch of crop husbandry that would be cost-effective to the same extent as flax cultivation, and that would help economically weak farms stand on their own feet." [3].

Today, the best and most expensive clinics of the world provide their staff with linen uniform, and wards are decorated with linen. Accommodation in such wards is very expensive [2].

The works of A.V. Maklakhov [4, 5] reveal the essence of the pilot project "Development of the Vologda Oblast flax complex through intersectoral and interterritorial cooperation". An important role in the project belongs to optimizing the number of flax-growing farms up to 24 by 2014, and flax-processing plants – up to 10.

He claims in another work, that linen has become a popular brand. This is confirmed by the wide use of linen in medicine, production of clothes, new fabrics, developed by OJSC Vologda Textile, and it allows exporting the products abroad.

The Strategy of machine and technology modernization of agriculture in Russia for the period up to 2020 indicates that the cost of an upgraded farm machinery and vehicle park may amount to some 2.8 up to 3 trillion rubles, including vehicles – 150 billion rubles. Amount of agricultural carrier vehicles should be optimized at the level of 750 – 850 thousand units.

Priority development of motor transport as compared to tractor transport in Russia can be explained by a considerable average range of cargo transportation as well as a lower cost of motor transportation. Russian agriculture experiences a considerable lack of trucks with different cargo-carrying capacity. Demand for production trucks in the village is rather low because of their insufficient suitability for the operational environment. There are practically no all-terrain trucks, suitable for use in off-road conditions. The shortage of vehicles is acutely experienced in all enterprises, from small to large ones.

Obviously, the state of affairs concerning the provision of agri-sector with new and modern vehicles, suitable for operating in off-road conditions and areas which are difficult to access, as well as on general purpose roads, can't be improved in short term at the expense of domestic production or due to the expansion of vehicles and machinery import [7].

Cultivation of agricultural crops allows for using different technologies, suitable for a particular enterprise. The optimization task is to organize transport-technological support, which would enable to manufacture products with the lowest energy costs.

A roll method of rotted straw gathering is widespread in flax-growing farms, as the share of manual operations in the technological chain from loading the rotted straw to its delivery to a flax-processing plant is reduced. The total labour input during rotted straw harvesting and realization is reduced 9.5-fold, and the need for means of transportation – 2 – 2.5-fold.

Unfortunately, the low performance of vehicles leads to the fact that rotted straw rolls often remain in the field for a long time, get caught in the rain and are spoiled. Trucks and tractor trailers of different types are not quite suitable for the transportation of rolls, as the dimensions of their bodies provide low index of cargo carrying capacity usage. This leads to a significant increase in costs for transporting raw flax to flax-processing plants, which reduces crop profitability.

In Western European countries the transportation of rotted straw rolls is effected using specially equipped road trains or large tractor trailers, in which the rolls are placed in three tiers.

For the solution of the optimization task, rotted straw transportation distances to Vologda Oblast flax-processing plants were analyzed, technical means with greater load index available at the enterprises, more effective variants of their usage are offered.

Analysis of volumes and legs of transporting rotted straw to the nearest flax-processing plant for 2010 – 2011 produced the following results: more than 90 % of the region's flax-growing farms have the leg of transporting that equals 33...39 km, for the rest it equals 160...200 km. This means that transportation costs significantly reduce crop profitability at these farms.

We have studied and proposed a number of perspective options of rotted straw transportation to the nearest flax-processing plants.

It is proposed to use the following transport vehicles available at the Oblast's enterprises: a truck KAMAZ-43118 with a trailer MAZ-837810, a truck MAZ-6310 with a trailer MAZ-837810, a tractor Fendt-930 with a large trailer, suitable for rotted straw transportation.

In this connection, it is necessary to substantiate the application of technical means, ensuring the increase of cargo carrying capacity usage index, transportations efficiency, labour productivity increase.

In order to substantiate the weight of transported rolls, we use average roll dimensions: height $H_r = 0.7...1.1$ m, diameter $D_r = 1.2$ m, weight $q_r = 200...240$ kg.

Number of rolls, placed in the vehicle:

$$N_r = \frac{l_p}{D_r} \cdot N_{rws} \cdot N_{trs}, \quad (1)$$

where: l_p – platform length, m;

N_{rws} – number of rows;

N_{trs} – number of tiers.

Weight of the transported cargo:

$$W_r = q_r \cdot N_{trs} \quad (2)$$

Cargo carrying capacity usage index is determined as follows:

$$I_{crg} = \frac{W_r}{q_c}, \quad (3)$$

where q_c – certified cargo carrying capacity of a vehicle, t

The obtained data are summarized in *table 1.*

The proposed vehicles need to be provided with additional equipment: reinforced front and side pillars, tying them together with a cable 12...14 mm in diameter in two rows.

Table 1. Main indicators of rolls transporting options under consideration

Vehicle type	Indicators	Existing option	Proposed option
KAMAZ-43118 with a trailer	Number of tiers	2	3
	Weight of rolls, t	8.8	13.2
	Number of rolls, pcs.	44	66
	Cargo carrying capacity usage index, I_{crg}	0.34	0.51
MAZ-6310 with a trailer	Number of tiers	2	3
	Weight of rolls, t	9.6	14.4
	Number of rolls, pcs.	48	72
	Cargo carrying capacity usage index, I_{crg}	0.34	0.51
Fendt-930 with a trailer	Number of tiers	2	3
	Weight of rolls, t	8.8	13.2
	Number of rolls, pcs.	44	66
	Cargo carrying capacity usage index, I_{crg}	0.67	1.0

Analysis of data in the table shows that the increase in the number of tiers from 2 to 3 leads to the 1.5-fold increase in the weight of transported rolls, the road trains cargo carrying capacity usage index will increase from 0.34 to 0.51, as for a tractor Fendt-930 with a trailer, it will equal 1.0.

A vehicle's trip duration (T_t), when transporting rotted straw to a flax-processing plant, is determined according to the formula:

$$T_t = T_c + T_{op} + T_l + T_{lv} + T_{pu} + T_u + T_{at} + T_{nl} + 2T_w + 2T_p \quad (4)$$

T_c – time, allocated for a vehicle's daily technical checkup, h;

T_{op} – time required for setting the equipment in operating position, h;

T_l – loading time, h;

T_{lv} – travelling time of a loaded vehicle, h;

T_{pu} – time required for preparing a vehicle for unloading, h;

T_u – vehicle's unloading time, h;

T_{at} – time required for arranging the equipment into transport position, h;

T_{nl} – no-load run time, h;

T_w – time required for weighting of the cargo, h;

T_p – time required for confirming paperwork, h.

Time allocated for a vehicle's daily technical checkup is determined on the basis of established standards, we assume that T_c = 0.24 h, it is divided by the number of trips per shift.

Knowing the specifications of PRU-05/06 loader, we determine its performance: W_l = = 210 rolls/h. Taking into account movement time, we determine time utilization rate per shift: R_u = 0.5. Then W_l = 105 rolls/h.

A vehicle's loading time is determined as follows:

$$T_l = \frac{N_r}{W_l}. \quad (5)$$

Travelling time of a loaded vehicle (T_{lv}) and no-load run time (T_{nl}) is determined according to the formulas:

$$T_{lv} = \frac{S}{\upsilon_{lv}}. \quad (6)$$

$$T_{nl} = \frac{S}{\upsilon_{nl}}, \quad (7)$$

where: S – leg of transporting, km;

υ_{lv} – travelling speed of a loaded vehicle, km/h;

υ_{nl} – no-load run speed, km/h.

Speed of vehicles depends on the categories of roads.

Time required for setting the equipment in operating position and time required for arranging the equipment into transport position is assumed as equal, it depends on the degree of automation (manual, power-driven, automated) ($T_{op} = T_{at} \approx 0.5$ h).

Time required for rolls weighing (T_w = = 0.25 h) depends on the availability of appropriate scales or the time of random weighing of a roll in each tier ($T_{wgh} \approx 0.15$ h).

Time required for confirming paperwork depends on work organisation ($T_p \approx 0.5$ h).

Direct costs on rolls transportation:

$$C_{rt} = W_d + D + C_{cr} + C_{vm} + C_{lb} + C_{tr} \quad (8)$$

where: W_d – driver's wage, rub.;

D – vehicle's depreciation, rub.;

C_{cr} – vehicle's current repair costs, rub.;

C_{vm} – vehicle maintenance costs, rub.;

C_{lb} – costs of lubricants, rub.;

C_{tr} – costs of tyres, rub.

Amount of wages including additional payments:

$$W_p = t_h^p \cdot T_t + P \quad (9)$$

where:

t_h^p – driver's hourly base wage rate, rub./h;

P – overall additional payments, rub.

Depreciation expenses:

$$D = \frac{V_{ib} \cdot R_d}{Y_f} \cdot T_t, \quad (10)$$

where: V_{ib} – initial book value, rub.;

R_d – rate of depreciation charges, %;

Y_f – yearly working time fund, h.

Current repair expenses:

$$E_{cr} = \frac{V_{ib} \cdot R_{cr}}{Y_f} \cdot T_t, \quad (11)$$

R_{cr} – current repair expenses rate, %

Route fuel consumption:

$$Q_f = \left(C_f \cdot \frac{S}{100} + C_{ftk} \cdot \frac{W_r \cdot S_l}{100} \right) \cdot I_{fc}, \quad (12)$$

where: C_f – fuel consumption rate per 100 km, l;

C_{ftk} – fuel consumption rate per 100 ton-kilometers, l;

S_l – operational kilometers of a loaded vehicle, km;

I_{fc} – fuel consumption increase rate (depends on the vehicle's time in commission).

Cost of fuel:

$$C_{lbr} = Q_f \times P_{fl} \quad (13)$$

where: P_{fl} – price for 1 t of fuel, rubles.

Amount of flax-fiber, transported per trip:

$$Q_{ff} = \frac{N_r \cdot q_r}{I_p}, \quad (14)$$

where: I_p – index of processing rotted straw into flax fiber.

Weight of short fiber:

$$Q_{ffs} = Q_{ff} + I_{osf} \quad (15)$$

Weight of long fiber:

$$Q_{ffl} = Q_{ff} + I_{olf} \quad (16)$$

where: I_{osf} – short fiber output index,

I_{olf} – long fiber output index.

Cost of transported cargo:

$$C_{crg} = Q_{ff} \times (I_{osf} \times P_{sf} + I_{olf} \times P_{lf}) \quad (17)$$

where: P_{sf} – price for 1 t of short fiber,

P_{lf} – price for 1 t of long fiber, rubles.

Cost of transportation:

$$C_{tr} = S_{tkm} \times S_l \times W_r \quad (18)$$

where: S_{tkm} – self-cost of 1 ton-kilometer, rubles.

Expenses on rotted straw production:

$$E_{rs} = W_b + D + CR + C + F + T_c + OE \quad (19)$$

where: W_b – wages including benefits, rub.;

D – depreciation of technical means, rub.;

CR – current repair and service maintenance costs, rub.;

C – cost of seed, rub.;

F – cost of fertilizers, rub.;

T_c – transportation costs, rub.;

OE – other expenses, rub.

After determining production costs and costs of rolls transportation, we can determine the leg of transporting which ensures the efficiency of rotted straw production:

$$S_l = \frac{Q_{ff} \cdot (I_{osf} \cdot P_{sf} + I_{olf} \cdot P_{lf}) - (C_{rt} + E_{rs})}{I_p \cdot S_{tkm}}, \quad (20)$$

On the basis of the formula (11) fuel consumption per one ton of transported cargo is determined.

Fuel consumption per one ton of cargo in the options under comparison:

a) exsisting

$$q_e = \frac{Q_{fe}}{W_{re}}, \quad (21)$$

b) proposed

$$q_p = \frac{Q_{fp}}{W_{rp}}, \quad (22)$$

Table 2. Economic indicators of transporting rolls by road trains

Vehicle type	Indicators	Existing option	Proposed option
KAMAZ-43118 with a trailer	Trip time, h	4.35	4.75
	Fuel consumption per one trip, l	28.46	30.56
	Fuel consumption per one t of cargo, l/t	3.70	2.31
	Fuel saving per one trip, l		18.50
	Working efficiency, t/h	2.02	2.78
	Working efficiency increase, %		38
MAZ-6310 with a trailer	Trip time, h	4.42	4.77
	Fuel consumption per one trip, l	30.31	32.60
	Fuel consumption per one t of cargo, l/t	3.16	2.26
	Fuel saving per one trip, l		12.96
	Working efficiency, t/h	2.17	4.02
	Working efficiency increase, %		85

where: q_e, q_p – specific fuel consumption in the existing and proposed options, l/t.

Q_{fe}, Q_{fp} – fuel consumption in the existing and proposed options, l;

W_{re}, W_{rp} – weight of cargo in the existing and proposed options, t.

Fuel saving per one trip in the proposed option will equal:

$$S_{fl} = (q_e - q_p) \times W_{rp} \qquad (23)$$

Working efficiency in the compared options is determined as follows:

$$WE_e = \frac{W_{re}}{T_{te}};\ WE_p = \frac{W_{rp}}{T_{tp}}, \qquad (24)$$

where: T_{te}, T_{tp} – trip time in the existing and proposed options, h.

Working efficiency increase (γ):

$$\gamma = \frac{WE_p}{WE_p} \cdot 100\%. \qquad (25)$$

Economic indicators of transporting rolls by road trains MAZ and KAMAZ on the average distance of S = 35 km are shown in *table 2*. Transportation of rolls by tractor with a large trailer is expedient only within the distance of 15 – 20 km.

Thus, the proposed more efficient vehicles ensure the increase in the cargo carrying capacity usage index from 0.34 to 0.51; trip efficiency for KAMAZ – by 38%, for MAZ – by 28%.

References

1. Gunina T.L. Economic development of the Kostroma flax cultivation. The history of Kostroma flax cultivation and linen products trade. Kostroma: KSAA, 2003.
2. Zhivetin V.V., Ginzburg L.N., Olshanskaya O.M. Flax and its complex use. Moscow: Inform-znaniye, 2002.
3. Vereykin V.N. For the best flax in the country: Vologda flax. North-West publishing house, 1968.
4. Maklakhov A. Cluster approach as the basis for development of flax complex of the region. Economic and social changes: facts, trends, forecast. 2010. No 2. P. 73 – 81.
5. Maklakhov A. Linen textiles: a resource for economic growth. Economic and social changes: facts, trends, forecast. 2010. No. 4. P. 80 – 85.
6. Orobinskiy D.F. Development of resource saving technologies and technical means for the production and integrated use of fiber flax seeds in the conditions of the North-West region of the Russian Federation. Doctoral thesis. St. Petersburg, 2009.
7. Izmailov A.Yu. Development of the transport infrastructure of the agroindustrial complex given the requirements of ecological agriculture. Yu. Izmailov. Machinery in agriculture. 2012. No.1. P. 19 – 21.

UDC 314.8.062(470.12)

Demographic evolution trends and prospects in Russia and the Vologda Oblast*

The article deals with the analysis of demographic situation in the Vologda Oblast against the background of the global and Russian tendencies. It has been revealed that depopulation is observed in most developed countries, and depopulation growth rates are reduced in developing countries. Depopulation processes are retained in Russia, which can hinder social and economic development and contradict the country's geopolitical goals. The Vologda Oblast is one of the "typical" Russian regions, where demographics are close to average ones. The demographic prospects of Russia and the Vologda Oblast indicate negative trends in the medium term. It is possible to reverse the situation by increasing the number of children in families, that is by changing the model of population's fertility.

Demographic evolution, depopulation, birth rate, mortality rate.

Olga N.
KALACHIKOVA
ISEDT RAS Senior Scientific Associate
onk82@yandex.ru

Aleksandra A.
SHABUNOVA
Doctor of Economics, Head of the ISEDT RAS Department
aas@vscc.ac.ru

Mariya A.
LASTOCHKINA
Ph.D. in Economics, ISEDT RAS Scientific Associate
mashkop@mail.ru

* The research has been carried out with financial support from the Russian Humanitarian Science Foundation № 12-32-01287.

The second half of the 20th century left a grate mark in the demographic history. There has been an unprecedented population explosion, accompanied by the rapid growth of the population in many countries of Asia, Africa and Latin America. The Earth's population has increased 2.5-fold over this period with an average annual absolute growth of 70 – 80 and even 90 million people, which corresponds to the growth rate of 1.5 – 2% [8, p. 115-117].

However, the growth rates of total population are gradually reduced *(tab. 1)*. They have decreased from 22 to 6% over the past four and a half decades. This trend is strongly pronounced in the European region (from 9% in 1960 – 1970 down to zero in 2000 – 2005) and North America (from 14 to 5%, respectively). The population size in the Russian Federation was growing in the period from 1990 to 2000 due to the large migrant inflows from the former Soviet republics, but since the beginning of the 21st century there is a negative dynamics in population size that has declined by 3% over the first decade.

Reducing the growth rates of world population is caused by declining the birth rate, since the dynamics of mortality rate in the second half of the 20th – the beginning of 21st century is characterized by a decrease in its overall rate from 19.5 to 8.6‰ [16, 18].

At the same time, regional differentiation is retained: from 12.5‰ in the African region to 6 ‰ in Latin America in 2005 – 2010.

In the world the birth rate cut down from 37.2% in the middle of the 20th century to 20.0‰ in 2010. The most significant decrease in the birth rate over the period has been fixed in the European Region (from 21.5 to 10.5‰), Asian Region (from 42.3 to 19‰) and in Australia (from 23.0 to 12.9‰).

The total population of the Russian Federation is under double "pressure": high mortality and low birth rates; natural movement (loss) is not compensated by mechanical one *(tab. 2)*.

As a result, the total population in Russia had reduced by 3% (from 146 to 143 million people, *tab. 3*) over the period from 2000 to 2010.

Demographic processes are depopulated in nature in 85% of regions in the country. Decline in the population's size of the North-West Federal District and the Vologda Oblast was higher than in Russia on average, and it amounted to 5 and 6%, respectively (see tab. 3), despite the fact that the North-West Federal District was the second district attractive for migrants after the Central District in 2009 (migration gain rate – 21 and 46 per 10 000 people, respectively).

Table 1. Population size, mln. persons

World, region	Year						Growth rates, %				
	1960	1970	1980	1990	2000	2010	1970/ 1960	1980/ 1970	1990/ 1980	2000/ 1990	2010/ 2000
World	3032	3699	4451	5295	6124	6987	122.0	120.3	119.0	115.7	114.1
Europe	605	657	693	721	729	740	108.6	105.5	104.0	101.1	101.5
Africa	282	364	480	637	821	1051	129.1	131.9	132.7	128.9	128.0
Asia	1704	2139	2636	3181	3705	4216	125.5	123.2	120.7	116.5	113.8
Latin America	220	288	364	444	523	596	130.9	126.4	122.0	117.8	114.0
North America	204	232	256	284	316	346	113.7	110.3	110.9	111.3	109.5
Australia and Oceania	16	20	23	27	31	37	125.0	115.0	117.4	114.8	119.4
Russia	*119*	*130*	*138*	*138*	*146*	*143*	*109.2*	*106.2*	*100.0*	*105.8*	*97.0*

Sources: Europe in Figures. Eurostat Yearbook, 2009. P. 130. Available at: http://epp.eurostat.ec.europa.eu (Access Date: 25.10.2011); Russia's Demographic Yearbook, 2001. P. 19; World Population Data Sheet 2011; The World at 7 billion. Population Reference Bureau. P. 6–9.

Table 2. Demographic situation in Russia in comparison with some countries of the first type of population reproduction

G8 countries	Aggregate birth rate, pers.		Born, pers.		Died, pers.		Natural population increase (loss)		Migration population increase (loss)		Life expectancy		Difference in life expectancy of men and women
	per 1000 people										*years*		
	2000	2010	2000	2010*	2000	2010*	2000	2010	2000	2010	2000	2010*	2010*
Germany	1.4	1.4	9.3	8.1	10.2	10.4	-0.9	-2.2	2.0	2.0	77.9	79.8	5.2
Italy	1.3	1.4	9.5	9.5	9.8	9.8	-0.3	-0.4	3.1	6.0	79.4	81.4	5.2
Canada	1.5	1.7	10.7	11.2	7.1	7.4	3.6	3.8*	6.5	7.0	79.2	80.7	3.6
Russia	**1.2**	**1.6**	**8.7**	**12.5****	**15.3**	**14.2****	**-6.6**	**-1.7**	**2.5**	**1.0**	**65.3**	**68.6**	**11.9**
Great Britain	1.6	2.0	11.5	12.8	10.3	9.1	1.2	3.9	2.5	2.0	77.7	80.1	4.0
USA	2.1	2.0	14.4	13.8	8.5	8.4	5.9	5.4*	4.6	3.0	76.6	78.1	4.9
France	1.9	2.0	13.1	12.8	9.1	8.5	4.0	2.0	1.2	1.0	79.0	81.1	6.7
Japan	1.4	1.4	9.4	8.5	7.6	9.1	1.8	-0.6*	0.3	0.0	81.1	82.9	6.8

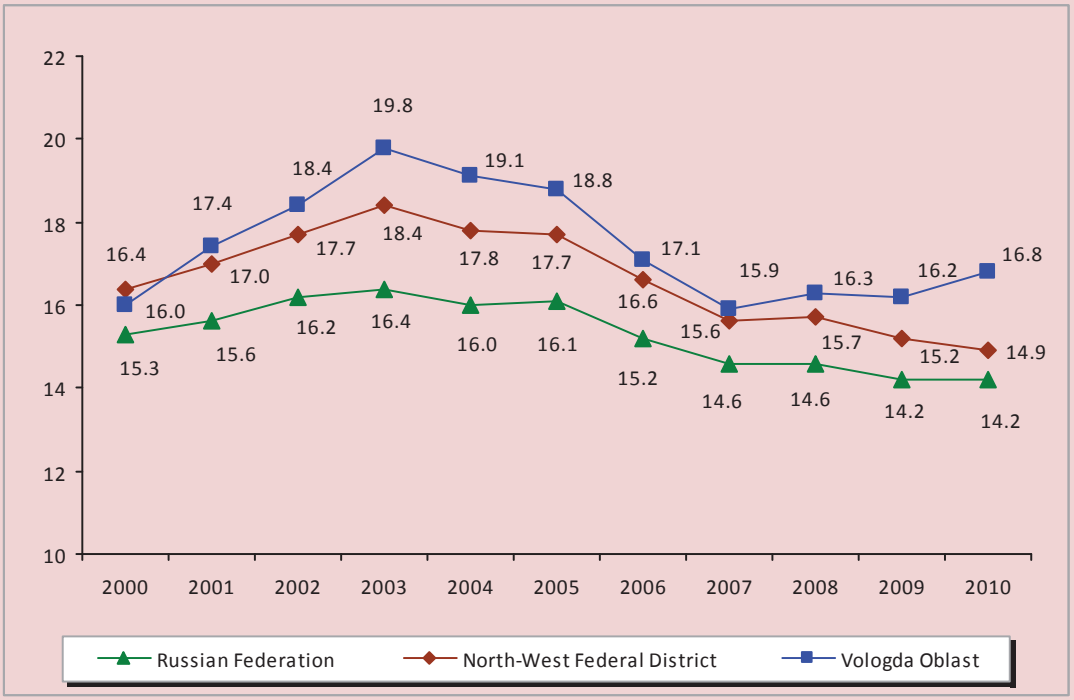
* 2009.
** 2010.
Sources: World Development Indicators. World Bank, 2006, 2011. Available at: http://www.worldbank.org; European Commission. Eurostat. Available at: http://epp.eurostat.ec.europa.eu; 2011 World Population Data Sheet. The World at 7 billion. Population Reference Bureau. P. 6-9.

Table 3. Resident population size at the end of the year, thousands of people

Federal district, subject	Year					2010 to 2000, %
	2000	2005	2008	2009	2010	
Central	38228	37546	37151	37120	n/a	97.1
North West	14199	13628	13462	13450	n/a	94.7
Karelia Republic	*729*	*698*	*687*	*686*	*645*	*94.1*
Komi Republic	*1043*	*985*	*959*	*955*	*902*	*91.6*
Arkhangelsk Oblast	*1369*	*1291*	*1262*	*1258*	*1228*	*91.9*
Vologda Oblast	*1290*	*1235*	*1218*	*1216*	*1202*	*94.3*
Kaliningrad Oblast	*958*	*940*	*937*	*938*	*942*	*97.9*
Leningrad Oblast	*1680*	*1644*	*1632*	*1631*	*1713*	*97.1*
Murmansk Oblast	*923*	*864*	*843*	*840*	*796*	*91.0*
Novgorod Oblast	*710*	*665*	*646*	*643*	*634*	*90.6*
Pskov Oblast	*782*	*725*	*696*	*692*	*674*	*88.5*
St. Petersburg	*4715*	*4581*	*4582*	*4591*	*4849*	*97.4*
South	22743	22821	22835	22935	n/a	100.8
Volga	31703	30710	30241	30134	n/a	95.1
Ural	12515	12279	12241	12268	n/a	98.0
Siberian	20464	19794	19553	19553	n/a	95.5
Far Eastern	6913	6593	6487	6450	n/a	93.3
Russia	***146304***	***142754***	***141904***	***141909***	***142905***	***97.0***

Source: Federal State Statistics Service. Available at: http://www.gks.ru

Figure 1. Crude death rate (per 1,000 people)



Source: Regions of Russia. Socio-economic indicators, 2009. Available at: http://www.gks.ru

The mortality rate in Russia was so high in the first half of the 1990s that scientists and politicians began to speak about the mass extinction of the population, demographic catastrophe and even genocide of the Russian people [2, 7, 12]. Only since 2003 there has been a decrease in the crude death rate *(fig. 1)*.

Since 2000, there has been a tendency to increase the total birth rate in Russia *(fig. 2)*. But this result is largely caused by the effect of "population waves": young people who were born in the 1980s have entered the childbearing age.

The birth rate in the Vologda Oblast corresponds to the national average level. The total birth rate has increased from 8.7 to 12,5‰ over the period from 2000 to 2010 (see fig. 2). On average, since the beginning of the century the total birth rate hasn't dropped below 9.7‰ in the Vologda Oblast (in Belozersky District); and the maximum value (12.5‰) has been fixed in Verhovazhsky District *(fig. 3)*.

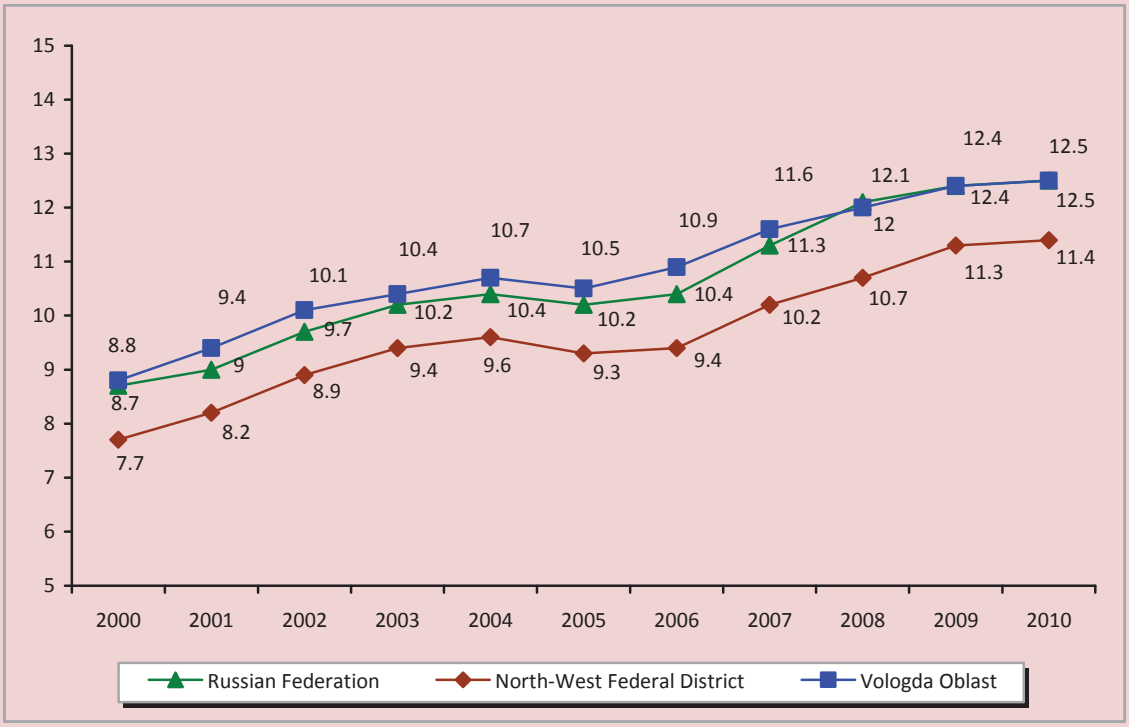
Most municipalities of the region (15 of 28) remained the indicator average value above the average regional level in the period under our review.

The assumption that the increase in the birth rate is largely caused by the demographic structure of the population is proved by the changes in the aggregate birth rate. This indicator gives a more faithful representation of the number of children and reflects the average reproductive guidelines of population. The aggregate birth rate in Russia increased from 1.2 to 1.5 in the period from 2000 –2009, but it did not provide the level of zero natural increase during those eight years[1] *(fig. 4)*.

The aggregate birth rate in the Vologda Oblast that repeated All-Russian tendencies had declined to 1.2 by 2000; then there was a

[1] The level of zero natural increase was calculated by the method of V.N. Arkhangelskiy (Borisov V.A. Demography. Moscow: NOTABENE, 2001. P. 164).

Figure 2. Total birth rate (per 1,000 people)



Source: Regions of Russia, 2008: Stat. Col. Rosstat. Available at: www.gks.ru; Demographic Yearbook of the Vologda Oblast: Stat. Col. Vologdastat, 2009.

Figure 3. Total birth rate in the Vologda Oblast, on average over the period from 2000 to 2010, Ppm

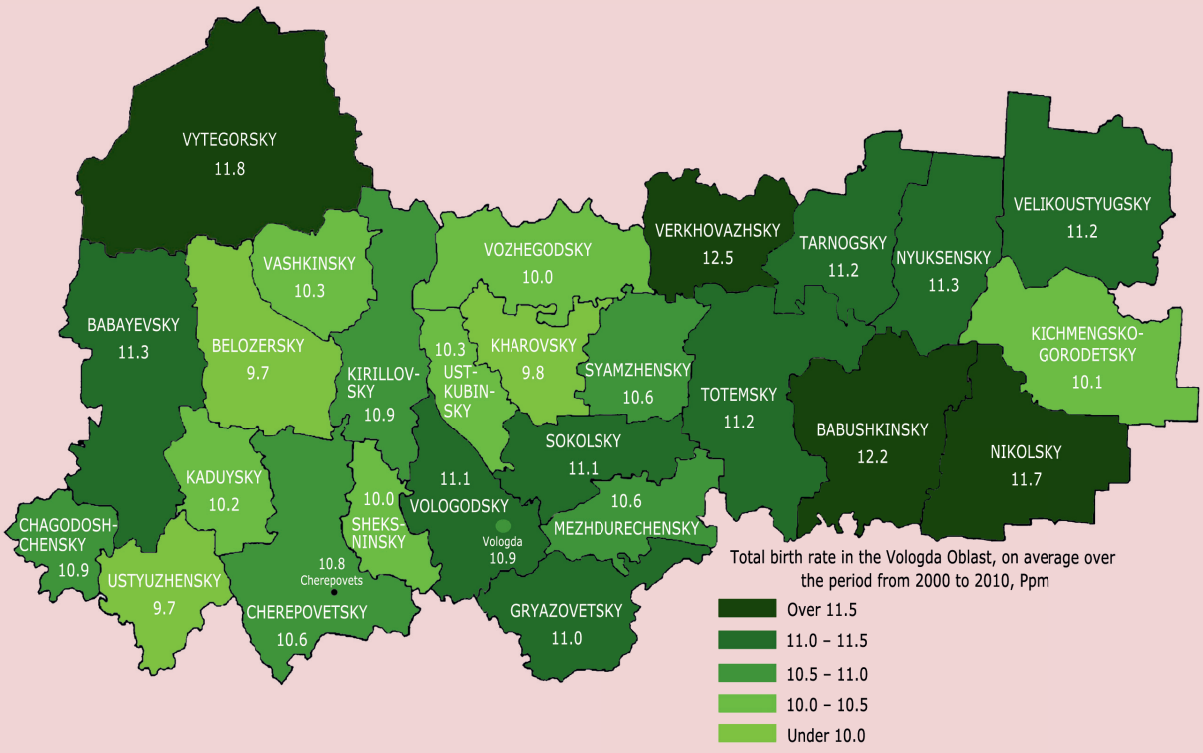
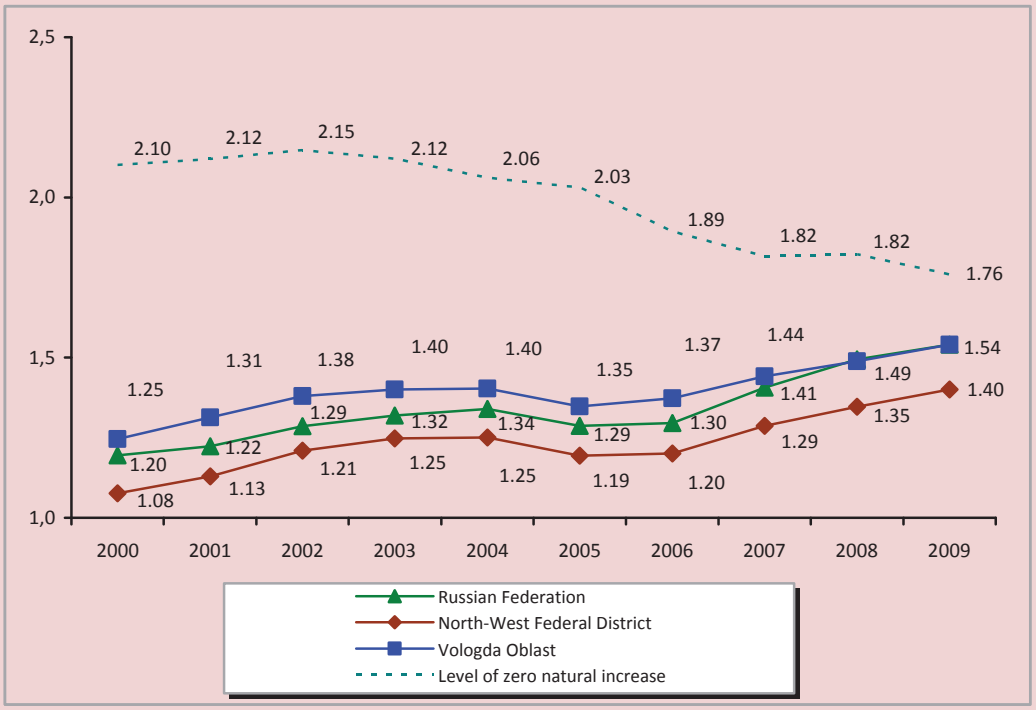


Figure 4. Aggregate birth rate



Source: CBSD / Rosstat. Available at: www.gks.ru (Access date: 05.12.2011); author's calculations.

certain increase in the period till 2004 (from 1.2 to 1.4); in 2005 it reduced again to 1.3, and then the aggregate birth rate had increased to 1.49 by 2008 (see fig. 4).

In 2009, the Vologda Oblast ranked first among the regions of the North-West Federal District according to this indicator. At the same time, its territorial differentiation was remained: rural population showed both the higher values of aggregate birth rate and more substantial increase in aggregate birth rate as compared with the 2000 level. This fact proves that lifestyle influences the population's reproductive behavior.

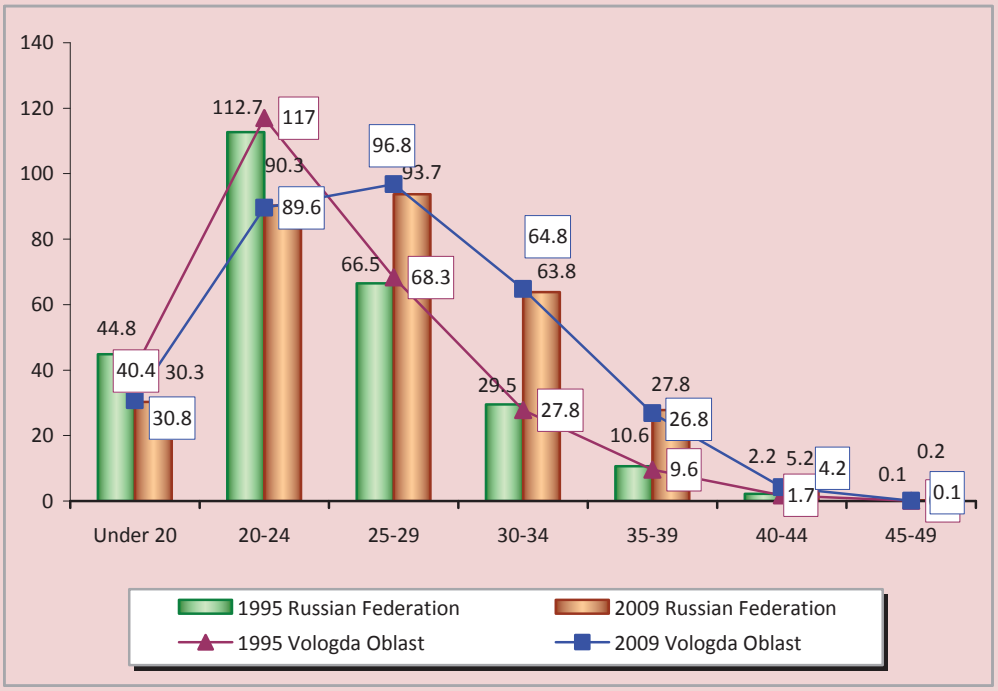
One of the important reasons for the decline in the birth rate in retrospect was the transformation of reproductive behavior, caused by the specifics of socio-economic life, in particular, by involving women to take part in production and improving their economic activity in general.

In the early 1990s, European researchers noted the intensified will of women to self-realization in the profession, which resulted in the extension of training period and marriage age, as well as in putting off births, which, in turn, led to the fact that the first child was the only one [15, p. 37].

There are the similar processes in today's Russia (2005 – 2010) despite the patriarchal views *(fig. 5)*.

In 1995, fertility peak was registered among the women aged 20 – 24, and it was fixed in the group of women aged 25 – 29 in 2009. In addition, there was a parallel decrease in births in the group of women aged under 20 (from 44.8 to 30.5 per 1,000 women of the same age) and an increase in the number of births in the older age groups (30 – 34, 35 – 39 and 40 – 44 years old). There were the similar trends both in the regions of the North-West Federal District and in other federal districts.

Figure 5. Age-specific birth rates (the number of children who have been born over a year per 1000 women of age), years



Source: Rosstat. Available at: gks.ru

It should be also noted that the state of population makeup according to sex and age that determines a birth rate along with reproductive behavior corresponds to regression (depopulation, degradation) [1, p. 56] mode of reproduction.

The distribution of Russia's population within the main age groups indicates a very high level of demographic aging (according to G. Bojio-Garnier – E. Rosset scale) and tends to increase the share of persons aged 60 and older *(fig. 6)*.

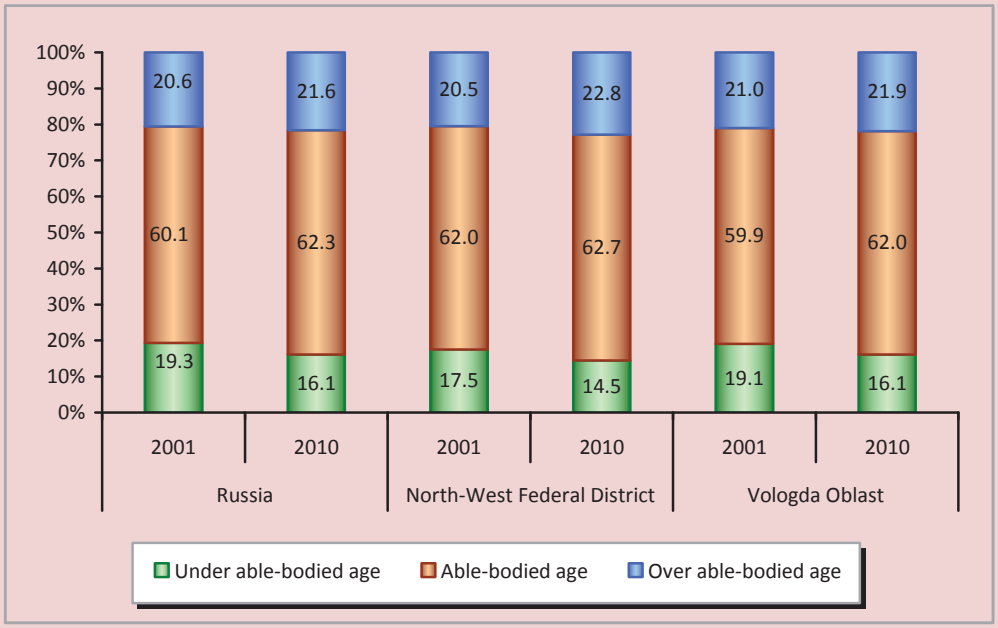
Moreover, the process of aging "goes upwards" due to reducing the birth rate (for example, such as in Japan). I.e. able-bodied population replacement is not provided, demographic load will increase with no prospect of decline in the case of keeping the trends in the population's reproductive behavior.

There were 606 nonworking persons per 1000 able-bodied people in the Russian Federation in 2009: 259 persons aged under 16; 347 persons – over able-bodied age. Since 2000, the total demographic load decreased by 8.5% (the share of children reduced by 20%, and the share of pensioners increased by 2%). In 2009 as compared to 2000, the demographic load due to the individuals under able-bodied age decreased in all the regions, the demographic load due to the people over able-bodied age decreased in 36 regions, and these figures increased in other regions (57%).

Although the level of demographic load in Russia is slightly greater than in the European Union [3], the problem is in the fact that the economic activity of people over able-bodied age is lower [6], and their health is worse and it requires significant social transfers.

These features of population's demographic structure, a shift of birth rates towards older women and reproductive health deterioration lead to the reduction not only in the quantitative

Figure 6. Changes in the population's age structure, %



Source: Rosstat. Available at: gks.ru

characteristics but also qualitative parameters of reproduction, which, in turn, is a risk factor for demographic safety and socio-economic development .

Consider the predictive estimates of demographic processes in order to identify structural reserves to increase the birth rate. According to the latest assessments of Rosstat, the total population in the country will have amounted to 139 041.8 thousand people on average by 2030; these figures are lower by 2% as compared with 2009 *(tab. 4)*.

According to the Ministry of Health and Social Development of the Russian Federation, the number of women in reproductive age will decrease by 4.1 million persons or by 10.7% in 2020 as compared with 2009. Moreover, this reduction will be in the most active childbearing period: the number of women aged 20 – 29 will decreased by 4.6 million persons or by 38%. After 2010, active reproductive age will include small contingents of women who were born in the 1990s.

The share of women aged 20 – 29 in the total population will have decreased from 8.6% in 2009 to 7.2% by the beginning of 2015,down to 5.2% by the beginning of 2020 and to 4.8% by the beginning of 2025. There will be the most significant reduction in this category of population in the period from 2012 to 2021. High birth rates will be required to stop the natural population loss (when the 2010 mortality rate is constant): 2.14 in 2015, 2.55 in 2020 and 2.91 in 2025[2].

Medium term population forecast for the Vologda Oblast (till 2030) allowed us to assess the effects of the current demographic situation and possible trajectories in its changes. In constructing the model, the authors have made a number of assumptions about the demographic dynamics. Firstly, they have taken into account the possible changes in the key demographic component – a birth rate, a mortality rate and

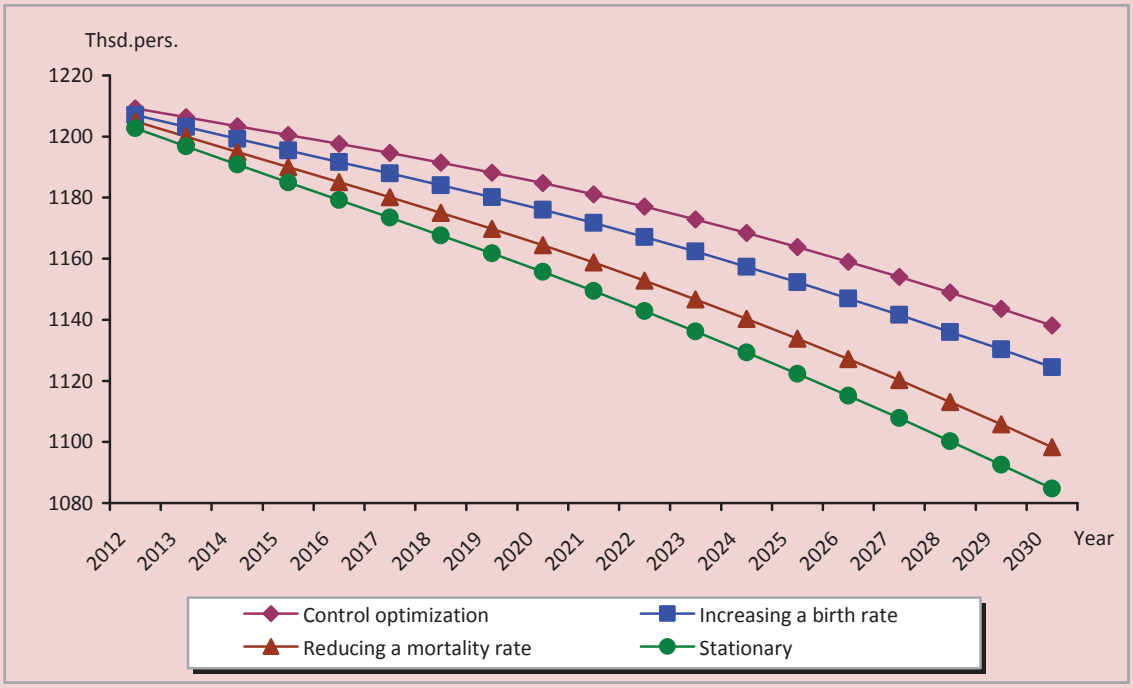
[2] Data of the Ministry of Health and Social Development of the Russian Federation. Available at: http://www.minzdravsoc.ru/health/prior/52

Table 4. Population changes in Russia according to alternative forecasts, thsd. pers.

Year	Lower forecast	Normal forecast	Upper forecast
2015	139639.9	142168.6	143848.9
2020	136231.9	141770.7	145623.2
2025	131778.0	140643.3	146862.0
2030	126916.9	139041.8	147772.3

Source: Estimated population of the Russian Federation until 2030: Stat. Bull. Moscow, 2010. Available at:: http://www.gks.ru

Figure 7. Population forecast for the Vologda Oblast according to four alternative forecasts, thsd. pers.



migration. The population's marriage and divorce rates, as well as socio-economic factors (e.g., population income, education, housing, etc.) are not considered. It is possible to assume that their influence is reflected in the number of births and deaths of people.

The calculations are performed in four hypothetical variants of demographic development through the classification by the year of birth. According to each variant, the population size in the region will have reduced by 2030 in regard to the 2010 figures *(fig. 7)*.

Lower estimate in this forecast amounts to 1085 thousand persons by 2030 (according to the inertial scenario of development) and upper estimate is 1138 thousand persons (control optimization scenario, including a reduction in mortality and an increase in the birth rate). The predicted values of population size, which are given by the scenarios of reducing mortality and increasing birth rates, are laid within the boundaries of this interval. This confirms the predominant role of comprehensive measures to improve the situation among the similar ones.

The comparison of different scenarios (see fig. 7, *tab. 5*) shows that a significant deviation for the better is possible only in a few years of this practice even with the government support (significant difference in predicted scenario values will begin in 2015: the difference is more than 15 thousand people).

Table 5. Variable-based demographic forecast for the Vologda Oblast

Scenario	Population size, thsd. pers.			The share of able-bodied population, %			Demographic load, persons of nonworking age per 100 able-bodied people		
	2010	2020	2030	2010	2020	2030	2010	2020	2030
Inertial	1214	1156	1085	62	55	54	61	82	83
Control optimization		1185	1138		54	53		86	88
Reducing a mortality rate		1164	1098		55	54		83	84
Increasing a birth rate		1176	1124		52	52		87	91

The share of people aged 60 and over will have increased to 23% by 2030 (with a value of 18% in the base year of the forecast). The region's population aging will continue in the period from 2010 to 2030, which effects will be significant for the demographic (the "base" for the lower birth rates and high mortality), economic (slowdown in labour replacement, increase in the load on the able-bodied population) and social (increases in costs of social security, increased pressure on social infrastructure) components of society.

Further increase in gender disparity is expected in 2010 – 2030, and therefore there will be 81 man per 100 women in the Vologda Oblast by the beginning of 2030 (85 man in 2010). The number of women in reproductive age will be reduced each year; these figures have been reduced by 19% on average over the whole forecasting period.

Variative demographic forecast of changes in the Vologda Oblast and Russia's total population till 2030 indicates depopulation even with the planned increase in the birth rate. Reducing the number of women of reproductive age in future raises the problem of increasing the numbers of children in families, which actualizes studying the features of population's reproductive behavior.

Thus, the demographic situation in Russia and the Vologda Oblast at the present time and in foreseeable future allow to increase a birth rate only through correcting reproductive behavior and increasing the numbers of children in families.

References

1. Borisov V.A. Demograpy. Moscow: Publishing House NOTABENE, 2001.
2. Glazyev S.Yu. Genocide. Moscow: Terra, 1998.
3. Demographic load: last years of favorable dynamics. Available at: http://www.demoscope.ru/weekly/2005/0215/tema04.php
4. Demographic Yearbook of the Vologda Oblast: Stat. Col. Territorial agency of FSSS in the Vologda Oblast, 2009.
5. Demographic Yearbook of Russia – 2001: Stat. Col. Rosstat, 2001.
6. Dobrohleb V.G. Age and gender stereotypes in the context of demographic aging. In: Proceedings of the International Conference on "Population, family, quality of life". Moscow: M-Studio, 2008. P. 38-44.
7. Zakharov S.V. Cohort analysis of mortality in Russia. Available at: http://www.demoscope.ru/center/zacharov/zachar_rus.html
8. Maksakovskiy V.P. Geographical picture of the world. Moscow: Drofa, 2008.
9. Estimated population of the Russian Federation until 2030: Stat. Bull. Rosstat. Moscow, 2010. Available at: http://www.gks.ru
10. Regions of Russia. Socio-economic indicators – 2008: Stat. Col. Rosstat. Available at: http://www.gks.ru
11. Regions of Russia. Socio-economic indicators – 2009: Stat. Col. Rosstat. Available at: http://www.gks.ru

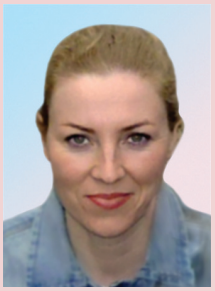
12. Strategy of Russia's demographic development. Ed. by V.N. Kuznetsov, L.L. Rybakovskiy. Moscow: ISPR RAS, 2005.
13. European Commission. Eurostat. Available at: http://epp.eurostat.ec.europa.eu
14. Europe in figures. Eurostat yearbook 2009. P. 130. Available at: http://epp.eurostat.ec.europa.eu
15. Fauth W. Praktische Personalarbeit als Aufgabe: Grundlagen, Konzepte, Checklisten. Wiesbaden: Gabler, 1991.
16. Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision. Available at: http://esa.un.org/unpp
17. World Development Indicators. World Bank, 2006, 2011. Available at: http://www.worldbank.org
18. World Population Data Sheet 2011. The World at 7 billion. Population Reference Bureau.

UDC 314

Demographic trends of the Pskov Oblast

The article deals with the dynamics of demographic processes in the Pskov Oblast that has been holding leading positions in Russia in terms of natural population decline for many years. It shows the connection between a high mortality rate and health situation and suggests the ways to improve the demographic indices.

Demographic crisis, birth rate, mortality rate, public health, migration.



Elena V.
KAMENSKAYA
Ph.D. in Economics, Senior Scientific Associate of the Pskov Research Institute of Agriculture
pniish@ellink.ru, 22alena@mail.ru

Mariya A.
SILAKOVA
Postgraduate student of the Pskov State pedagogical university, Scientific Associate of the Pskov Research Institute of Agriculture
pniish@ellink.ru, anoshkina.masha99@rambler.ru

The peculiarity of the Pskov Oblast is the fact that it has been holding leading positions in Russia in terms of natural population decline since 1992. There were demographic crises in the Pskov Oblast formerly: in the period from 1914 till 1924 and in the 1930s [6]. At that time the rate of population decline accounted for 0.6% per year largely due to the migration to other regions. There was population loss during World War II and in the postwar period. The average population decline accounted for 1% per year in the 1950s and during the first half of the 1960s due to the outflow of population from the region.

The Oblast lost more than 155 thousand people in 1991 – 2010 (18.4%), including 90.6 thousand rural people (29.1%). Nowadays, the annual population decline in the Pskov Oblast has exceeded 1%.

For the first time the natural population decline in the Pskov Oblast began in 1966 due to the sharp decrease of a birth rate and the tendency of increased mortality *(tab. 1)* [7, 8, 10, 11, 12].

The echo of World War II was the main reason for the decline in a birth rate in 1966 – 1973, when the women, who were born during the war period, reached childbearing age.

Table 1. Population change dynamics in the Pskov Oblast

Year	Total population, thsd.pers.	Including		The share in the total rural population, %	Per 1000 persons		
		urban	rural		born	dead	natural increase (+), decline (-)
1960	934.8	264.2	670.6	71.7	17.0	10.0	+7.0
1965	882.6	315.3	567.3	64.3	12.0	11.0	+1.0
1970	878.0	370.4	507.6	57.8	11.4	13.2	-1.8
1975	856.7	431.2	425.5	49.7	12.4	14.4	-2.0
1980	842.7	471.9	370.8	44.0	13.2	15.8	-2.6
1985	844.2	509.7	334.5	39.6	13.4	16.0	-2.6
1990	844.1	533.0	311.2	36.9	11.9	15.1	-3.2
1995	830.1	535.4	294.6	35.5	7.8	20.9	-13.1
2000	793.3	518.6	274.6	34.6	7.4	22.3	-14.9
2010	688.6	468.1	220.5	32.0	10.5	21.2	-10.7

Table 2. Health situation in the Pskov Oblast

Year	Number at the year-end		Per 10000 persons		
	polyclinics and hospitals	feldsher-midwife stations	hospital beds	doctors	nursing staff
1960	140	646	85.1	13.1	63.9
1965	116	668	104.1	16.9	70.2
1970	110	684	126.0	21.2	93.7
1975	87	687	134.8	26.4	110.5
1980	86	677	140.5	32.2	118.5
1985	86	673	146.0	35.2	127.1
1990	86	671	142.3	37.7	127.9
1995	86	610	125.3	33.2	105.8
2000	86	565	125.8	34.5	106.7
2005	61	529	132.5	34.5	114.1
2010	48	381	103.4	34.6	109.0

The birth rate was increasing during the period from 1973 to 1985, because there were more women of childbearing age, who were born in the 1950s. In the 1990s the daughter of parents, who were born during the war, reached the childbearing age, and, as a result, the birth rate declined in 1999 to the lowest level – seven children per 1000 persons. Such decline in the birth rate was also caused by the significant deterioration of life quality and the decrease in population incomes after 1990. The decline in a poverty rate caused a trend of the slow increase in a birth rate after 1999.

The dynamics of population mortality varies in a different way. The mortality rate increased with the reduction in medical institutions in 1965 – 1975, which is continued in the XXI century *(tab. 2)*.

Currently, the total number of medical institutions is two times lower than their level was in 1940. The number of emergency stations has been decreased from 31 in 1990 down to 26 in 2010. The number of feldsher-midwife stations has been halved.

Medical institutions were liquidated mostly in rural areas. The access to health care for the rural population declined, so a mortality rate in rural areas increased 1.6-fold in comparison with the urban population mortality.

The share of the rural population in the Pskov Oblast is 3.5% higher than the average rural population in the Russian Federation, and it exceeds the rural population of the North-West Federal District by 1.8 times. This influences the mortality rate that exceeds the average mortality rate in Russia by 1.5 times.

Due to the complex causes, the mortality rate and natural decline in population reached the highest level in 2003, and they accounted for 24.9 and 15.9 persons per 1000 people, respectively.

Closing feldsher-midwife stations caused the increase in the number of difficult pregnancies, childbirths and postpartum periods. There was the following number of such cases per 100,000 women aged from 15 to 49: 1795 cases in 1990, 2465 in 1995, 2651 in 2000, 2701 in 2005 and 4153 in 2010. Children disability has grown more than 6-fold per 10,000 children over twenty years. An increase in the number of doctors and nurses per 10,000 people did not compensate for the liquidation of polyclinics and hospitals. Low motivation to work and the principle of payment for medical staff in attendance, but not for the results of treatment compounded the situation. There was no preventive medicine in practice.

The regional authorities, who enacted and implemented the solutions to reduce the number of medical institutions, thought about economic efficiency due to lower expenditures. However, health effectiveness should be based on humanistic principles and it should be socially-oriented in such regions as the Pskov Oblast where the demographic situation is specific [3].

Another feature of the Pskov Oblast is a higher share of pensioners *(tab. 3)*. Demographic pressure in this region is 1.1 times higher than in other regions of the North-West Federal District [4, 5]. This share of the older people also determines an increased mortality rate.

A socio-economic factor is also important. The income level of the Pskov Oblast population is 1.7 times lower than the average income level in the North-West Federal District, and the investment level is 4 times lower. The rapid transition from socialism to free markets led to a significant increase in mortality rate: +3.8 pers. to the previous year in 1993 and +2.4 pers. after the financial crisis in 1998. This affected mainly the male population: average men life expectancy dropped from 62.8 years in 1990 down to 53.7 years in 2005. In rural areas men life expectancy was equal to 50.8 years in 2005, i.e. it became 4.4 years shorter than the life expectancy of the urban population due to the low life quality of villagers. There was a significant share of able-bodied people in the total number of deaths (27.5% in 2010): there were 43% of men and 11% of women among the dead persons. In 2010 the main causes of able-bodied people deaths were circulatory diseases (38.2% among men and 31.3% among women of the total number of deaths). Unnatural deaths of able-bodied population are on the second place – 30.2% of men and 23.8% of women. The prevailing accidents were traffic injuries (12%), suicides (11.2%), homicides (5.9%), accidental poisoning by alcohol (5.1%). The stabilization of the socio-economic situation led to the tendency of a slow reduction in a mortality rate (see table 1).

Table 3. Age structure of the population by in Russia and the Pskov Oblast,% (census data)

Age groups	Russian Federation		Pskov Oblast	
	2002	2010	2002	2010
Total population: under able-bodied age	18.1	16.2	16.2	14.2
able-bodied age	61.4	61.6	58.3	59.4
over able-bodied age	20.5	22.2	25.5	26.4
Total	100	100	100	100
Rural population: under able-bodied age	21.4	18.7	15.3	13.1
able-bodied age	56.0	59.2	50.3	55.4
over able-bodied age	22.6	22.1	34.4	31.5
Total	100	100	100	100

The natural population decline was compensated by the migration from neighboring countries and other regions [2]. But a migration outflow exceeded a migration inflow *(tab. 4)*.

Population decline leads to territorial desertification, especially in the rural areas, which is very undesirable for a border region. Thus, the number of villages devoid of inhabitants doubled in the Pskov Oblast in the period between the censuses in 2002 and 2010; less than 10 people lived in 47% of rural settlements, and more than 100 people lived only in 5% of villages. The total population density was less than 8 persons per 1 sq.km in most regions of the Pskov Oblast. The rural population density was below 2.5 persons per 1 sq.km in Bezhanitsky, Plyussky, Krasnensky and Usvyatsky Districts.

Despite the positive dynamics of natural population increase rates, it is expected a sharp decline in a birth rate in 2015 – 2025 because small women population born in the 1990s of the last century will come of childbearing age [6]. The half of the families should have two children and the other half – three children in order to have simple reproduction and the total birth rate – 2.11 – 2.15 [9]. The total birth rate accounted for 1.4 in 2010 in the Pskov Oblast: 1.3 in urban areas, 1.7 in rural areas. The share of third children is only 8.3%, and the share of fourth children is 3.9%. Therefore, there are no sufficient demographic resources for stabilizing the population size in the Pskov Oblast.

According to the Demographic Concept of the Russian Federation until 2025, the target programme "Population policy in the Pskov Oblast for the period from 2012 to 2015" with the financial support of 579 million rubles from the regional budget was developed and approved in March 1, 2012. The main objectives of the programme include creating good conditions for family life, preventing social orphanhood, promoting healthy lifestyles and reducing the mortality rates.

The Oblast's Law "On the Regional Maternity Capital" has been adopted in order to increase a birth rate. Since January 1, 2011 the women, who give birth to the third and each subsequent child, and the persons, who are the adoptive parents of the third and each subsequent child, have been provided with the payment of 100 thousand rubles. The regional maternity capital can be used for the improvement of living conditions or education of children. The right to dispose of the regional maternity capital will occur when the third child or subsequent children are three years old.

The Law "On providing the citizens, who have three or more children, with land in the territory of the Pskov Oblast" was adopted in 2011. The document allows the persons, who have three or more children under the age of 18, to receive a free one-time ownership of a land plot in size from 10 to 15 acres for individual housing, if this family has been living for one year and more in the Pskov Oblast. The programme provides for funding of cadastral work and cadastral survey of land plots. 1177 families have declared their desire to get land plots, 587 of these families live in Pskov. In April 2012, four families got their certificate titles to land in Pustoshkinsky District.

It has been pronounced that 160 multi-child families are in need of improved housing conditions. They will be provided with subsidies totaling 143 million rubles. The programme provides opening 440 additional seats in the pre-school educational establishments,

Table 4. Migration of the population in the Pskov Oblast, pers.

Indicators	2000	2005	2009
People, who arrived from other regions	7858	4586	4580
People, who left the region	6959	5228	5078
Migration gain (+), loss(-)	+899	-642	-498

including 220 seats in the city of Pskov in 2015. Multi-child families receive benefits and pay 70% of the communal services cost regardless of ownership within the social norm of living space and standards of their consumption. They are informed of the availability of free medicines in a particular hospital. Large families also receive free textbooks in schools.

Authorities allocated 2.4 million rubles to promote a healthy lifestyle till 2015.

It is planned to establish two schools for preventing cardiovascular diseases, diabetes and bronchial asthma in order to preserve health and prolong the working period of the older people.

It is planned to decrease a mortality rate through:

- providing emergency teams with two reanimobiles for aiding emergency care for children, including newborns (2015);
- bringing 10 medical institutions in conformity with the sanitary requirements, which is supposed to be provided with 74.4 million rubles of financial support in the period from 2012 to 2013.

The Pskov Oblast has spent 1.7 billion rubles for the realization of the national project "Health" over the period from 2006 to 2010. Diagnostic equipment, 124 ambulance cars and a reanimobile have been purchased. It is planned to build a cardiovascular center in future.

The measures aiming at the reducing road traffic injuries are implemented. The share of traffic accidents on public roads due to the poor road conditions is 16 – 18% in the Pskov Oblast. In addition, there is no year-round connection with the highways of public service in 3639 rural settlements, which hampers aiding emergency and preventive medical care. The Programme for the Highway Development in the Pskov Oblast for the period from 2011 till 2015 has been adopted in order to improve the situation. The programme has the financial support of 17.7 billion rubles, including 13.6 billion rubles from the Oblast budget and 37.9 million rubles from the municipal budgets. According to the programme, the following measures will have been implemented by 2016:

✓ increasing the share of regional highways of public service that meet the regulatory requirements up to 36.1%;

✓ increasing the length of artificial structures on the regional highways of public service with the assessment of technical condition of "good" and "satisfactory" from 40 to 65.8%;

✓ reducing the number of traffic accidents due to the poor road conditions down to 15.5%;

✓ increasing the length of the regional highways of public service, which are commissioned after the reconstruction and construction, by 17 km;

✓ increasing the number of rural settlements, which are provided with the year-round connection with the hard-surface roads of public service, by 20 units;

✓ repairing of roads, yards and driveways to them in the city of Pskov.

Additional efforts are necessary along with the implemented programmes to solve the demographic problem in the Pskov Oblast. There are 70 thousand families with children in this region. The income per a family member is below the subsistence level in almost half of them.

Multi-child families, single-mother families and families with disabled children are most vulnerable. In our opinion, it is reasonable to pass a Federal law on benefit payment in the case of caring for a child under 3 years of age and to increase the size of the benefit as an immediate economic measure of increase in a birth rate (as an experiment for the Pskov Oblast), because family incomes dropped during the period of caring for a child under 1.5 – 3 years of age. It is necessary to eliminate the deficit kindergartens and to increase the number of nursery groups for the children under 1.5 – 3 years of age. The rural feldsher-midwife stations should be

restored in the settlements, where girls and women of childbearing age live, and additional emergency medical stations should be opened. It is necessary to carry out preventive work with the citizens in high-risk groups, aimed at preventing suicides, and to organize free medical compulsory treatment for alcoholism. It is necessary to create attractive conditions for migration inflow of young people aged 20 – 30 from other regions. It is important to promote tolerance among the local population to migrants. Existing and proposed measures will be able to improve the demographic situation in the Pskov Oblast.

References

1. Demographic features of 15 new and unknown states. Demoskop. Institute of Demography of the National Research University "Higher School of Economics". Available at: http://demoscope.ru/weekly/ssp/sng_abo.php. Date of access: 11.02.2012.
2. Demographic indicators of the Pskov Oblast: Stat. Coll. Pskovstat. Pskov, 2010.
3. Duganov M.D., Kalashnikov K.N. Methodological approaches to the estimation of the regional public health services efficiency. Economic and social changes: facts, trends, forecast. 2011. No. 6 (18). P. 93-105.
4. The results of the 2002 Census. Available at: http://www.perepis2002.ru/index.html?id=11. Date of access: 21.03.2012.
5. The results of the 2010 Census. Available at: http://www.perepis-2010.ru/results_of_the_census/results-inform.php. Date of access: 14.04.2012.
6. Krivylya I.V., Manakov A.G. Depopulation processes in the Pskov Oblast and the key areas of demographic policies. Available at: http://prj-pgpu.narod.ru/prj_1_6.pdf
7. The Economy of Pskov and the Pskov Oblast in the Ninth Five-Year Plan: Stat. Coll. Leningrad: Lenizdat, 1986.
8. The Economy of the Pskov Oblast: Stat. Coll. Leningrad: Lenizdat, 1968.
9. Oblast long-term target programme on the demographic policy in the Pskov Oblast in 2012 – 2015. Available at: http://social.pskov.ru/odtsp-%C2%ABdemograficheskaya-politika-v-pskovskoi-oblasti-na-2012-2015-gody%C2%BB. Date of access: 02.07.2012.
10. Statistical Yearbook of Pskov: Stat. Coll.: Pskovoblkomstat. Pskov, 2003.
11. Statistical Yearbook of Pskov: Stat. Coll.: Pskovoblkomstat. Pskov, 2011.
12. The regions of the Pskov Oblast. Socio-economic indicators: Stat. Coll.: Pskovstat. Pskov, 2007.

UDC 316.344.233(470.12)

Formation of inequality of Russia's population

The article consistently reveals the process of formation of population's socio-economic inequality since the Soviet period up to the present. The author identifies and analyzes the factors that played the most important role in this connection, such as price liberalization, hyperinflation, privatization, the depreciation of savings, increase in wages differentiation, unemployment, the change of population's income structure, development of shadow economy.

Inequality of population, stratification, Gini coefficient, R/P 10% ratio (the ratio of the average income of the richest 10% to the poorest 10%).

Luydmila V. KOSTYLEVA
Ph.D. in Economics, Senior Scientific Associate at the Institute of Socio-Economic Development of Territories of RAS
lvk888@mail.ru

Initially, Soviet society was created by ideologists as a socialist, i.e. classless society, but in 1934, at the 17th Congress of the Communist party in I.V. Stalin's report "On the Draft Constitution of the USSR", it was stated that two new social classes had been formed in the country: the working class and the kolkhoz peasantry and there was also a special social stratum of intelligentsia. Meanwhile, the higher status of the working class as compared with the peasantry and intelligentsia was emphasized. Differentiation in the incomes of classes and strata was explained by the differences in the contribution of individual workers in production, and also in the social experience and responsibility. Such a concept of the country's social structure existed until the end of the 1980s. In fact, the model of "working class – peasantry – intelligentsia" concealed the system of implicit classes.

The views on Soviet society as a stratified one were developed by Soviet sociologists in the 1960s: the concept of society as a hierarchical structure was presented in the works of Yu. V. Arutyunyan, O.I. Shkaratan, L.A. Gordon, T.I. Zaslavskaya. The authors defined 8 – 10 socio-professional groups ("social strata") differentiated by economic status, cultural level, value orientations and lifestyle, these are the factors which for the first time were declared the primary elements of the social structure of Soviet population. Stratification research of that time was carried out on the basis of the criteria traditionally used in Western sociology: the level of education, qualification, the essence of work, differences in income [13].

The next step in the study of the social structure of Soviet society is presented in the works of Bulgarian sociologist N. Tilkidzhiyev, who highlighted the necessity of differentiation between social inequality and actual professional distinctions due to their different nature. N. Tilkidzhiyev noted that the socio-pro-fessional affiliation is a fundamental factor in the formation of

the strata, but it is necessary to take into account the influence of such factors as social background, social relations, housing and dwelling conditions, institutional factor.

While describing social relations in the USSR, German sociologist W. Tekkenberg determined that social inequality in the Soviet society manifested itself mainly in the social position and prestige, and not in the different level of income, which is more typical of Western societies [13]. Indeed, the social differentiation of population in Soviet society was determined by such factors as unequal access to material and spiritual values, the existence of departmental health care institutions and children's pre-school facilities, etc. [11]. A set of social privileges to employees depended not only on the industry in which they worked, but also on the enterprise at which they worked.

A special stratum of population – the nomenklatura, formed by people holding various key administrative positions in all the spheres of activities: industry, agriculture, education, etc. enjoyed special privileges and benefits. Representatives of all social groups could join the nomenclature subject to two conditions: political loyalty and personal dedication to the leadership.The peculiarity of the USSR nomenclature consisted in a noncash remuneration of its service. The privileges included legally established right of use and disposal of state property. As O.I. Shkaratan points out, "the nomenclature of the USSR possessed, disposed of, enjoyed and appropriated the national wealth, although it was in many respects not formalized by legal norms" [13].

In the Soviet Union in the 1980s, the differentiation of population's incomes as well as wages differentiation was insignificant: the decile coefficient of differentiation in 1989 was 2.99 [11]. Formation of wages and other types of income in the USSR was based on the centralized distribution and redistribution of money, goods, and free services and it was strictly controlled.

A significant role in implementing the incomes policy of the Soviet period was played by the social consumption funds (SCF): their share amounted to almost 30% of the total income of the population. SCF served as an important tool regulating the differentiation of citizens' incomes: various cash payments and benefits provided at the expense of SCF were directed mainly to low-income families, students, people with disabilities, etc., increasing the level of welfare of certain population groups and thus reducing the differentiation of incomes. The system of distributional relations in the Soviet Union was aimed at reducing the income inequality of employees, which corresponded to the ideology advocating homogeneity of the society [6].

The breakdown of the nomenclature occurred in 1991, together with the collapse of the USSR. It was the beginning of transition to market economy from centralized economy with social ownership of the means of production, planned pricing and command and control administration system. Since 1992, the country launched a radical economic reform, the main components of which included prices liberalization, foreign trade liberalization, and privatization.

Strategic errors in the reforms of the old social relations and establishment of market relations were aggravated by the peculiarities of the economy: its monopoly, technological backwardness and asymmetry. As a result, the economy of that period was characterized by a very deep recession: according to official statistics, the volume of GDP in comparable estimation for the period from 1991 to 1997 reduced by about 40%.

The 1991 – 1992 **liberalization of prices** was accompanied by high inflation rates and multiple growth of population's nominal incomes. However, the real incomes, due to the application of "shock therapy", were reduced almost twice *(fig. 1)*. After a certain recovery in 1993 – 1994, the level of income had been decreasing until 1999.

Figure 1. Incomes of Russia's population and their differentiation in 1991 – 1999

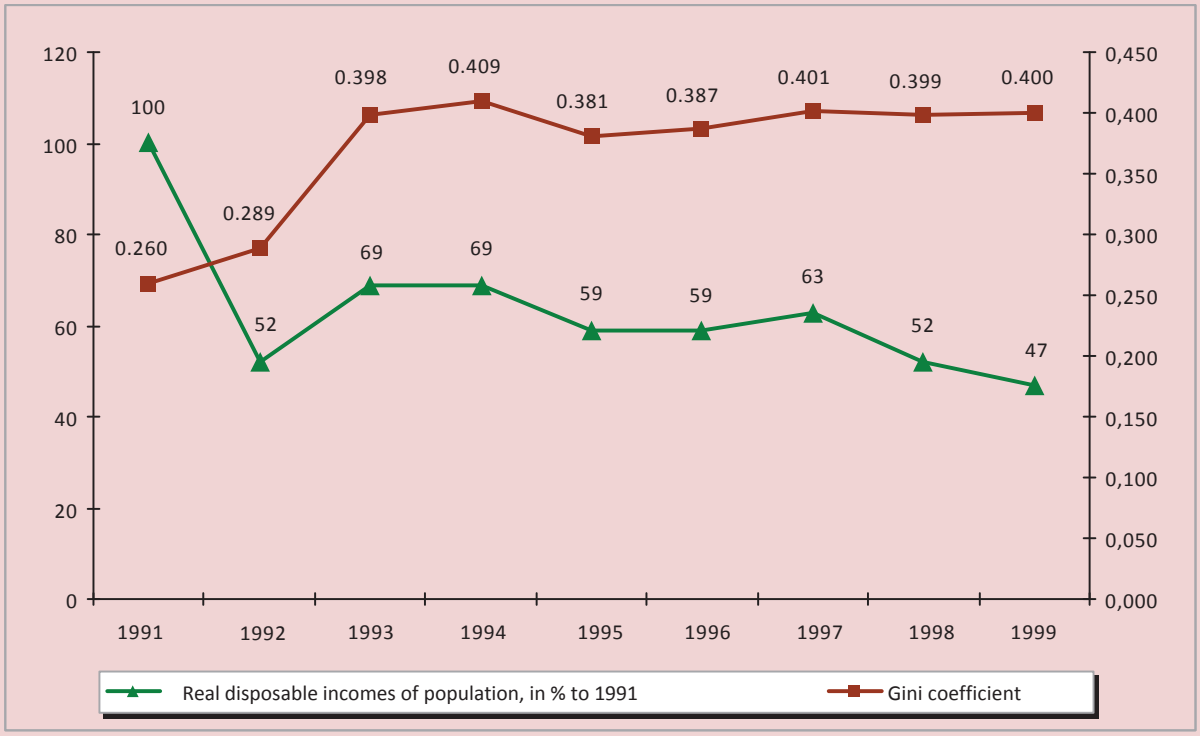


Table 1. Distribution of the total income of Russia's population in 1991 – 1998, %

Population group	1991	1992	1994	1996	1998
Monetary incomes, total	100.0	100.0	100.0	100.0	100.0
Including 20% groups of population:					
first (with the lowest incomes)	11.9	6.0	5.3	6.5	6.2
second	15.8	11.6	10.2	10.9	10.5
third	18.8	17.6	15.2	15.5	14.9
fourth	22.8	26.5	23.0	22.4	21.0
fifth (with the highest incomes)	30.7	38.3	46.3	44.7	47.4
Source: Statistical yearbook of Russia: Russian State Statistics Committee. Moscow, 2001.					

Along with the decrease in the average level of population's income, the distribution of the overall volume of income in Russian society changed radically: in 1994, the value of the Gini coefficient increased more than 1.5-fold and in subsequent years, its level wasn't changed significantly. The inequality of population's incomes, which appeared as a temporary phenomenon, usually accompanying the reform processes, acquired a stagnant character in Russia.

If in 1991 the poorest 20% group of population accounted for 12% of the total monetary income, then to 1998 – for only 6%, while the share of income of the most prosperous group increased from 31 to 47%. It should be noted that the increase in the share of income was typical only for the fifth 20% group of population and the other four groups experienced its decline *(tab. 1)*.

The distribution of savings in the society was more uneven still. By the beginning of 2000,

half of the poorest Russians (52%) owned only 1% of the total volume of savings, while 53% of savings was concentrated in the hands of 2% of the most well-off [11]. In many respects such situation has developed as a result of loosening price control in the beginning of 1992. Which happened without compensation on deposits in commercial banks and savings banks. The majority of Russians at that time lost all their savings.

According to many modern scientists, the chief reasons for the extremely uneven distribution of cash income among the population include privatization, as a result of which a considerable part of state property of the Russian Federation became private property. Privatization in Russia in the early 1990s was notable by its swiftness, wide scale, lack of institutional preparation and relevant legislation. The dispensation of property began in 1988 along with the introduction of the Law of the USSR "On a state-owned enterprise", according to which the teams of employees became virtually independent from the state. Directors of the enterprises gained the rights of owners, and the responsibility for the efficiency of the activities remained with the state. Teams of employees obtained the right of redemption of enterprises which they leased. The process of "spontaneous privatization" (a euphemism) was launched in the country: property began to pass into the hands of those who used it. O.I. Shkaratan notes that "1988 – 1991faced the distribution of property to the nomenclature, which also retained its authority" [7, 13].

In 1992, open privatization began: in 1992 – its voucher stage, and since 1995 – the activities of loans-for-shares auctions. The established order of conducting privatization provided significant benefits to the heads of enterprises that had obtained their posts in the Soviet period: by using administrative pressure, they could achieve desired results of voting at shareholders' meetings, and afterward buy out the share of the employees of the enterprises, thus becoming full-fledged owners. The depreciation of population's savings only contributed to the distribution of large and medium state property to the heads of enterprises.

As Academician V.M. Polterovich points out, when voucher privatization started "... the country lacked entrepreneurs able to purchase enterprises, and managers, able to run them under free market conditions, market infrastructure was absent as well... Many enterprises were dozens and hundreds of times undervalued, so their future owners could anticipate huge profits" [13].

Advocates of the rapid implementation of privatization in Russia supported their position by pointing out the hopelessness of the situation. In fact, however, those were convenient circumstances promoting the easy and unpunished appropriation of the national wealth of the huge country by a small group of people. For the 1992 – 1999 period more than 133.2 thousand different enterprises and facilities were privatized, their overall value equaled just over 9 billion dollars, i.e. an average of 70 thousand dollars per each. They included metallurgical enterprises, mechanical engineering enterprises, processing enterprises of the oil and oil-refining industry. In comparison with other countries, both developed and developing, the amount of revenues received from privatization in Russia, proved extremely small. And this is not surprising: after all, the sales of companies at the auctions were effected at the prices dozens of times less than their real value. Thus, in the 1990 – 1998 period, as the result of privatization, Brazil has gained 67 billion dollars, the United Kingdom – 66 billion dollars, Italy – 64 billion dollars. As the result of privatization, Russia gained only 55 dollars per capita of population, while in Australia this figure equals 2,560 dollars, in Portugal – 2,109 dollars, in Italy and the United Kingdom – 1,100 dollars.

Privatization caused the transformation of state property into private property owned by a small group of people, all the main resources of the country were concentrated in the hands of the few. After a while, the majority of population lost their savings once again due to the 1998 financial crises, and the rich strengthened their welfare.

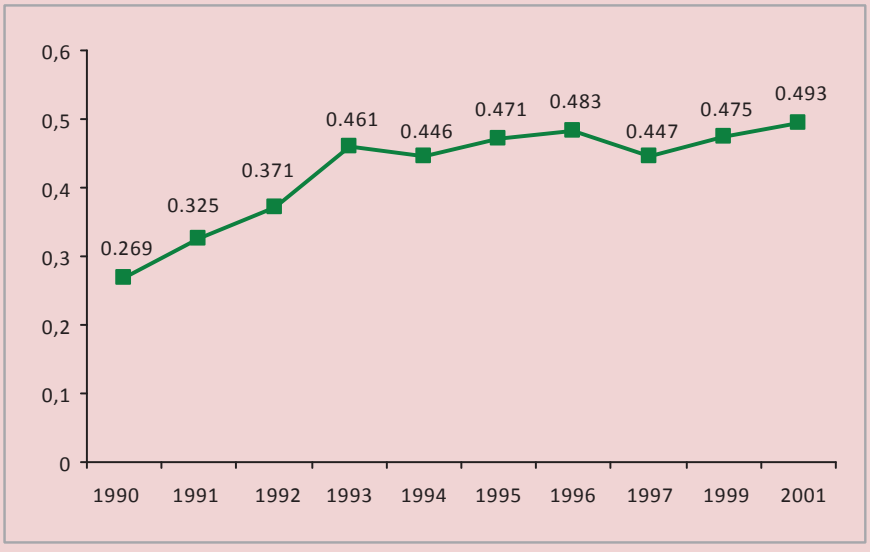
In addition to liberalization of prices, hyperinflation and privatization, the formation of inequality in the distribution of income among the population was affected by such processes as the increase in wages differentiation, emergence of secondary employment of population, development of entrepreneurship.

Transition to a market economy caused a rise in wage inequality in the majority of Eastern European countries. In some of them the growth was moderate, in others it was more significant. Russia, along with some other former Soviet republics (Armenia, Azerbaijan, Kyrgyzstan) was among the countries that experienced a considerable rise in wage inequality, and, as it was already noted, the increase of inequality occurred simultaneously with the landslide fall of the wages level.

In only three years, from 1990 to 1993, the Gini coefficient for wages in Russia increased from 27% to 46%, and in the following three years – to 48% *(fig. 2)*, which is comparable only to the level of differentiation in Latin American countries. Analyzing the information on the inequality of wages in transition economies, V.Ye. Gimpelson and R.I. Kapelyushnikov note that "...so far there is no country, in which the inequality of wages would decrease after the main phase of economic transformation was completed" [4].

Economists P. Aghion and S. Commander developed a theoretical model that reveals in the period of transition of an economy the interrelation between the variation of the wage level and the development of the private sector. First of all it happens because the employees are moving from the public sector with a fairly even distribution of wages to the private sector with a greater variation in wages distribution. The average wage in the private sector is higher than in the state sector due to higher labour productivity, which also increases the general inequality. The private sector is developing more intensively in the sphere of services, that is why the economy restructuring can be

Figure 2. Dynamics of the Gini coefficient for wages in Russia, 1990 – 2001



considered one of the factors increasing the differentiation of wages.

In the transition to market relations, the enterprises became distinguished by a different efficiency of activities, which also contributed to the increase in not only inter-sectoral **differentiation of wages**, but also in the differences within the same industry. Sectoral, inter-sectoral and inter-regional differences in wages were enhanced by the surge of inflation after prices liberalization. At that time inflation rates varied considerably in the regions, and in economic sectors [4].

The high degree of wages differentiation can also be explained by the delay in payment of wages, which acquired a large-scale character in the 1990s. At first, the duration of delays was measured in weeks, then – in months. In the second half of the 1990s, the delays of more than one year became common. Different branches of the economy were affected by this phenomenon in different ways. The coal enterprises of Vorkuta ranked first in the duration of delays: by the end of 1998 the wages there had not been payed for 10 – 12 months [5].

Wages were the main source of population's incomes since the Soviet times, when remuneration for work was strictly regulated by the state: in the 1970 – 1980 USSR remuneration accounted for 75 – 80% of the total cash income. With the implementation of market transformations, the structure of population's cash income has undergone significant changes due to the increase in the share of income from entrepreneurial activity and the share of property income *(tab. 2)*.

By 2000, incomes from entrepreneurial activity and property incomes accounted for almost a quarter of the total volume of incomes. At the same time they were typical only for one third of the population, this was also a factor of income inequality among Russians. Secondary employment, which emerged at that time and which was typical of about one fifth of the employees, enhanced the differences in incomes as well [11].

The process of transition to market relations facilitated the emergence of labour market, and the rapid increase of unemployment. By 1998, about 13% of the economically active population in the country, according to methodology of the International labour organization (ILO), had been unemployed *(fig. 3)*, and this indicator does not take into account hidden unemployment. Unemployment, along with the delays and non-payments of wages aggravated the financial position of numerous population groups, thus further increasing the gap between them.

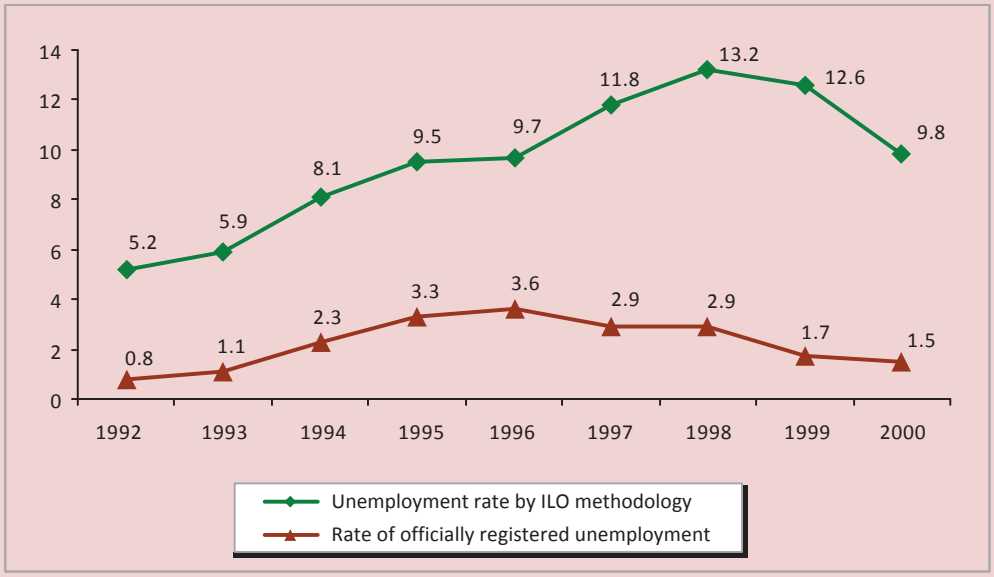
It should be noted that **shadow incomes** also influence the formation of population inequality. In the shadow economy of the Soviet Union about 20 – 30 million people were constantly or occasionally engaged in speculation and theft [13]. With the beginning of establishing market relations, shadow economy began its development at the rate significantly exceeding that of the formal economy. According to expert estimates, its share in 1995 accounted for approximately 45% of the GDP of the Russian Federation.

Table 2. Structure of population's monetary incomes in Russia in 1975 – 2000, %

Source	1975	1980	1985	1990	1995	2000
1. Remuneration of labour	80.7	79.8	77.2	76.4	62.8	61.4
2. Social transfers	14.0	15.1	16.4	14.7	13.1	14.4
3. Entrepreneurial incomes	2.7	2.2	2.7	3.7	16.4	15.9
4. Property incomes	1.2	1.3	1.6	2.5	6.5	7.1
5. Other incomes	1.4	1.6	2.2	2.7	1.1	1.2

Source: Statistical yearbook of Russia: Russian State Statistics Committee. Moscow, 2001.

Figure 3. Level of unemployment in Russia in 1990 – 2000, %



The bulk of shadow incomes concentrated in the hands of a small group of people, whose consumption level is comparable with that of the highest income groups of population in the richest countries, and that, no doubt, contributed to the increase in the indicators of income inequality of the country's population [3].

The period since 2000 was characterized by political stability and sustainable economic growth, this had a positive impact on the level of population's incomes as well. Per capita average cash income of the population in the Russian Federation increased as the result of the increase in the GDP volume (during this period there was a 2.8-fold increase). However, despite the positive dynamics, the population's incomes, as compared on the international scale, remained at an extremely low level: in 2010, monthly wages of employees in Russia accounted for only 730 U.S. dollars, meanwhile this indicator in the United States was 3,705 U.S. dollars (2007) and in France – about 3,485 U.S. dollars (2006)[1].

But average income growth indicators do not reflect the situation concerning the welfare of different population groups. In present-day Russia, despite the positive dynamics of the average cash incomes increase, social polarization and concentration due to the rapid growth of the highest incomes and salaries are not reduced, but continue to grow [9]. The distribution of cash incomes among the population of Russia is extremely uneven, as it is proved by all the indicators of the differentiation. According to Rosstat, the ratio of the average income of the richest 10% to the poorest 10% (R/P 10% ratio) equaled 16.5 times in 2010 *(tab. 3)*. This level is extremely high, while in Western European countries R/P 10% ratio does not exceed 10 points: the world experience shows that if the ratio of the incomes of 10% of the richest to 10% of the poorest exceeds 1:10, the country enters a stage of conflicts, and then – social disasters. That is, in this respect, Russia has gone far beyond the critical level [1].

According to the researchers studying the differentiation of population, the values of R/P 10% ratio do not reflect the real level of inequality in the society for several reasons.

[1] According to the Statistical Yearbook of Russia, 2010.

Table 3. Distribution of the RF population's overall monetary incomes in 1990 – 2010

	1990	1995	2000	2005	2010
Monetary incomes – total, %	100.0	100.0	100.0	100.0	100.0
Including by 20% groups:					
First (bottom)	9.8	6.1	5.9	5.5	5.2
Second	14.9	10.8	10.4	10.1	9.8
Third	18.8	15.2	15.1	15.1	14.8
Fourth	23.8	21.6	21.9	22.7	22.5
Fifth (top)	32.7	46.3	46.7	46.7	47.7
R/P 10% ratio, times	not available	13.5	13.9	15.2	16.5
Gini coefficient	not available	0.387	0.395	0.409	0.420
Source: Russia in figures. 2011: concise statistical book. Rosstat. Moscow, 2011.					

1. Indicators of incomes differentiation are calculated on the basis of the Rosstat data, which are, in turn, based on budget statistics, and are therefore underrated: household surveys do not include the marginal groups of the society (7 – 10% of population according to sociologists) and super-rich people (5%) [10].

2. The level of inflation for the most and least well-off groups of population differs more than 2-fold [12].

3. When calculating R/P 10% ratio only the value of the officially registered incomes is taken into account, excluding shadow incomes (about 30 – 40% of funding), which are mainly concentrated in the hands of the wealthiest population groups.

That is why the real level of differentiation is not 17, but 25 – 30 times, which corresponds to the situation observed in Latin American countries. As the calculations of some researchers show, R/P 10% ratio for Moscow in 2009 was 42.7 [8]. Raw-material economy, similar to that of Russia, initially implies a very narrow circle of rich people and large groups of the poor. The transition to innovation model of the economy and profound reforms are necessary in order to change the situation radically [2].

In 2010, 20% of the richest citizens accounted for 47.7% of cash income, and 20% of the poorest – for only 5.2%.

As G.V. Anisimova[2] points out, it causes the fragmentation of the social structure of the society into many strata and groups isolated from each other, the undermining of social solidarity, and ultimately, the ousting of certain categories of population from social life [1].

Some economic scientists believe that the moment when the bow of the Lorenz curve is bent to the fullest comes when the poorest 40% of the population receive less than 12 – 13% of total household incomes in the country. Such imbalance in the distribution of benefits usually arouses enormous discontent among the poor and can lead to socio-economic and even political consequences very undesirable for the country. It is noteworthy that in the Russian Federation according to the 2010 data, the two low quartile groups accounted for only 15% of the total income of the population.

According to 2011 data, the per capita income of 20% of the wealthiest Russians exceeded the subsistence level (SL) almost 8-fold, while the average income of the bottom population group equals only about 84% of the officially established indicator *(tab. 4)*.

[2] Galina Vladimirovna Anisimova is the Leading Scientific Associate of Social and labour relations sector at RAS Institute of Economics, Ph.D. in Economics, Associate Professor. Field of scientific interests – labour relations, formation of socio-economic structure of a society, trends in evolution of relations of labour and capital.

Table 4. 2000 – 2011change of average per capita monetary income of the population of the Russian Federation in view of socio-economic groups

20% groups of population according to the income	Average per capita monetary income, rub.		Ratio to subsistence level, fold		Ratio of 2011 incomes to 2000 incomes, %
	2000	2011	2000	2011	
First (bottom)	673	5330	0.56	0.84	7.9
Second	1186	10150	0.98	1.59	8.6
Third	1722	15280	1.42	2.40	8.9
Fourth	2498	23175	2.06	3.64	9.3
Fifth (top)	5326	48600	4.40	7.63	9.1
Sources: Statistical yearbook of Russia.2008. Rosstat. Moscow, 2008; Russia in figures. 2011: concise statistical book. Rosstat. Moscow, 2012.					

In dynamics, the ratio of income to the size of the subsistence level is increasing, still in the upper groups – more rapidly than in the lower ones, due to the different rates of per capita income growth in the observed period. Current assessments show the 7.9-fold increase in the income of the first population group, the 9.1-fold increase in the income of the fifth population group.

As the result of the reforms in Russia, only 20% of the richest population (the fifth income group) received substantial benefit: their average incomes increased from 4.7 to 7.6 SL *(fig. 4)*. The representatives of the fourth and the third groups retained their welfare level. And the level of income and, accordingly, the living standard of the first and second groups with the lowest incomes decreased considerably. Moreover, more than half of the representatives of the first income group are below the absolute poverty line.

Recently, the gap between the rich and the poor has been constantly increasing throughout the world. According to the research "Inequality increases in spite of economic growth" conducted by OECD[3] in 30 developed countries, Mexico, Turkey and the U.S. head the list of "troublesome" countries in this respect. The study shows that in Mexico the rich earn 25 times more than the poor, in the United States – 16 times more. At the same time, the average level of population incomes in these countries equals 1,000 dollars and 6,000 dollars, respectively.

According to experts, the most successful countries by this indicator are Denmark and Sweden, where the incomes of the rich only 5-fold exceed those of the poorest.

The standard gap between the population groups in OECD countries is considered to be the ratio of 1:9. Russia was not included in this rating because the study had been conducted among the OECD member states. At the same time, OECD analysts believe that our country, holding the leading position, is closest to Mexico regarding the gap between the incomes of the rich and the poor.

The 2008 global financial crisis had some impact on the incomes gap between the richest and the poorest, because it resulted in the decrease of the richest people's incomes, which caused a certain reduction in R/P 10% ratio: if in 2007 and 2008 it was 16.8 times, then afterwards it experienced a downward trend – its value according to 2011 data, was 16.1.

The impact of the global financial crisis on the population inequality in the Vologda Oblast can be estimated on the basis of the structure of population and the assessment of their own incomes *(tab. 5)*.

[3] Organization for Economic Cooperation and Development (OECD) is an international intergovernmental organization established in 1961. At present it comprises 30 states: Australia, Austria, Belgium, the UK, Hungary, Germany, Greece, Denmark, Ireland, Iceland, Spain, Italy, Canada, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, the U.S., Turkey, Finland, France, Czech Republic, Switzerland, Sweden, South Korea, and Japan.

Figure 4. Dynamics of ratios of per capita cash income to the subsistence level (SL) in the quintile groups (1 – 5) of the population of the Russian Federation in 1990 – 2010, fold

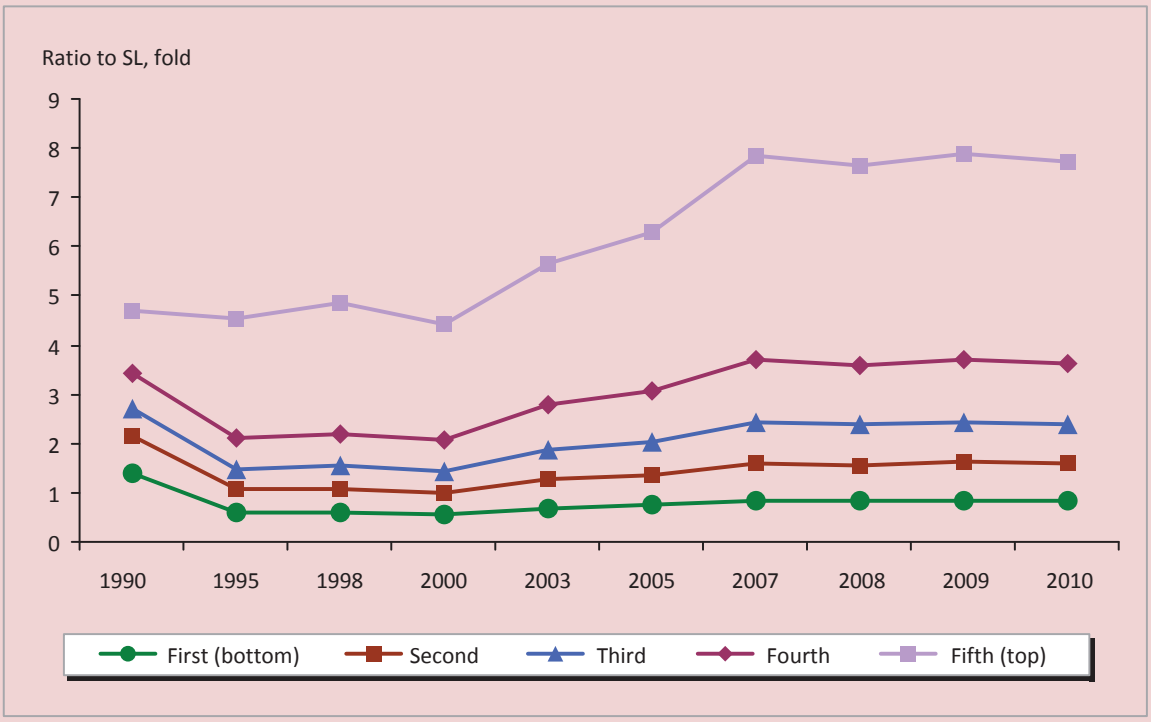


Table 5. Structure of the Vologda Oblast population according to the assessment of their own incomes in 2000 – 2011 (in % of the total number of respondents)

Year	Population groups according to the assessment of their own incomes				
	Extremely poor	Poor	With low income	Well-off	Rich
2000	15.9	46.4	31.2	4.1	1.4
2001	14.0	43.8	32.0	6.0	2.1
2002	12.8	40.7	35.1	6.1	3.1
2003	12.6	38.8	36.7	7.8	2.4
2004	9.6	35.9	41.7	6.9	2.3
2005	6.3	34.7	46.7	8.6	1.4
2006	4.3	34.4	47.9	9.4	1.6
2007	3.8	31.1	50.1	10.9	2.3
2008	3.4	13.6	62.7	17.5	2.1
2009	6.1	34.3	52.2	6.3	1.1
2010	5.1	30.3	51.6	11.1	1.7
2011	3.5	28.8	53.2	11.7	2.1
Source: 2000 – 2011 ISEDT RAS sociological surveys data					

Judging by the 2009 assessments, it should be noted that the structure of population became similar to that of 2005, when about 38% of the region's population could be defined as "poor" and "extremely poor". The amount of the poor changed most significantly (from 14% to 34%), due to the transition to this group of those who had been considered low-income residents. The crisis reduced the share of the well-off and the rich from 20% to 7%.

In 2010 – 2011, the situation began to level off, and first of all the share of the rich was recovered. However, according to our estimates, it will take not less than two years to restore the pre-crisis structure of the population.

Thus, population's incomes inequality, which had been strictly regulated and controlled in the Soviet times, started to increase rapidly with the transition to market relations. Two main stages of the formation of inequality in Russian society can be pointed out. The first stage encompasses the period from 1990 to 2000. At this time the main factors determining inequality were the liberalization of prices, hyperinflation, privatization, the depreciation of savings, increase in wages differentiation, unemployment, the change of population's income structure and the development of shadow economy. Having emerged as a temporary phenomenon that accompanied the reform processes, the inequality of Russian population acquired stagnant character.

The second stage, from 2000 up to the present time, is characterized by a considerable increase in the incomes of the richest 20% of the population. The inequality has been somewhat reduced because of 2008 financial crisis that led to the decrease in the incomes of the upper population groups.

The danger of the situation lies not only in the negative impact of inequality on the psychological climate of the society. The point is that the high degree of inequality hampers economic development, negatively influences the demographic indicators and reduces the quality of human capital, which is inadmissible in the conditions of modernization of the economy.

References

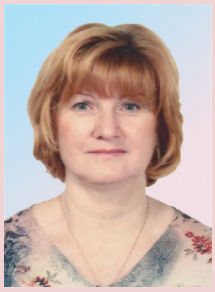
1. Anisimova G.V. Socio-economic inequality. Trends and mechanisms of regulation: monograph. Moscow: UNITY-DANA, 2010.
2. Bogomolova T.Yu., Tapilina V.S. Poverty in modern Russia: the scope and territorial differentiation. ECO. 2004. No. 11. P. 41 – 56.
3. Vartanova I.S. Differentiation of population incomes in the conditions of transition to the market. Ph.D. in Economics thesis summary. Moscow, 2000.
4. Wages and salaries in Russia: evolution and differentiation. Ed. by V.Ye. Gimpelson, R.I. Kapelyushnikov. Moscow: Publishing house HSE, 2007.
5. The history of the miners' movement in Vorkuta in the 1990s. Available at: http://www.uran.donetsk.ua/~masters/2002
6. Kislitsyna O.A. Inequality in incomes and health in modern Russia. Doctor of Economics thesis summary. Moscow, 2006.
7. Mau V. Russian economic reforms as viewed by their Western critics. Voprosy ekonomiki. 1999. No. 11, 12.
8. Modernization and economic security of Russia.Vol.1. Ed. by academician N.Ya. Petrakova. Moscow: Publishing house "Finances and credit", 2009.
9. Poverty reduction, promotion of employment and local economic development in the North-West Federal district of the Russian Federation: report within the framework of the ILO project. Moscow, 2004.
10. Rimashevskaya N.M. Two Russias – social polarization of Russian society. Fair and unfair social inequality in modern Russia. Moscow: Referendum, 2003.
11. Rimashevskaya N.M. Economic stratification of the population in Russia. Society and economics. 2002. No. 12. P. 6 – 14.
12. Shevyakov A.Yu. The most important Russia's social problems and ways of their solution. Federalizm. 2011. No. 2 (62). P. 25 – 34.
13. Shkaratan O.I. Socio-economic inequality and its reproduction in modern Russia. Moscow: CJSC "OLMA Media Group", 2009.

UDC 36 (470. 13)

Current state and problems of providing targeted social welfare benefits to the population in the Republic of Komi

The article deals with the targeted form of social welfare benefits –subsidies for rent and utility services in the Republic of Komi. The article analyzes the programmes on the payment of housing and utility services: benefits, rent subsidies. It reveals the reasons for territorial differences in average monthly rates of rent subsidies per one family and significant variations of these indicators among the region's municipal entities.

Targeted social welfare benefits, rent subsidies, benefits, standards of expenditures for payment.



Valentina V.
TIKHOMIROVA
Ph.D. in Economics, Senior Scientific Associate at the Institute of Socio-Economic and Energy Problems of the North Komi Science Centre, Ural RAS Department
tikhomirova@iespn.komisc.ru

Russia started implementing targeted social assistance for rent and utilities payment in 1994 in accordance with the Law of the Russian Federation No. 4218-1 dated 24 December 1992 "On the foundations of the federal housing policy". According to the RF Housing Code, the calculation of rent subsidies should be based on the regional standards of the cost of housing and communal services. In addition, a unified procedure for granting subsidies was established on the whole territory of Russia, the authority to grant the subsidies was entrusted to local self-government bodies, the opportunity of improving the conditions of granting subsidies by local self-government bodies was determined as well as the sources of financing and subsidies support agencies [3].The RF Government Decree No. 761 dated 14 December 2005 established new Rules of granting rent and utilities subsidies. In accordance with the new order, regional authorities are to establish regional standards for provision of subsidies by local self-government bodies.

The regions transferred the rent subsidies programme to the jurisdiction of social welfare bodies, and rent and utilities subsidies were now provided directly to the recipients at the banks and post offices.

The regions developed their own standards of the living quarters area used for calculation of rent and utilities subsidies, and the maximum permissible shares (MPS) of the citizens' expenses for housing and communal services (HCS) payments in the aggregate family income. The standards of HCS expenditures are based on the fact that the norm of dwelling space is 18 m^2 per one person in a family of three or more persons; 21 m^2 per one person in the family of two persons; 33 m^2 per one person if he/she lives alone.

Besides, in some regions, housing and communal services payment standards were differentiated according to the level of conveniences. For instance, in the Tomsk Oblast, housing and communal services payment standards are established in every district for each of the 10 categories of residential premises. In Tatarstan the standards are based on the average housing and communal conditions (four types) for detached and apartment buildings in each municipal entity. In Kalmykia standard HCS expenditures in each district and municipal entity have been calculated with regard to available conveniences. It should be noted that federal legislation does not stipulate the establishment in one municipality of several standards of HCS costs for apartment blocks and detached houses.

Many regions have adopted the federal standard for MPS of expenses amounting to 22% [4]. Some regions have reduced this limit for certain categories, such as pensioners, multi-child families, etc. At the same time, to improve the targeting of rent subsidies provision, it would be more appropriate to reduce MPS for low-income families. For example, in the Tomsk Oblast the regional standard of MPS of expenses is multilevel and depends on the average income per capita.

In the Republic of Komi, the situation worsened after the RF Government Decree No. 444 dated 30 August 2004 "On the provision of subsidies for housing and communal services payment" was put into effect in January 2005. The number of subsidies' recipients decreased sharply, financial standing of mainly low-income families and pensioners deteriorated. In this connection, in order to ensure social protection of this category of citizens, the Law of the Republic of Komi No. 54-RL dated 28 June 2006 "On the regional standard of the norm of dwelling space, used for calculating the housing and communal services subsidies" was adopted providing for the 1.5-fold increase of this standard for lonely old-age pensioners (men over 60 and women over 55 years old) and disabled pensioners, and also for families consisting of such pensioners.

The rest of the citizens in the Republic, like in most Russian regions, are to pay for rent and utilities according to the regional standard of MPS of expenses (22%) in the aggregate family income.

The families in which the expenses on rent and utilities exceed the 22% threshold established in the region can receive subsidies that reduce these expenses down to a threshold level. The programme for rent and utilities subsidies was introduced to alleviate the social consequences of transition to the 100% payment for housing and communal services.

Territorial bodies of social protection that are part of the Komi Republic Social Development Agency, in accordance with the federal and republican legislation, keep records of citizens entitled to social support concerning the payment for rent and utilities. In this connection, the social protection bodies form the registers of such citizens who obtain the right to receive support from the federal budget and the budget of the Komi Republic.

At present, the region *has 2 social assistance programmes* on rent and utilities payment. The first comprises the *privileges* for certain population categories, provided without inspecting the household incomes. The second programme deals with rent *subsidies* for "needy" families (*targeted social assistance*).

The privilege for rent and utilities payment is a discount, granted in accordance with the current legislation to certain categories of citizens, including members of their families living with them (if it is stipulated by the legislation for the relevant category of citizens).

Subsidies for rent and utilities payment is a targeted form of social assistance, which is granted to the citizens by the state power bodies of the subjects of the Russian Federation and local self-government bodies within the limits of the social norm of

dwelling space and the standards of communal services consumption, taking into account the subsistence level, the aggregate family income and existing benefits [1].

The regional standard for the cost of rent and utilities is determined taking into account the prices, tariffs and standards that are applied for calculating the housing maintenance, repair and communal services payments for the renters of subsidized municipal housing, who live in residential quarters where the equipping with services and utilities, structural and technical parameters correspond to the average ones in the municipal entity [2].

During the last several years, the Republic of Komi faced positive changes in the provision of subsidies and privileges to the citizens concerning rent and utilities payments. For 2005 – 2009 their total volume increased 1.9-fold and in 2009 it reached 2.9 billion rubles. This growth was achieved in almost equal measure (1.9 times) due to the subsidies and privileges. It should be noted, that the total volume of subsidies and privileges for rent and utilities payments in the Republic in 2009 amounted to 4 – 5% of the total amount of population payments for housing and utility services.

The positive feature is a certain increase in the share of subsidies and decline in the share of privileges in the total amount of social assistance for rent and utilities payments, though the share of the latter still remains significant. For 2005 – 2009 the share of subsidies has increased from 36% to 37.2%, and the share of privileges decreased from 64 to 62.8% *(figure)*. This dynamics indicates a gradual improvement of targeted social assistance in the region.

At the same time, the number of families receiving subsidies increased 1.3-fold, which is considered a negative trend, as it indicates the growth in the number of poor families due to the decline in their incomes.

For the period under consideration, the average amount of subsidy per a family increased 1.5-fold [5] and in 2009 it reached 1,579 rub., that is already quite a significant contribution to the income of a poor family *(tab. 1)*.

Structure of social assistance to the population on rent and utility payments in the Republic of Komi in 2005 – 2009

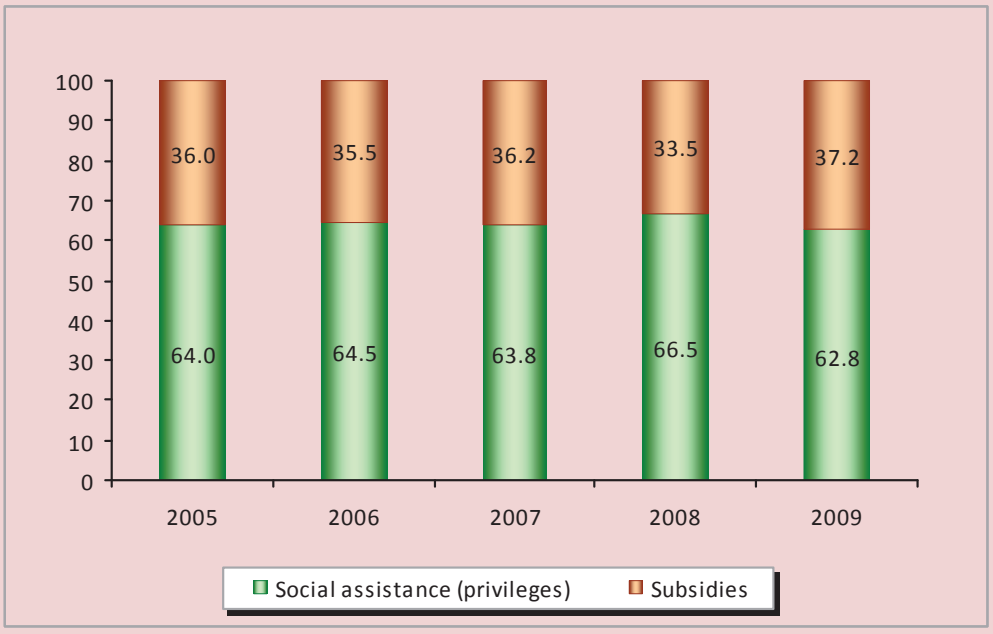


Table 1. Subsidies to citizens for rent and utilities payments in the Republic of Komi in 2005 – 2009*

Indicators	2005	2006	2007	2008	2009
Number of families receiving subsidies, units	43058	43065	55840	56392	57481
Total amount of subsidies, million rub.	561.8	608.0	696.1	788.8	1089.5
Average monthly rate of subsidies per one family, rub.	1087	1177	1039	1166	1579
* Source: Statistical yearbook of the Republic of Komi, 2010. P. 123.					

Table 2. Subsidies for rent and utilities payments in the cities, towns and districts of the Republic of Komi in 2007 – 2009*

Territory	Number of families that received subsidies			Share of families receiving subsidies in the total amount of families, %			Sum of provided subsidies, million rub.			Average monthly subsidy per one family, rub.		
	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009
Republic of Komi	55840	56392	57481	15	16	16	696.1	788.8	1089.5	1039	1166	1579
Syktyvkar	7325	8264	10264	8	9	11	87.7	111.4	179.2	997	1123	1455
Vorkuta	13353	9448	8044	28	21	18	182.5	172.5	220	1139	1521	2279
Vuktyl	865	861	809	13	13	13	8.3	9.9	13.8	802	955	1417
Inta	2023	2157	2082	12	14	14	22.1	25.6	36.7	911	990	1468
Pechora	6582	6461	5526	26	26	23	87.7	97.1	115.1	1111	1252	1736
Sosnogorsk	2040	2035	2819	10	10	14	17.5	21.6	45	717	886	1329
Usinsk	1150	1113	2186	6	6	12	18.7	21.1	28.3	1359	1577	1079
Ukhta	5459	5043	4596	11	10	9	53.5	61.9	87.2	817	1022	1580
Dictricts: Izhemsky	1096	409	316	16	6	5	6.4	5.8	7	483	1187	1857
Knyazhpogostsky	1156	1272	1400	13	14	16	17.6	18.1	26.6	1271	1185	1585
Koygorodsky	504	579	648	14	16	18	7.1	11	14.2	1180	1578	1829
Kortkerossky	1027	1620	1731	12	19	20	9	13.6	22.7	734	698	1093
Priluzsky	1953	3054	3353	23	36	40	25.2	37.5	59.2	1075	1023	1471
Syktyvdinsky	1438	1505	1674	16	17	18	16.4	21.9	26.6	949	1215	1324
Sysolsky	1100	1344	1375	18	22	23	12.8	16.1	29.3	973	1000	1778
Troitsko-Pechorsky	2554	3170	2582	39	49	41	38	41.1	43.2	1241	1081	1393
Udorsky	3503	3498	3525	44	44	46	56.1	65	84.5	1335	1548	1997
Ust-Vymsky	1034	1324	1753	8	11	15	12.4	16.2	24.1	1001	1020	1146
Ust-Kulomsky	1153	1871	1292	11	17	12	9.8	12	13.8	711	535	889
Ust-Tsilemsky	525	1364	1506	10	27	30	6.9	9.5	13	1090	581	722
* Source: Statistical yearbook of the Republic of Komi, 2010. P. 124.												

The analysis of subsidies for rent and utility services payments in the Republic's municipal entities shows the substantial differences in the share of families receiving subsidies in the total number of families. For instance, in 2009 the difference between the highest indicator of the share of families in Udorsky District (46%) and the lowest in Izhemsky District (5%) amounted to 9.2 times *(tab. 2)*. This is mainly conditioned by the low level of family incomes and increased expenditures for rent and utilities due to the decent quality of housing space in Udorsky District. On the contrary, in Izhemsky District the housing fund consists mainly of private houses lacking modern conveniences.

The highest share of families receiving rent and utilities subsidies is noted in Pechora (23%), and the lowest – in Ukhta (9%), i.e. the difference is 2.6 times. This is mainly connected with the low level of cash income in Pechora and the adverse condition of the housing fund. The indicators in the rest of the cities, except Vorkuta (18%), are below the average level for the Republic (16%).

The share of families receiving the subsidies in rural areas is especially large in Troitsko-Pechorsky (41%), Priluzsky (40%), Ust-Tsilemsky (30%) districts compared to the average indicator for the Republic.

This is conditioned mainly by relatively low families' incomes due to the lack of profitable enterprises and organizations in these areas. The indicators in Ust-Kulomsky (12%) and Ust-Vymsky (15%) districts are below the average republican level.

The analysis of the territorial differences in the average monthly rates of rent and utilities subsidies per a family showed the substantial variation of these indicators in the region's municipal entities. For example, the highest subsidy rate per one family in 2009 was in Vorkuta (2,279 rub.), and the lowest – in Ust-Tsilemsky District (722 rub.), i.e. the difference reached 3.2 times. In Vorkuta this is connected primarily with the low level of average per capita family income, high territorial standard costs for housing and communal services and a large number of citizens living alone. On the contrary, Ust-Tsilemsky District is characterized by the low territorial standard costs for rent and utilities due to the predominance of housing quarters lacking amenities.

For the last years, negative trends have been formed in the Republic concerning the ratio of the subsidies' recipients in urban and rural areas. For example, in 2007 – 2009 the share of families receiving subsidies in rural areas increased from 30.5% to 36% of the total number of families entitled to subsidies in the Republic. At the same time the total volume of subsidies in rural areas increased from 31.5 to 33.4% of the total amount of subsidies in the Republic. The growth of these indicators is caused by the financial-economic crisis, which has sharply reduced the already low incomes of rural residents. The low share of the subsidies for rent and utilities in rural areas is conditioned, first of all, by a very small number of families living there and very limited set of utility services. In addition, many rural households are not granted subsidies for solid fuel because of a poorly-organized supply system, when the high cost of fuel delivery is to be paid by the recipients of subsidies. The dominant position is retained by the categorical assistance system, that doesn't take into account the level of average per capita income of households.

References

1. Housing and communal services and public amenities of the Komi Republic population: statistical digest. Komistat. Syktyvkar, 2007. P. 138.
2. Zolotareva A. et al. State and prospects of the social protection system development in Russia. Moscow: Gaidar Institute, 2011. P. 181.
3. The Decree of the Government of the Russian Federation dated 29 August 2005 No. 541 "On the federal standards of payment for housing and communal services".
4. Rimashevskaya N.M. Social protection of the population. Institute of Social and Economic Studies of Population of RAS, 2002. P. 95.
5. Statistical yearbook of the Republic of Komi. 2010: statistical digest. Komistat, 2010. P. 123-124.

ENVIRONMENTAL ECONOMICS

UDC 502.3(510)

Ecological protection in underdeveloped areas of China (the case study of Hubei Province)

Peng Zhimin
Hubei Academy of Social Sciences, Wuhan
peng_sky165@yahoo.com.cn

In China, the areas with geographical remoteness, complex terrain, and poor infrastructure conditions often become clustering contiguous poverty-stricken areas.

Not only are they economically underdeveloped, but also their majority belong to the range of restricted or prohibited development zone, and bear the responsibility of national or regional ecological protection owing to be fragile ecologically. It means that ecological protection and economic-social development turn into an inevitable contradiction, which requires us to explore a win-win road.

1. Survey on the underdeveloped areas of Hubei

Hubei Province, located in the hinterland of China and the middle reaches of the Yangtze River, has four agglomerate and contiguous poverty-stricken areas, which are Wuling Mountain region, Qinba mountain, Dabie Mountains and Mufu mountain for a total of 25 national poverty-stricken counties.

The County Economic Development Evaluation Report Of Hubei Province in 2011, issued by, the Provincial Statistics Bureau of Hubei Province and the Provincial Economic and Information Technology Commission at the end of March this year, divides the 80 counties (cities, districts) into three categories according to the level of economic development

The First group are the counties (cities, districts)ranks in the top 20 of the county economic development index (hereinafter referred to as class I counties and cities); the second are from 21 to 60 (hereinafter referred to as II class counties and cities);and the third are from 61 to 80. The 20 counties (cities, districts) of III class are mainly located in west or the northwest mountainous areas of Hubei, and their land area account for 28% of the counties of the province and the resident population 17.8%. However, the GDP and local general budget revenue they created in 2011, only accounted for about one tenth of the counties of the province.

2. Ecological and environmental conditions of the less developed areas of Hubei

In these places ,the vegetation coverage is very high and most of them are the birthplaces of the medium and small rivers, so the ecological environment is beautiful. For example, in the Enshi Tujia and Miao Autonomous Prefecture, the existing woodlands area is 24.03 million mu, accounting for 66.6% of the total state land area; forest area is 17.01 million mu and the stumpage area is, 50 million cubic meters. Although the area of woodland, forest and stumpage have accounted for 18.56% – 18.78% and 24.39% of Hubei province respectively the statewide environmental situation is still very grim. Firstly, the demand for environmental protection infrastructure construction is very urgent. Secondly, the rural garbage and sewage pollution problems have not been effectively solved and the problems of rural ecological environment protection are every salient. Thirdly, environmental regulatory mechanisms and organizations are inadequate and can not meet environmental protection requirements in new era.

The county report shows that, in the 2011 rank of the county economy of Hubei Province, the top 5 counties are all located in suburbs of large and medium cities or the plains, while the last 20 counties belong to the four poverty areas except three. From the analysis of eco-environmental indicators, the poverty-stricken areas are higher in the two indicators of industrial pollutants emission intensity – chemical oxygen demand (COD) and sulfur dioxide emissions. It reflects that economic development in poverty-stricken area is extensive, and the task of energy saving is as difficult as it in the developed counties.

3. Unity of opposites between modernization and ecological protection in the underdeveloped areas

As a new growth point, the underdeveloped areas not only have the great development potential, but also face practical difficulties and bottlenecks that the economy is lagging behind, the ecological consciousness of the masses is weak and the capital investment is scarce. Therefore, it is significant to explore a way that can coordinate environmental protection with economic development in underdeveloped areas.

3.1. Shennongjia Forest Region promote reducing greenhouse gas emissions by conserving energy

In order to ensure the completion of the emission reduction targets, the Shennongjia Forest Region continues to take effective measures since Eleventh Five-Year. Firstly, they strengthen the construction and operation regulation of sewage treatment facilities, greatly improving centralized sewage processing capabilities. They also build three new urban sewage treatment plants, and apply for two township sewage treatment plants. Secondly,, they promote the structural reduction, and speed up eliminating backward production capacity. Thirdly, they strengthen the management of emission reduction, and actively promote clean production. They have upgraded and built a ten thousand tons of new yellow phosphorus production furnace, with a number of patented technology of environmental protection and energy saving .In production it can save 900 kWh per ton of electricity, 0.5 tons of phosphorus ore, and 6.25 million RMB of cost every year than the original small yellow phosphorus electric furnace. Fourthly, they have strengthened the comprehensive utilization and improved the environmental benefits. Under the guidance of EPA, Wushan Mining Company has completed many deep-processing projects, such as the exhaust gas boiler, high purity yellow phosphorus and phosphorus sludge burning acid. The new production line recycles sewage and utilizes exhaust heat of yellow phosphorus, replacing the existing two sets of three tons/h coal-fired boilers to provide steam.

It also makes use of yellow phosphorus residue purchased by the cement manufacturer for the processing of raw materials, and makes the phosphorus precipitated into phosphoric acid by burning. After the implementation of these projects, the company will save 79 tons of coal and reduce more than 80 tons of SO_2 emission and more than 2,100 tons of CO_2 emission.

3.2 The Enshi mode, combination of eco-tourism development and environmental protection

Two years ago, residents along the Enshi Grand Canyon scenic area do not pay attention to environment, with sewage and garbage everywhere, so they are miserable. Now, thanks to the comprehensive renovation project of the rural environment, the environmental protection department has equipped the offices of Tunbao country and Mufu with 890 trash cans, 10 garbage cleaning cars, four pull hanging refuse collection vehicles, four lid garbage transfer vehicles and two environmental monitoring vehicles, and built a 20 t / day waste transfer station and 29 garbage pools. These measures have greatly facilitated the disposing of the citizens' waste, and brought a clean and tidy village, leaving a good impression on the tourists.

At the same time, the city has improved the farmers' environmental awareness by distri-buting publicity materials, making envi-ronmental pacts and the Three-Character Classic of rural environmental protection. Currently, the city has distributed more than 20,000 copies of publicity materials, set up more than 20 billboards along the road of the Grand Canyon, and trained more than 3,000 people about environmental protection knowledge and skills in the form of conference.

The city takes the opportunity of the comprehensive renovation environment improvement of contiguous village project in Enshi Grand Canyon area.

With unified planning, and integrated resources, the city continues to promote the policy of Award for Control, and takes contiguous remediation of the rural environment as the main way to promote the protection work in Enshi City. Now, the Enshi Mode combined eco-tourism development with environmental protection has begun to take shape.

On the other hand, Enshi takes ecological resources as the basis and the eight ecological corridors as the skeleton, to create a tourism industry with national impact. Eight ecological corridors represent different developing direction of each region. Enshi Yulu Ecological Corridors highlightS the tea industry and eco-leisure tourism, culture and sports development. Enshi Grand Canyon ecological corridor emphasizes tourism industry. Qingjiang Source Ecological Corridors turns to the brand of tobacco, and to the development of modern tobacco agriculture and ecological leisure tourism; Suobuya Ecological Corridors devotes itself to tourism and eco-leisure tourism. 318 Eco-corridor focus on tea and fruit industry, traditional culture, sports, and ecological leisure tourism. Qingjiang Gallery Ecological Corridors, turns to tourism, the medicinal botanical garden, summer vacation and selenium resources development. Lotus Pond Ecological Corridor demonstrates the ecological tourism, history and culture, and suburb economic development. Stream Ecological Corridors devotes itself to animal husbandry, tobacco industry and eco-leisure tourism development such as landscape ecology, ancient architecture and ancient villages.

By highlighting the characteristics and regional focus, Enshi Prefecture tourism industry going through small to large and, weak to strong, achieves a historic breakthrough, and has become the domain of state and economic growth pole. Badong Shennong Stream has successfully created a national 5A scenic, and Enshi toast City, Lichuan Tenglongdong

Cave and Enshi level field camp a national 4A level scenic spots. At the same time, Enshiand and Lichuan are named as China's Excellent Tourism City while Badong, Xianfeng as the Tourist County in Hubei. After organizing successfully Ecological and Cultural Tourism Festival in Enshi two times, Enshi has acquired better reputation for tourism. The number of tourists increased from 2.75 million five years ago to 16.58 million in 2011, and tourism revenues increased from 1.08 billion RMB up to 8.6 billion RMB.

4. Problems and shortages

In the Eleventh Five-Year period, the investment of ecological environment protection and construction in Hubei Province, increases 32.7 percent every year. The government have promoted the dual leap of development mode and economic growth. and completed the total emission reduction task of major pollutants ahead of schedule, so the province's environmental quality continues to improve. But there are still certain problems in ecological protection of the whole Province. Since underdeveloped areas usually have abundant energy and mineral, and resources concentration is relatively high, they should pay more attention to ecological protection.

4.1. Legislation of ecological protection

China's current environmental legal system regulates that the local government is responsible for the local environment, but it does not point out the method and degree of taking the responsibility, as well as the specific responsibility after the dereliction of duty, so it needs the support of local laws and regulations. However, the recent local regulation of ecological protection in Enshi Autonomous Prefecture is Enshi Tujia and Miao Autonomous Prefecture Qingjiang Protection Ordinance passed by the fifth meeting of the Fourth People's Congress and implemented on January 1, 2003. There are 27 ordinances, mainly administrative, advocating and principled stipulates, and few disciplinary and economic incentive provisions, what leads to lack of maneuverability.

4.2. Problems of the development of Eco-tourism

In recent years, Enshi City attaches great importance to the development of tourism, takes the tourism industry as a leading tertiary industry and achieves certain results.

However, due to weak infrastructure, lack of overall planning funds and personnel and other factors, the so-called eco-tourism development is mainly extensive ,and actually not ecological.

On one hand, since the Enshi Prefecture, as well as its counties, municipalities lack of overall eco-tourism development plan and guidance of market mechanism. It results in the convergence and low efficiency of the tourism development.

On the other hand, because of the underdevelopment of economic in Enshi Prefecture, the strong interest motivation drives people to obtain benefits at the expense of humanity and society. Over-exploitation of natural resources cause serious damage to the ecological environment and undermine the overall beauty of the nature. In addition, there is a dilemma between the return of the invested capital and ecological protection, – because the withdrawal of money invested in the development of eco-tourism comes from the income of the tourism project, but the income is in accordance with traffic. However, every natural landscape has its limit of environmental carrying capacity, Beyond it, they will have a negative impact on the ecology. Therefore, how to obtain a balance between the two becomes a problem for the development of the eco-tourism of Enshi.

5. Conclusions

Firstly, both government and resident are required to establish the ideas that ecological protection is the foundation of modernization in underdeveloped areas, and beautiful ecological environment is often the most unique comparative advantage and strategic resources of these regions.

That is, these areas must find the way to modernization different from the developed regions and cities, and achieve the differential development based on their own conditions.

Secondly, poor areas also have the rights of pursuit of development and happiness. Due to the vulnerability of the ecological environment and limitations of the main functional areas, however, it is better to focus on ecological agriculture, ecological industry and eco-tourism. It is best choice to develop the deep processing of agricultural by-products and the tourism industry with local culture and natural landscape, because they can take ecological and economic benefits into account, and promote the economic growth.

Thirdly, ecological protection must be linked with the residents' income growth closely. Ecological protection needed local resident support in the poor areas, people protect environment consciously only when they can derive tangible benefits. There are many effective measures can be introduced, such as providing work as a form of relief, developing rural tourism, helping the rural masses to adopt cleaner production and to develop biogas and other clean energy, adjusting energy structure and reducing or even eliminating the use of firewood or coal.

Fourthly, government and related organizations should make a detailed, workable plan, which can guide the underdeveloped areas to build a two-oriented society and two-oriented industries in accordance with the scientific development outlook.

Fifthly, policy supports, by governments at all levels, are necessary. These include fiscal policy (general transfer payments, ecological compensation), anti-poverty policies, infrastructure construction, technical support, personnel skills training counterpart support policy, and public service equalization.

Reference

1. Provincial Statistics Bureau and Economic and Information Technology Commission of Hubei Province, County Economic Development Evaluation Report Of Hubei Province in 2011, March of 2012.
2. Wu, Enbiao, Enshi Mode, new countryside example in underdeveloped area, survey and thinking, vol. 9, 2007
3. Peng, Zhimin et al, on yam industry in Danjiangkou Reservoir area, Nov. 2008.

UDC 332.8 (470.2)

Funding problems of regional housing and utilities sector and the ways to solve them

The need to reform a housing and utilities sector has escalated and become actual in terms of the overwhelming dominance of state ownership and high centralization of management. Unfortunately, the artificial monopolization and significant dependence of this sphere on subsidies have resulted in the distorted behavioral motivation of all the subjects and overall inefficiency of housing and utilities services. The article shows the analysis of current state of housing and utilities sector in the regions of the North-West Federal District; it deals with the problems of its funding and offers the promising directions to improve the regional policy effectiveness in the housing and utilities sector.

Funding of housing and utilities sector, government budgetary policy, housing and utilities sector investment.

Andrey S.
BARABANOV
Ph.D. in Economics, ISEDT RAS Scientific Associate
qwerdsa-asb@mail.ru

The development of housing and utilities sector, which has a lot of unresolved acute problems requiring immediate solving, is a very important branch of social policy in today's Russia. This sphere affects the interests of a large number of social subjects: population, all the levels of government authority, industrial enterprises, business and nonprofit organizations.

Diverse functions of this sector in the process of social reproduction come to two basic points:

1) in economic terms, housing and utilities services are a powerful factor in the reproduction of the main force of society – labour force, as well as in making the gross national product and national income, ensuring economic growth, increasing economic efficiency;

2) in social terms, housing and utilities services are an effective factor in the stabilization of social standard of living in the period of making market economy, future growth in standard and quality of living, the most complete implementation of social equity principle.

Under these circumstances, the state of today's housing and utilities sector can be described as critical. Prolonged systemic crisis leads to an increase in the depreciation of fixed assets in the industry and, as a result, to an

increase in accident rates and environmental support system breakdown. A lack of normal resource flow does not allow to arrange even the planned network system, let alone the introduction of new technologies [1].

The extremely low economical efficiency of housing and utilities services in most regions of the Russian Federation, which causes low productivity, poor management and extremely high resource consumption, has a direct impact on the quality and cost of services. The funds received from customers as their payment for services often do not cover the cost of housing and communal companies.

With an extremely high depreciation degree of pipes and water and wastewater treatment facilities, only a few companies are able to operate at a profit, which, however, does not exceed 5%. But according to experts, the profit can account for 30% with an adequate tariff policy [10].

The tension in this sector is proved by statistics, which indicate that there are persistent negative trends that are common for all the Russian regions in the dynamics of most indicators [3].

Consider the state of housing and communal services in the regions of the North-West Federal District for the period from 2000 to 2010. Housing stock is a basis of the housing and utilities sector.

It amounted to 330.0 mln. sq. m at the end of 2010 due to the increase by 12% over eleven years that was slightly below a nationwide rate (14%). There was the fastest housing stock increase in the Kaliningrad Oblast (growth rates were 23% in 2000 – 2010), the Leningrad Oblast and St. Petersburg (17%). There were no changes in the housing floor space in the Republic of Komi during the period under our study, and it reduced by 2% in the Murmansk Oblast *(tab. 1)*.

Most houses in the country were built in the period of mass building. In the regions of the North-West Federal District almost 28% of apartment houses were built in 1946 – 1970 and about 45% of houses were built in 1971 – 1995 (these figures are slightly different from the nationwide indicators – 31% and 44%, respectively). St. Petersburg stood out against a background of the situation, where 14% of houses were built before 1920 *(tab. 2)*.

Housing stock in the regions of the North-West Federal District is characterized by high depreciation. In 2010, the depreciation rate of more than half apartment houses varied from 31% to 65%. There were the similar nationwide statistics in Russia (52%; *tab. 3*).

The share of old and failing housing stock in the total housing stock in the regions of the North-West Federal District amounted to 3% at the end of 2010.

Table 1. Housing stock (total housing floor space; thsd. sq. m)

Territory	2000	2006	2007	2008	2009	2010	2010 to 2000, %
Kaliningrad Oblast	17573	18768	19126	19880	20793	21609	**123.0**
Leningrad Oblast	36778	39256	40210	41228	42239	43334	**117.8**
St. Petersburg	93471	100326	102547	105583	107882	109937	**117.6**
Vologda Oblast	28002	29425	29585	30107	30461	30969	**110.6**
Novgorod Oblast	15840	16408	16549	16732	16998	17249	**108.9**
Republic of Karelia	15226	15621	15729	16111	16259	16354	**107.4**
Arkhangelsk Oblast	29406	30068	30137	30326	30609	30778	**104.7**
Pskov Oblast	18124	18471	18569	18604	18964	18963	**104.6**
Republic of Komi	22126	22260	22348	22429	22383	22192	**100.3**
Murmansk Oblast	19710	19465	19448	19391	19357	19374	**98.3**
North-West FD, mln. sq. m	**296**	**310**	**314**	**320**	**325**	**330**	**111.6**
Russia, mln. sq. m	**2787**	**2955**	**3003**	**3060**	**3116**	**3177**	**114.0**

Source: Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010.

Table 2. The distribution of the total housing floor space according to the years of building (in % to the total housing floor space)

Territory	Years of building				
	Before 1920	1921-1945	1946-1970	1971-1995	After 1995
Republic of Karelia	2.1	6.0	**34.9**	48.3	8.7
Pskov Oblast	1.6	4.5	**32.9**	49.4	11.6
Novgorod Oblast	4.1	7.4	**32.1**	45.3	11.1
Murmansk Oblast	0.1	2.3	**31.9**	64.4	1.5
Arkhangelsk Oblast	4.5	9.8	**30.9**	47.8	6.9
Vologda Oblast	4.4	7.0	**30.3**	43.7	14.6
Leningrad Oblast	2.6	5.7	**26.9**	45.3	19.5
St. Petersburg	13.9	2.0	**26.6**	38.5	19.0
Republic of Komi	1.3	3.3	**25.8**	60.2	9.3
Kaliningrad Oblast	0.2	27.2	**14.6**	37.3	20.7
North-West FD	**6.3**	**6.1**	**27.9**	**45.1**	**14.6**
Russia	**2.6**	**4.8**	**30.9**	**43.7**	**18.0**

Source: Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010.

Table 3. Distribution of apartment houses according to a depreciation rate in 2010 (in % to the total housing floor space)

Territory	Depreciation rate			
	From 0 to 30	From 31 to 65	From 66 to 70	Over 70
Kaliningrad Oblast	28.2	**58.3**	10.6	2.9
Leningrad Oblast	34.7	**57.6**	6.3	1.4
Vologda Oblast	27.9	**56.2**	11.7	4.2
Pskov Oblast	43.3	**53.1**	3.0	0.6
Arkhangelsk Oblast	31.6	**51.0**	13.7	3.7
Novgorod Oblast	39.0	**46.2**	9.3	5.6
Republic of Karelia	44.6	**45.0**	9.6	0.8
St. Petersburg	52.8	**44.7**	1.9	0.7
Republic of Komi	37.3	**40.4**	16.8	5.5
Murmansk Oblast	49.9	**39.7**	9.9	0.5
North-West FD	**36.7**	**51.2**	**9.5**	**2.7**
Russia	**39.5**	**51.7**	**6.4**	**2.3**

Source: Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010.

There was a similar trend in Russia. The smallest share of old and failing housing was in St. Petersburg – less than 1% in the total housing floor space. There were the highest rates in the Vologda Oblast, the Arkhangelsk Oblast and the Republic of Komi – 6%, 8% and 9%, respectively *(tab. 4)*.

Deteriorating housing stock requires significant expenditures on new housing construction and capital repairing. Total costs for capital repairing in the regions of the North-West Federal District were high, except for St. Petersburg and the Leningrad Oblast.

There was the same nationwide trend in Russia: capital repairing cost amounted to 137 billion rubles in 2010 that was 14% more than in 2009 *(tab. 5)*.

However, the total floor area of rebuilt housing reduced. For example, there was a decrease of this rate by 74% and 80% in the Kaliningrad Oblast and the Republic of Karelia, respectively *(tab. 6)*.

As for the total cost per 1 square meter of apartment houses rebuilding, they increased in most regions of the North-West Federal District.

Table 4. Old and failing housing stock (in % to the total housing floor space)

Territory	2000	2006	2007	2008	2009	2010	Change in 2000 – 2010, p.p.
Republic of Komi	6.3	7.8	9.4	8.7	8.7	**9.0**	2.7
Arkhangelsk Oblast	3.5	7.8	8,2	8.3	8.3	**7.9**	4.4
Vologda Oblast	2.1	5.5	6.0	5.6	5.6	**6.0**	3.9
Republic of Karelia	3.9	2.8	3.6	3.7	3.7	**3.6**	-0.3
Novgorod Oblast	1.5	4.4	4.7	4.5	4.5	**3.6**	2.1
Leningrad Oblast	0.8	2.7	3.0	3.1	3.1	**3.0**	2.2
Kaliningrad Oblast	2.4	3.6	2.0	2.4	2.4	**2.3**	-0.1
Murmansk Oblast	1.7	1.7	2.1	2.1	2.1	**2.3**	0.6
Pskov Oblast	1.6	3.2	3.1	1.2	12	**1.2**	-0.4
St. Petersburg	0.5	0.6	0.6	0.6	0.6	**0.7**	0.2
North-West FD	**2.0**	**3.3**	**3.4**	**3.3**	**3.3**	**32**	**1.2**
Russia	**2.4**	**3.2**	**3.2**	**3.2**	**3.2**	**3.1**	**0.7**

Source: Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010.

Table 5. Total costs for the capital repair of apartment houses, mln. rub.

Territory	2009	2010	2010 to 2009, %
Pskov Oblast	235.5	801.6	**340.4**
Kaliningrad Oblast	290.7	771.7	**265.5**
Arkhangelsk Oblast	534.8	1245.6	**232.9**
Novgorod Oblast	296.4	648.9	**218.9**
Republic of Karelia	119.3	240.6	**201.7**
Murmansk Oblast	726.5	1136	**156.4**
Republic of Komi	387.9	528.5	**136.2**
Vologda Oblast	890.6	987.2	**110.8**
Leningrad Oblast	1379.3	1305.5	**94.6**
St. Petersburg	15804.4	6619.3	**41.9**
North-West FD	**20665.4**	**14284.9**	**69.1**
Russia	**120572.3**	**137469.5**	**114.0**

Source: Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010.

Table 6. Total floor area of rebuilt apartment houses, thsd. sq. m

Territory	2009	2010	2010 to 2009, %
Novgorod Oblast	14.0	71.4	**510.0**
St. Petersburg	284.6	460.8	**161.9**
Arkhangelsk Oblast	47.1	69.4	**147.3**
Pskov Oblast	55.1	79.0	**143.4**
Leningrad Oblast	230.7	301.3	**130.6**
Republic of Komi	96.4	121.1	**125.6**
Vologda Oblast	1024.2	594.2	**58.0**
Murmansk Oblast	1350.7	753.2	**55.8**
Kaliningrad Oblast	962.5	250.3	**26.0**
Republic of Karelia	15.4	3.2	**20.2**
North-West FD	**4080.7**	**2703.9**	**66.3**
Russia	**44276.3**	**41138.5**	**92.9**

Source: Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010.

Table 7. Total cost per 1 square meter of apartment houses rebuilding, rub.

Territory	2009	2010	2010 to 2009, %
Kaliningrad Oblast	302	3083	1020.8
Republic of Karelia	7747	75188	970.6
Murmansk Oblast	538	1508	280.4
Pskov Oblast	4274	10147	237.4
Vologda Oblast	870	1661	191.1
Arkhangelsk Oblast	11355	17948	158.1
Republic of Komi	4024	4364	108.5
Leningrad Oblast	5979	4333	72.5
Novgorod Oblast	21171	9088	42.9
St. Petersburg	55532	14365	25.9
North-West FD	**5064**	**5283**	**104.3**
Russia	**2723**	**3342**	**122.7**

Source: Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010.

It is necessary to note the Kaliningrad Oblast, the Republic of Karelia, the Murmansk, Pskov and Vologda Oblasts, where the total cost per 1 square meter of apartment houses rebuilding increased 2.0 – 10.2-fold in 2010 as compared with 2009. On the contrary, there was a cost reduction in the Leningrad Oblast, the Novgorod Oblast and St. Petersburg *(tab. 7)*.

Communal infrastructure is also characterized by a high degree of depreciation and technological backwardness. The depreciation rate of gas supply facilities accounted for 59%, heat facilities – 50%, water supply facilities – 60% and sewerage facilities – 49% in the regions of the North-West Federal District at the end of 2010 (vs. 48%, 48%, 54% and 12% in Russia, respectively). There were the most depreciated fixed assets on the Murmansk Oblast *(tab. 8)*.

The depreciation of communal infrastructure affected mainly the amount of lost resources. Heat losses in the operation of existing heating systems exceeded the established standards by 4 – 7%[1], and there was a total trend to worsen the situation in the period from 2000 to 2010. Thus, average heat losses in the regions of the North-West Federal District were equal to 8.3% at the end of 2010, i.e. 1.5 percentage points more than in 2000.

There were the greatest heat losses in the Novgorod Oblast (13.2%), the Pskov Oblast (12.4%) and the Vologda Oblast (10.1%) *(tab. 9)*.

However, heat supply systems are repaired insufficiently. Only 3.4% of the total length of heating networks was replaced in the regions of the North-West Federal District in 2010. These figures were higher a little bit than a nationwide rate (2.6%; *tab. 10*). It is noteworthy that only old heating systems that served their time long ago are replaced, while wrecking systems are still considered as repairable.

There are similar trends in the communal services. High depreciation of organizations' fixed assets and small amounts of utilities reconstruction cause the great losses of resources. Deteriorating public utilities require significant investments in this sphere.

Analysis of the process and expected results of housing reform, which has been undertaken since the early 1990s, shows that the government continues to develop market relations in this sphere and reduces the state support for this sector.

The expenses of consolidated regional budgets for housing and utilities sector have increased 10-fold over the period from 1998 to 2011, but their share in the total expenditures has decreased from 23 to 12.0% and in GDP – from 3.5 to 2.2% *(fig. 1)*.

[1] Official site of Russian Heat. Available at: http://www.rosteplo.ru/

Table 8. Depreciation rate of organizations' fixed assets according to the types of economic activity related to the communal complex, in 2010,%

Territory	Types of economic activity			
	Production and distribution of fuel gas	Production, transmission and distribution of heat energy	Collection, purification and distribution of water	Sewage and wastes disposal and similar activities
Republic of Karelia	66.5	27.5	14.6	57.1
Republic of Komi	39.7	27.3	37.6	52.8
Arkhangelsk Oblast	59.8	50.5	56.3	51.2
Vologda Oblast	36.8	55.0	56.0	49.6
Kaliningrad Oblast	47.7	34.4	56.2	59.1
Leningrad Oblast	84.8	40.7	31.8	35.9
Murmansk Oblast	73.2	77.7	61.9	51.1
Novgorod Oblast	49.2	47.7	40.8	51.2
Pskov Oblast	45.6	53.2	52.0	38.4
St. Petersburg	15.9	44.5	59.8	53.3
North-West FD	**58.8**	**49.8**	**59.0**	**49.3**
Russia	**47.5**	**48.1**	**53.8**	**11.6**

Source: Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010.

Table 9. Heat losses in the heat supply systems (in% of heat supply)

Territory	2000	2006	2007	2008	2009	2010	Change 2000 – 2010, p.p.
Novgorod Oblast	12.3	12.6	13.7	13.5	13.6	**13.2**	0.9
Pskov Oblast	7.7	9.8	10.9	11.1	12.8	**12.4**	4.7
Vologda Oblast	4.6	9.1	8.5	10.6	9.3	**10.1**	5.5
Arkhangelsk Oblast	6.7	8.1	9.0	9.3	9.4	**9.6**	2.9
Murmansk Oblast	8.8	8.5	10.2	9.5	8.9	**9.5**	0.7
Kaliningrad Oblast	5.0	11.2	12.3	9.9	9.0	**8.8**	3.8
Leningrad Oblast	9.1	8.4	7.9	8.0	8.3	**7.9**	-1.2
Republic of Karelia	4.7	4.9	6.5	6.2	6.6	**7.3**	2.6
St. Petersburg	5.5	7.3	7.0	7.1	7.5	**7.3**	1.8
Republic of Komi	8.4	7.1	8.0	7.7	7.6	**7.1**	-1.3
North-West FD	**6.8**	**7.9**	**8.3**	**8.3**	**8.4**	**8.3**	**1.5**
Russia	**7.2**	**9.1**	**9.3**	**9.2**	**9.6**	**10.1**	**2.9**

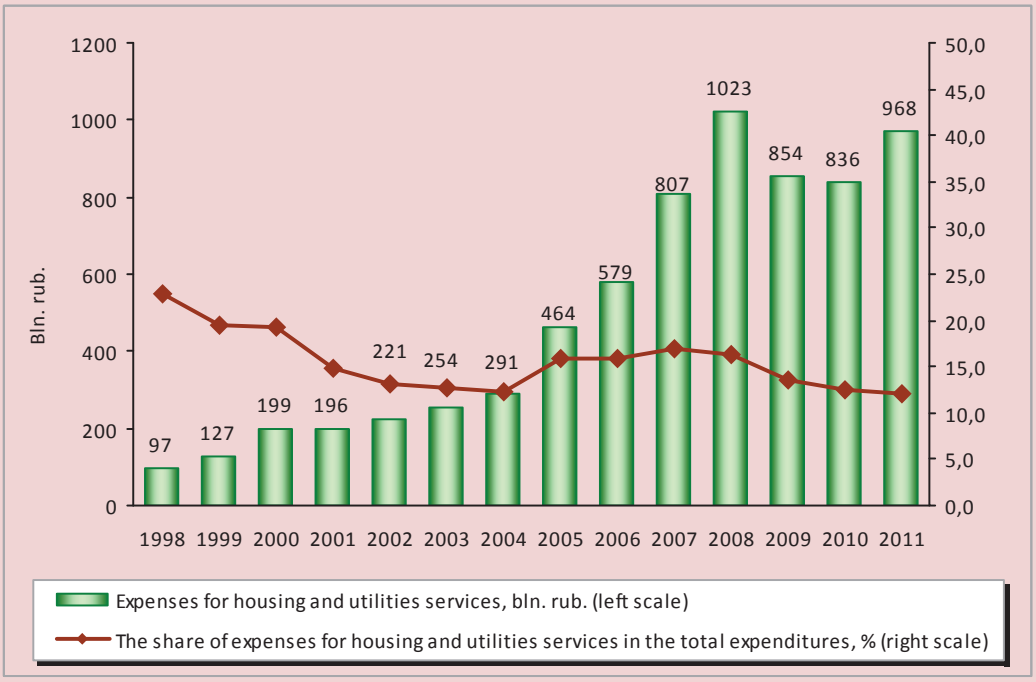
Source: Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010.

Table 10. Replaced two-pipe heat and steam systems in 2010

Territory	Replaced two-pipe heat and steam systems, total, km	Including old systems	The share of replaced two-pipe heat and steam systems in the total heat and steam systems spread, %
Leningrad Oblast	156.3	133.9	**5.6**
St. Petersburg	184.1	100.0	**4.5**
Novgorod Oblast	27.9	27.6	**3.2**
Kaliningrad Oblast	22.8	17.0	**2.7**
Arkhangelsk Oblast	54.1	38.3	**2.6**
Pskov Oblast	22.5	16.3	**2.4**
Republic of Komi	43.0	27.6	**2.1**
Vologda Oblast	40.3	36.5	**2.1**
Republic of Karelia	18.4	16.9	**2.0**
Murmansk Oblast	21.3	19.7	**1.9**
North-West FD	**590.7**	**433.8**	**3.4**
Russia	**4527.7**	**3630.8**	**2.6**

Source: Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010.

Figure 1. The share of housing and utilities expenses
in the consolidated budgets of the RF subjects, mln. rub.



There were traditional maximum investment in the housing and utilities sector in the Chukotka Autonomous Okrug (76.4 thousand rubles. per person annually), Nenets Autonomous Okrug (66.9) and Yamalo-Nenets Autonomous Okrug (31.4), as well as in the metropolitan centres – Moscow (33.9) and St. Petersburg (22.3 thousand rubles per person annually).

The peak of absolute investment in the industry was in financially successful 2008, when the maximum income allowed to invest over 1 trillion rubles from the consolidated budgets of the RF subjects or 16.4% of the total consolidated assets to the housing and utilities sector.

As for the regions of the North-West Federal District, there are the similar nationwide trends here *(fig. 2)*.

There are significant swings in financing of the industry at the regional level. For example, despite the increase in housing and utilities expenses in the Vologda Oblast, their share in the total expenditures of the regional consolidated budget has been reduces annually since 2000 *(fig. 3)*.

Comparing the housing and utilities expenses in the regions of the North-West Federal District in 2011 shows that there were the highest expenses per capita in St. Petersburg (14,575 rubles), the Murmansk Oblast (10,658 rubles) and the Kaliningrad Oblast (7,362 rubles). The expenses varied from 4 to 6 thousand rubles in other regions *(tab. 11)*.

However, there is information about exorbitant housing and utilities expenses of regional and local budgets in the scientific literature and official documents and about the need to shift them onto the consumers.

It is possible to use a coefficient of patronizing[2] (C_{patron}) the housing and utilities sector by the consolidated budget system and a coefficient of recompensing[3] (C_{recomp}) service cost by population [4].

[2] $C_{patron} = RCB^{hus} / (HS \cdot C^{hus} \cdot 12)$.

[3] $C_{recomp} = (PR \cdot D^{hus}) / (HS \cdot C^{hus})$.

Figure 2. Housing and utilities expenses in the consolidated budgets of the regions of the North-West Federal District, mln. rub.

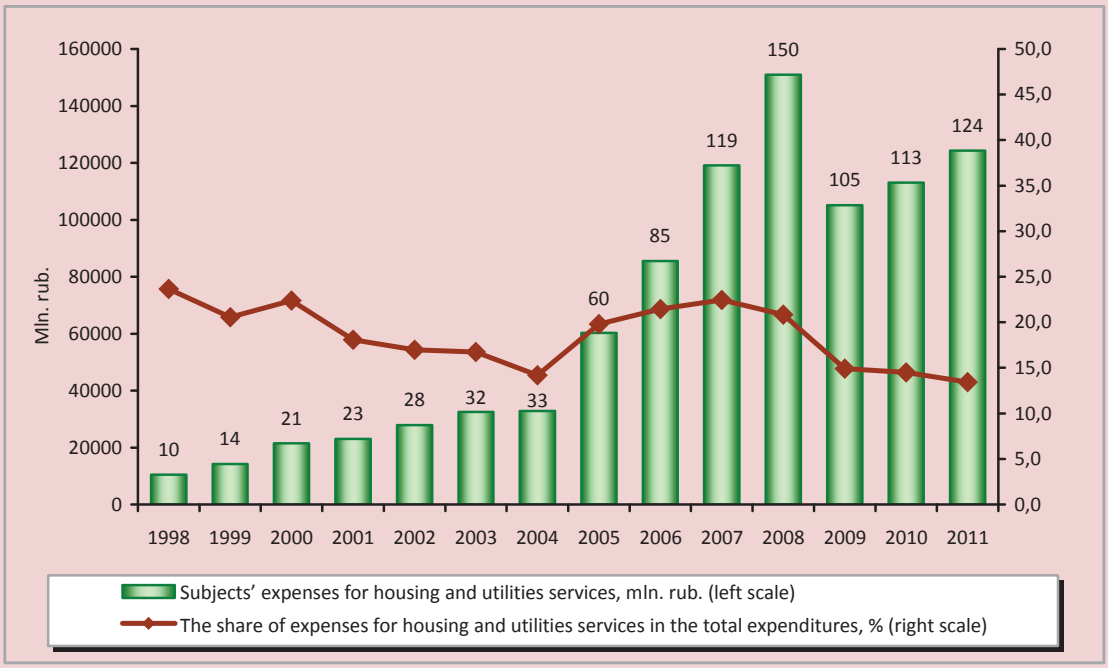


Figure 3. Housing and utilities expenses in the consolidated budgets of the Vologda Oblast, mln. rub.

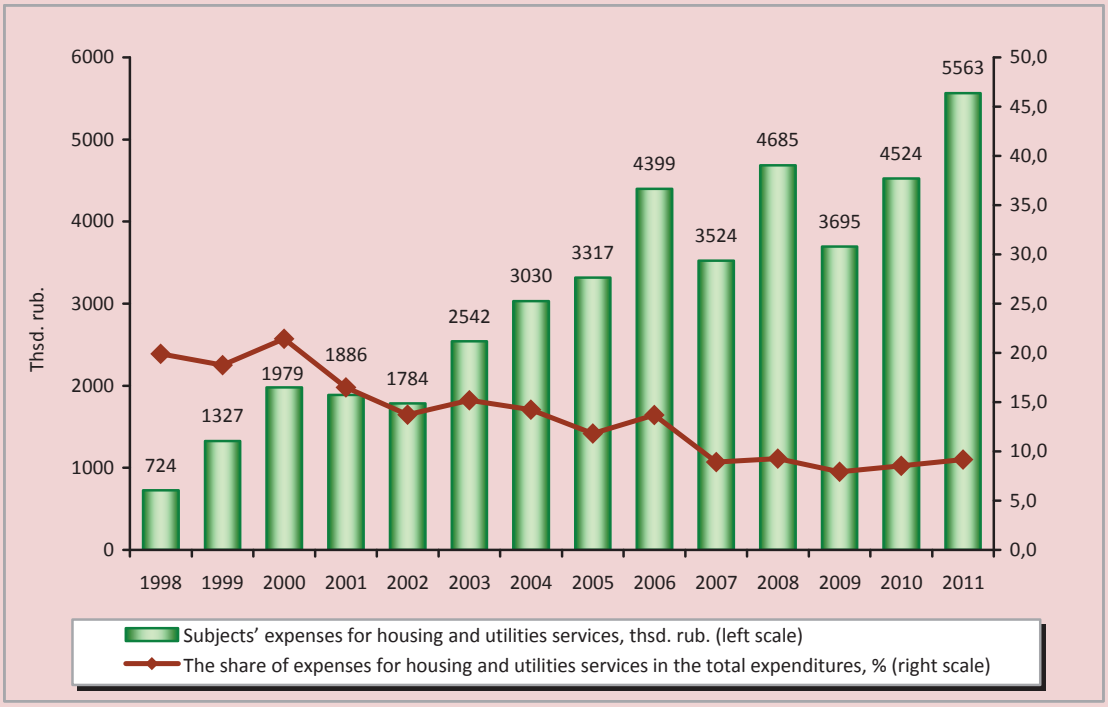


Table 11. Housing and utilities expenses per capita in the regions of the North-West Federal District, rub.

Territory	1998	2000	2005	2006	2007	2008	2009	2010	2011	2011 to 1998, %
St. Petersburg	719.2	1620.5	7992.0	11989.8	18451.5	22339.2	12826.8	13180.6	14575.0	20.3
Murmansk Oblast	1516.3	2282.7	2503.9	6607.5	6318.8	7873.2	7268.3	8095.3	10658.1	7.0
Kaliningrad Oblast	442.9	1329.4	3444.4	4560.9	5188.6	6206.2	6480.5	7112.6	7362.2	16.6
Arkhangelsk Oblast	411.2	953.9	1635.7	2686.4	3963.0	6530.9	4991.2	5671.0	6807.7	16.6
Republic of Komi	1202.8	1851.8	2832.8	2891.6	2810.1	5220.1	3885.8	4712.0	5421.0	4.5
Leningrad Oblast	706.4	1324.3	2766.0	2744.6	3763.7	5361.5	5882.0	5516.6	4797.6	6.8
Vologda Oblast	**550.3**	**1523.6**	**2664.4**	**3562.4**	**2872.2**	**3834.1**	**3044.3**	**3760.7**	**4624.5**	**8.4**
Novgorod Oblast	775.0	1286.6	2726.3	3145.4	3389.6	5794.2	5520.9	5217.2	4466.0	5.8
Pskov Oblast	317.5	1061.9	1555.2	1136.2	1803.2	2314.3	3810.0	2741.2	3944.0	12.4
Republic of Karelia	577.8	1114.6	1459.2	1518.5	1918.2	2329.4	2622.8	3926.2	3912.3	6.8

Source: Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010.

As a result of targeted federal policies, funding of the sector was characterized by the decline of budget expenditures for supporting the complex in the period from 1997 to 1999.

At the same time, the Government of the Russian Federation delayed the increase in the tariffs for the population. In 2000 – 2004, after thawing of housing and utilities tariffs, the main burden of housing and utilities costs was shifted onto the population; people had not had time to react quickly to subsidy programmes and took the brunt of the "crouch start" on themselves[4]. In 2005 – 2008, the coefficient of recompensing increased from 0.35 to 0.48 due to the gradual involvement of the budget system in the direct support of the housing and utilities sector (mainly in the form of direct targeted subsidies to the populations and partial participation in the capital expenditures on housing repair and commissioning of utilities). There was the highest growth of the coefficient in Moscow and St. Petersburg.

There was a sharp decline in the coefficient of patronizing down to the level of 2005 (0.35; *tab. 12*) in all the regions of the North-West Federal District and in the whole country in 2009 after the maximum budget allocations to the housing and utilities sector in 2008.

In fact, it was the result of a belated response to the financial crisis broken out in 2008. If almost all the subsidy refund budget commitments were met and capital funds were drawn in the housing and utilities sector during the crisis, then most of them were not even planned in 2009. At the same time, there was a significant increase in housing and utilities tariffs, which were covered by the payments of households.

There were more significant changes in the coefficient of recompensing as compared with the coefficient of budget patronizing: there was about 3-fold gap between the maximum coefficient (St. Petersburg – 1.26) and minimum coefficient (Arkhangelsk Oblast – 0.43), which identified the deeper spatial differences in forming households' incomes in comparison with territories' fiscal capacity *(tab. 13)*.

In addition, the comparison of two coefficients showed that the budget expenditures per one reference housing unit were 2 – 2.5 times lower than population expenses. It is evidence of a significant increase in housing and communal tariffs that are covered mainly by the payments of households *(fig. 4)*.

[4] It is possible to calculate the coefficient of budget patronizing the housing and utilities sector only since 2005 due to the absence of regional standards of housing and utility services cost per 1 sq.m of floor space per month till 2005.

Table 12. Coefficient of budget patronizing the housing and utilities sector in the regions of the North-West Federal District *

Territory	2005	2006	2007	2008	2009	2010	Changes in 2005 – 2010
St. Petersburg	1.04	1.28	1.69	1.81	0.95	0.90	-0.14
Kaliningrad Oblast	0.42	0.43	0.41	0.43	0.40	0.38	-0.04
Murmansk Oblast	0.17	0.42	0.35	0.40	0.33	0.32	0.15
Vologda Oblast	**0.35**	**0.46**	**0.32**	**0.38**	**0.27**	**0.30**	-0.05
Leningrad Oblast	0.30	0.23	0.27	0.34	0.33	0.29	-0.01
Novgorod Oblast	0.30	0.23	0.21	0.32	0.28	0.23	-0.07
Republic of Komi	0.23	0.22	0.19	0.32	0.22	0.22	-0.01
Arkhangelsk Oblast	0.17	0.17	0.22	0.32	0.22	0.22	0.05
Republic of Karelia	0.17	0.13	0.14	0.16	0.16	0.20	0.03
Pskov Oblast	0.17	0.09	0.12	0.14	0.21	0.15	-0.02
Russian Federation	*0.35*	*0.35*	*0.42*	*0.48*	*0.35*	*0.30*	*-0.05*

*Author's calculations.

Table 13. Coefficient of recompensing the housing service cost by population*

Territory	2005	2006	2007	2008	2009	2010	Changes in 2005 – 2010
St. Petersburg	1.03	1.17	0.96	1.21	1.28	1.26	0.23
Leningrad Oblast	0.52	0.44	0.48	0.44	0.69	0.98	0.46
Republic of Komi	0.70	0.82	0.82	0.81	0.99	0.95	0.25
Vologda Oblast	**0.46**	**0.62**	**0.69**	**0.70**	**0.80**	**0.95**	0.49
Murmansk Oblast	0.64	0.73	0.77	0.76	0.79	0.84	0.20
Republic of Karelia	0.53	0.47	0.54	0.50	0.56	0.68	0.15
Kaliningrad Oblast	0.41	0.45	0.46	0.59	0.60	0.61	0.20
Novgorod Oblast	0.37	0.34	0.43	0.52	0.59	0.60	0.23
Pskov Oblast	0.42	0.39	0.37	0.44	0.44	0.56	0.14
Arkhangelsk Oblast	0.50	0.38	0.39	0.42	0.40	0.43	-0.07
Russian Federation	0.61	0.64	0.64	0.68	0.71	0.74	0.13

* Author's calculations.

In this case, the population becomes "a prisoner of a situation" and bears the burden of housing and communal services. According to the Long-term fiscal strategy of the Russian Federation until 2023, the development of the housing and utilities sector intends to decrease subsidies to the population and increase the share of market relations in this sector, so the budget expenditures will be gradually reduced [8]. The reforms in the sector will be financed partly by the Foundation for Housing Reform, which can reduce regional fiscal burden, but only until January 1, 2013 [9].

The growing range of unresolved financial problems, the main of which are the dependence of housing and utilities services producers on budgetary subsidies, the lack of transparent scheme of tariff regulation, the imbalance of intergovernmental transfers, requires improving regional policy in the housing and utilities sector.

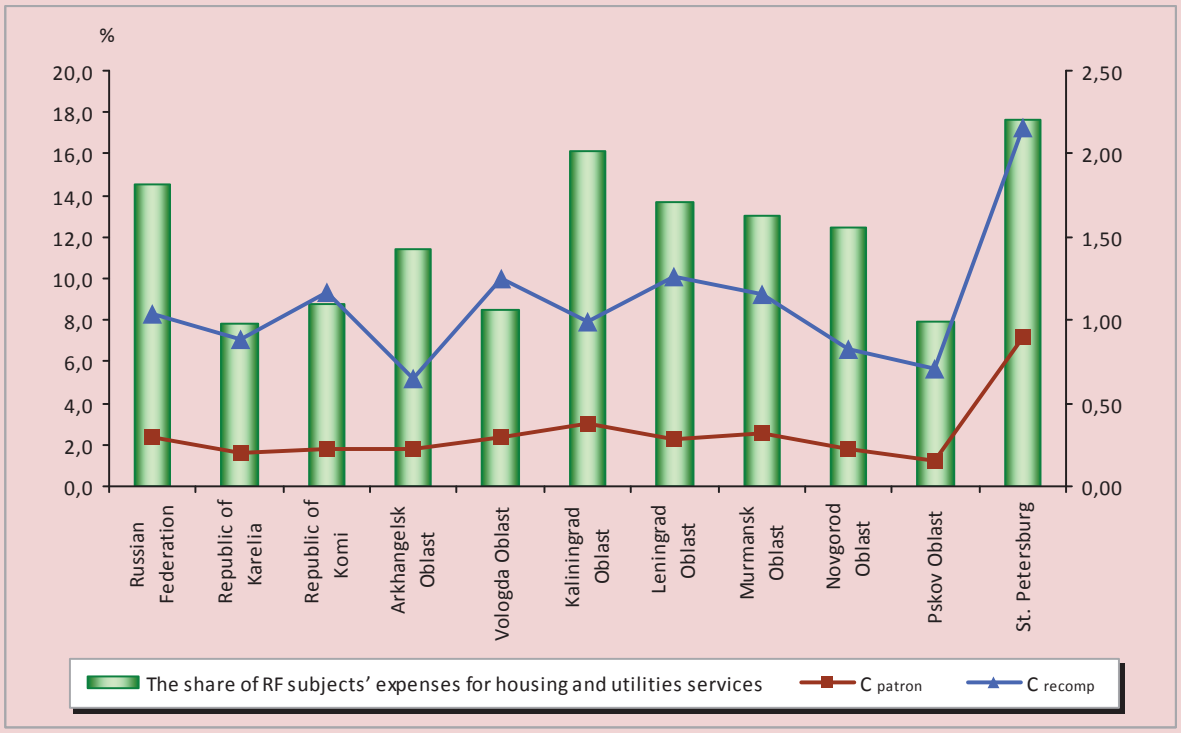
The following measures can be the main directions of this process:

✓ improving financial and legal regulation of the system of state support for investment projects in the housing and utilities sector;

✓ strengthening financial discipline and developing the special tools of financial control in the housing and utilities sector;

✓ forming the system of regional standards for housing and utilities services, confirmed annually before the Law on the regional budget;

Figure 4. The ratio of the coefficient of budget patronizing the housing and utilities sector to the coefficient of recompensing the housing service cost by population in 2010



✓ using public-private partnerships as a mechanism to attract private investment in the infrastructure sector (budget co-financing of private investments to the projects on the modernization of communal infra-structure);

✓ increasing the target orientation of housing and communal subsidies.

Thus, only the gradual actions of federal, regional and municipal governments and private investors, coordinated in the economic, social and political terms, are able to make the conditions for balanced financing of the housing and utilities complex and the rapid modernization of the sector.

References

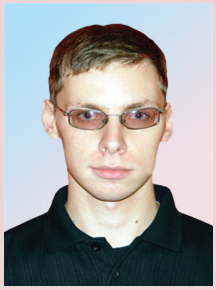
1. Boldyreva I.A. Directions of structural changes in the financial mechanism of housing and communal services. Finance and Credit. 2007. No. 36. P. 69-75.
2. Barabanov A.S., Taslunov A.N. Resource-saving as a basic priority of the reforms in the housing and utilities sector (in the case of water supply in Vologda). In: RISC: Resources, Information, Supply, Competition. 2011. No. 4. P. 386-368.
3. Housing and utilities sector and household services. 2010: Stat. Coll. Rosstat. Moscow, 2010. – 339 p.
4. Naiden S.N. Public goods and communal services. Moscow: Economics, 2004. 176 p.
5. Taslunov A.N., Barabanov A.S. Analysis of tariff regulation in housing and utilities economy (in the case of the city of Vologda). Economic and social changes: facts, trends, forecast. 2011. No. 6. P. 106.
6. Taslunov A.N. Housing and communal services sustainable development peculiarities (in the case of Vologda city). Problems of development of territories. 2012. No. 3. P. 33.
7. Uskova T.V. Gordina O.N., Barabanov A.S. Reforming housing and communal services: regional aspect. Problems of development of territories. 2010. No. 5. P. 14-19.
8. Long-term fiscal strategy of the Russian Federation until 2023. Available at: http://info.minfin.ru/
9. Official website of the State Corporation Fund of assistance to reforming housing and communal services. Available at: http://www.fondgkh.ru/
10. The official website of the Kommersant Newspaper. Available at: http://www.kommersant.ru/

UDC 332.143:373(470.12)

Level of development of scientific and education environment in Russian regions

The article describes the state of modern scientific-educational complex in Russian regions. It evaluates the RF subjects according to the authors' methodology of calculating the integral index of the territories' scientific and education environment development. Besides, the article proposes the grouping of the regions which allows for determining the main directions of Russia's scientific and education environment development.

Education, science, scientific and education environment, integral assessment of the regions.



Maksim A.
GOLOVCHIN
ISEDT RAS Scientific Associate
mag82@mail.ru

Tatyana S.
SOLOVYOVA
ISEDT RAS Chief Research Assistant
Solo_86@list.ru

In the modern world, education and science are the most important social institutions, which are able to respond swiftly to social changes and become direct participants of the process of extended reproduction and increase of its efficiency. In the course of the interaction and integration of scientific and educational spheres, the innovation potential is accumulating, and people develop the abilities to generate and transform new knowledge.

The importance of highlighting the issues of interaction between science and education has led to the necessity of using the concept "scientific-educational environment".

According to our viewpoint, scientific-educational environment is the set of actively interacting (within a certain geographic space) subjects of scientific, educational and cultural spheres, business community, based on the institutional and (or) information integration, aimed at building human and intellectual potential of the territory.

Scientific-educational environment consists of four interrelated components:

1) teaching – educational institutions, post-graduate studies, doctoral studies, corporate universities;

2) cultural-educational – research libraries, science foundations, museums, etc.;

3) research – establishments, carrying out exploratory, fundamental and applied research;

4) application – information and advisory centres, innovation centres, business-incubators, technology transfer centres, scientific and technical information centres, etc. *(fig. 1)*.

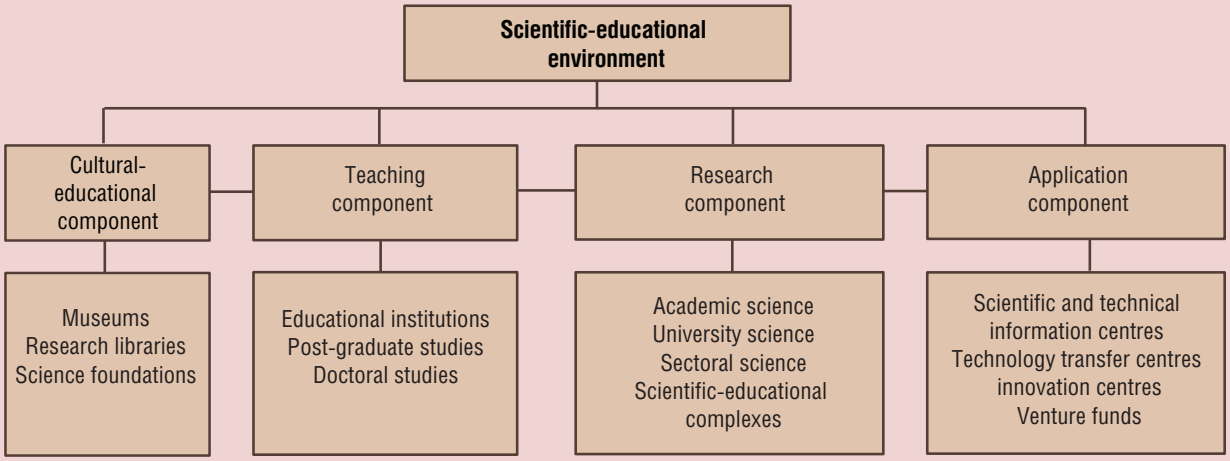
Formation of an efficient scientific-educational environment in foreign countries takes place through mechanisms such as the creation of a network of domestic markets for scientific research, development of "centres of expertise", the use of instruments of direct and indirect support of scientists, the alliance of the leading universities with industry complexes and science centres.

The necessity of development and state support of integration processes in the sphere of science and education in our country has been legally established relatively recently. Decrees of the RF President "On the doctrine of development of the Russian science" No. 884 dated June 13 1996 and No. 903 "On state support of integration of higher education and fundamental science" officially recognized the integration of science and education as one of the most important directions, ensuring the preservation and development of these spheres, as well as the principle of the state policy in the field of science and technology.

At present, the guidelines of the RF scientific-educational environment development are contained in a whole range of legislative and programme documents. The main goals set out in these documents, include:

1. Creation of conditions for all children to obtain the constitutional rights to receive general secondary education.
2. Comprehensive and timely development of children and young people, their creative abilities, improvement of work with gifted children and young people.
3. Organization of educational process, with regard to modern scientific achievements, ensuring the high quality of education based on the development of its material base and the establishment of appropriate social conditions, training of highly educated people, capable of career promotion and mobility in professions.
4. Development of the personnel potential in the sphere of science, education, technology and innovations, creation of conditions for the efficient activity of scientists, teachers, all the participants of the scientific and educational process.

Figure 1. Components of scientific-educational environment



Source: Leonidova G.V. Integration of science, education, business as a solution to the strategic objectives in the training of skilled specialists. Proceedings of inter-regional scientific-practical conference "Formation of management personnel reserve: regional experience". Available at: http://www.ags-vologda.ru

5. Creation of programmes for implementation of information technologies in education, the transparency of education system and educational institutions for public control.

6. Promotion of healthy lifestyle among children and adolescents.

7. Increase of educational institutions funding, promotion of non-governmental investments into the education system.

8. Formation of a balanced and sustainably developing R&D sector.

9. Increase of innovation activity of business and the overall support of new innovation companies.

10. Broad introduction of innovation technologies in the activity of government authorities.

11. Provision of transparency of the national innovation system and economy, as well as the integration of Russia into the global processes of creating and using innovations.

12. Facilitating the activities for implementing the innovation policy, carried out by state authorities of the subjects of the Russian Federation and municipal entities[1].

To achieve these goals at the federal and regional level, in recent years, a complex of modernization activities has been carried out, such as the development of science towns, technology parks; the transition of higher education to the two-level system; introduction of unified state exam and new educational standards in schools, normative financing of education and the new system of salaries for teachers; optimization of educational institutions network [3, p. 23].

However, implementation of these activities is considerably hampered by the fact that the RF subjects are strongly differentiated by their financial, material, technical, personnel capabilities for the development of scientific-educational environment. So, the analysis of the 2010 state statistics data showed that scientific-educational environment is characterized by the following:

– *significant differences in the financing of education*: the largest share of expenses on education is found in the Republic of Tyva (33% of the total consolidated budget expenditures), the smallest – in the Primorsky Krai (9%);

– *different degree of pre-school education availability*: the greatest share of children attending pre-school education establishments is found in the Voronezh Oblast (86% of the number of children of the relevant age), the lowest – in the Chukotka Autonomous Okrug (9%);

– *significant differences in the financing of science and scientific research*: the greatest volume of expenditures is in Moscow (2.7% of the GRP), the smallest – in the Republic of Ingushetia (0.09 %);

– *differences in the innovation activity of enterprises and organizations*: the highest is in the Belgorod Oblast (13%), the lowest - in the Stavropol Krai (0.8%).

In this regard, greater importance is attached to the application of assessment methodologies enabling to identify and track the main trends in education and science development, to adjust the RF subjects positions in this sphere, to form the sound motivated policy of executive authorities aimed at strengthening and supporting the personnel and scientific and innovation potential of the territories. The present article contains the results of the work on the assessment of the RF regions by the level of development of scientific-educational environment, which was carried out at the Institute of Socio-Economic Development of Territories of the Russian Academy of Sciences.

[1] More information is contained in: Federal target programme of education development for 2011 – 2015. (approved by the Decree of the Government of the Russian Federation No. 61 dated 7 February 2011); Strategy for innovation development of the Russian Federation for the period up to 2020 (approved by the Decree of the Government of the Russian Federation No. 2227-R dated 8 December 2011.

Table 1. Blocks of indicators of the level of development of scientific-education environment of the RF regions

Block "Education" (9 indicators)	Block "Science" (5 indicators)
Regions' consolidated budget expenditures on education, in % of the total budget expenditures Average monthly salaries of workers of educational institutions, in % of the average monthly nominal gross payroll Involvement of children from 1 to 6 years old in pre-school education, % Number of children per 100 places at pre-school educational institutions, pers. Number of personal computers per 100 students of educational institutions, units Production of workers and specialists by the institutions of initial vocational education per 10 thousand of population, pers. Production of specialists by the institutions of secondary vocational education per 10 thousand of population, pers. Production of specialists by the institutions of higher professional education per 10 thousand of population, pers. Share of high school graduates who got 100 points for the unified state exam, % of the total number of USE participants	Number of employees engaged in R&D per 10 thousand of population, pers. Domestic expenditures on R&D,% of GRP Issuance of patents for inventions and useful models, per 1 employee engaged in R&D Number of organizations using information and telecommunication technologies, % of the total number of organizations Share of innovation-active organizations, % of the total number of organizations

The assessment was carried out on the basis of 14 indicators, which were combined in two thematic blocks *(tab. 1)*.

Accordingly, the following requirements were taken into account:

1) *priority of solving the target state tasks and the implementation of activities* aimed at science and education development;

2) *comprehensiveness*, i.e. the possibility of analyzing the whole range of education and science development problems;

3) *systemic character*, i.e. taking into account both internal relationships and inter-dependencies and external factors and positions, influencing the state of science and education;

4) *commensurability* of the economic and social components of the assessment;

5) *compatibility* of indicators with the current system of accounting, statistics and forecasting.

Moreover, it should be noted that this system can be flexible, it can be completed depending on the demographic, social and economic conditions.

In order to define the estimation parameters, the method of multivariate comparative analysis was applied, based on the method of Euclidean distances[2]. This method made it possible to take into account not only the absolute values of indicators for each municipality, but also the degree of their correspondence to the standard indicator.

The calculation of the estimated indices was carried out for each region of the Russian Federation for 2010 according to 2 options.

The first option used the threshold value for Russia (maximum – if the indicator reflects the positive phenomena, minimum – if the indicator reflects the negative phenomena) as the standard indicator.

In the second option used the average value for the Russian Federation as the standard indicator.

Integrated index of scientific and education environment development for both options assumed the allocation of five groups of regions according to the development level: 1) high; 2) above average; 3) average; 4) below average; 5) low *(tab. 2)*.

[2] See the details on the methodology of assessing the territories by education indicators: Shabunova A.A., Golovchin M.A. Estimation of the development of education in municipal entities. Problems of development of territories. 2012. No. 1 (57). P. 91-96.

Table 2. Quantitative values of the assessment of scientific-education environment development level

Group No.	Level	Interval	
		1 option*	2 option**
1	High (15% of the regions with the highest values of indicators)	Over 0.45	Over 2.18
2	Above average	From 0.45 to 0.39	From 2.18 to 1.41
3	Average	From 0.38 to 0.34	From 1.40 to 1.0
4	Below average	From 0.33 to 0.31	From 1.0 to 0.89
5	Low (15% of the regions with the lowest values of indicators)	Less than 0.31	Less than 0.89

* The maximum (minimum) values for Russia were adopted as the standard indicator.
** The average values for Russia were adopted as the standard indicator.

In the ranging, the unequal, progressively increasing values of intervals were used, which is appropriate when the values of the studied characteristic vary irregularly and considerably.

The ranging according to the first option of calculations shows that the highest development level of scientific-education environment has been achieved in Moscow (0.58 units; *fig. 2*). This is due to the high level of expenditures on education and science, allowing to develop the material base and personnel potential of these spheres, to maintain the high quality of their work.

The Vologda Oblast belongs to the group of regions with the level of development of scientific-education environment below average, it outruns its neighbors in the North-West Federal District – the Republic of Karelia (by 0.05 points) and the Kaliningrad Oblast (by 0.07 points). Due to the absence of a highly developed scientific and innovation infrastructure, the oblast lags significantly (by 47%) behind the leader, the city of Moscow. It should be noted that an important strategic advantage of the Vologda Oblast consists in the significant number of specialists with higher education (137 people per 10 thousand of population). However this advantage is not supported by the demand for such specialists in the labor market (in 2009, at the oblast's enterprises and organizations only 48% of the population worked within the specialty received in the educational institution)[3].

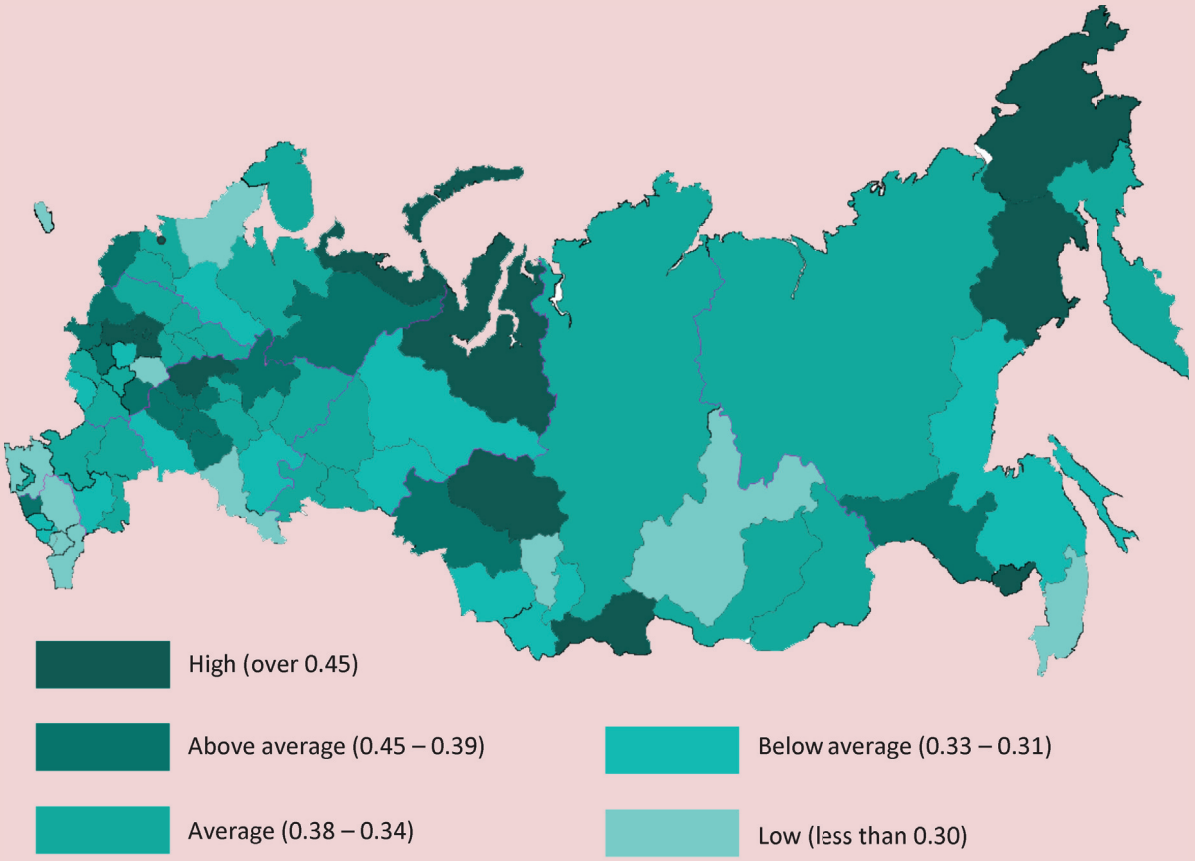
The lowest level of education development is revealed in the southern republics – Ingushetia and Chechnya (0.17 and 0.13 points, respectively). The development of science and education in these areas is characterized by the insufficient amount of computers in schools (2 units per 100 pers.), critically low share of public expenditures on science (0.14% of GRP) and low innovation activity of organizations (0.4%).

Calculations made according to the first option, revealed a significant differentiation of the resulting indices. Thus, the greatest value of the index, as it was noted, amounted to 0.58 points (Moscow), while the smallest – 0.13 points. (Republic of Ingushetia). This can be explained by the special position of Moscow, which shows the highest values for all indicators of the development of scientific-education environment. This confirms the appropriateness of using the average values for the Russian Federation as the standard indicator.

In the group, created using the average values for Russia as the standard indicator when calculating the integral indices (the second option), a high development level of scientific-education environment can be observed in

[3] The data of the ISEDT RAS survey on the assessment of the labour potential among the Vologda Oblast able-bodied population. The total sampling of the survey was 1500 people.

Figure 2. Arrangement of the RF regions according to the composite index of the development level of scientific and education environment (the first option)



Source: authors' calculations.

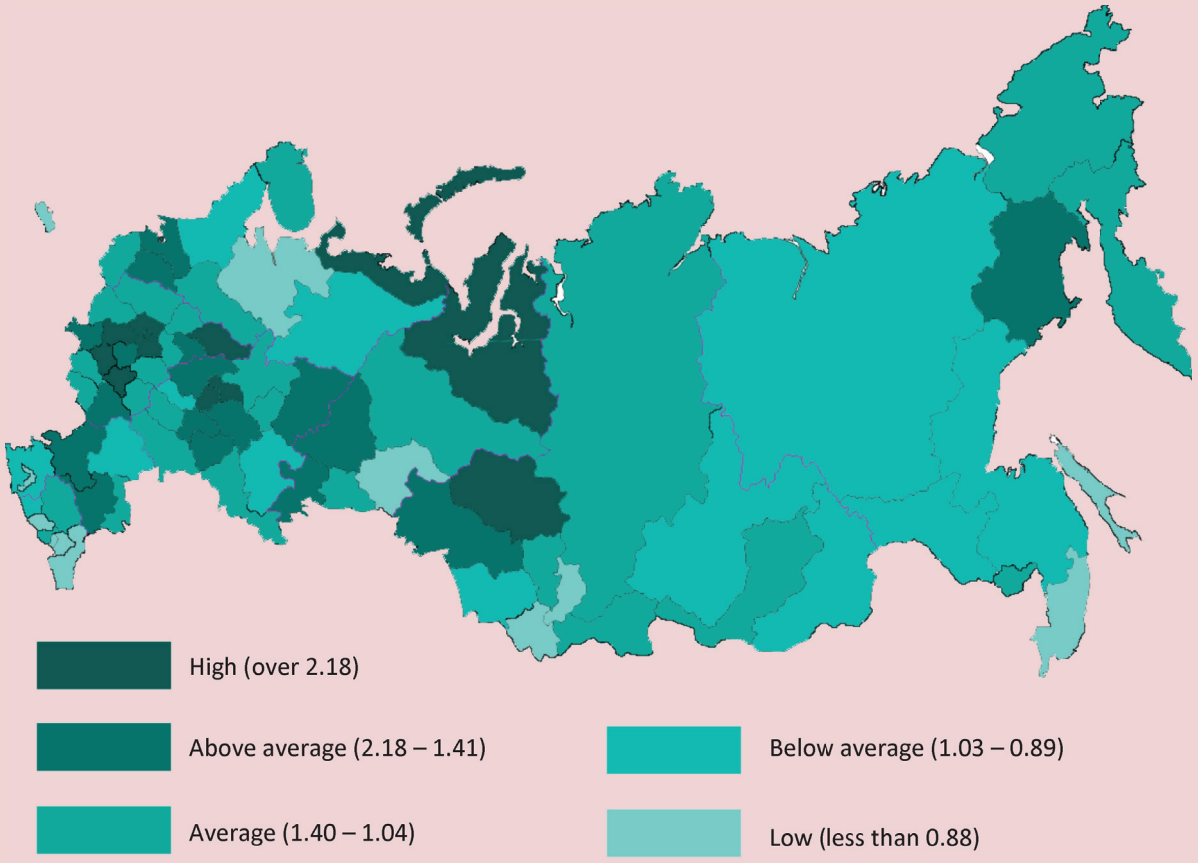
Moscow, the Yamalo-Nenets Autonomous Okrug, Saint-Petersburg, the Republics of Mari El and Chuvashia, the Tomsk, Moscow, Lipetsk, Kaluga, Oryol, Kostroma Oblasts, the Nenets Autonomous Okrug *(fig. 3)*. According to the integral index, Moscow is well ahead of all the other Russian regions (the difference with Saint-Petersburg is 32%).

A comparison with an average Russian level improved the position of the Vologda Oblast, which had moved into the group with an average level of development of scientific-education environment. The Southern republics – Dagestan, Chechnya, Ingushetia retained their positions in the group with the low values of the integral index (see supplement) *(tab. 3)*.

Thus, the territorial disproportions in the development of science and education remain a very acute problem in Russia. Overcoming these imbalances is possible, if in the future development, the regions will be guided by the level of territories with well-developed scientific-education environment.

Thus, according to the estimates, the Chuvash Republic, the Oryol and Belgorod Oblasts have significant possibilities of transition into the group with high level of development of scientific-education environment; the Kursk, Pskov, Kurgan, Sverdlovsk Oblasts, the Republics of Mari El, Sakha (Yakutia) – into the group with the level above average.

Figure 3. Grouping of the RF regions according to the integral index of the development level of scientific-education environment (second option)



Source: authors' calculations.

Integral indicators of these territories are very close to the threshold values of the groups with high and lower than average levels.

For the implementation of such a transition, it is necessary to adopt certain effective measures.

In the sphere of education they include first of all:

- control over the proper implementation of the Decree of the RF President "On the measures for realization of the state social policy" dated 7 May 2012 No. 597 in the part of bringing the salaries of education workers in 2012 to the average regional salary;
- increasing the accessibility of education through the development of its variant forms;
- inclusion of indicators characterizing the equality of access to high-quality education into the system of indicators estimating the efficiency of activities of executive authorities and local self-government bodies.

In the field of science and innovations of primary importance are such areas of activity as:

- ➢ expansion of the activities of state funds for support of science;
- ➢ promotion of the wide-scale innovations in all sectors of the economy through the systematization of the tax privileges in the innovation sphere and improvement of their administration;
- ➢ development of programmes of support of wide-scale scientific and technical creativity and innovation entrepreneurship.

Table 3. Values of integral indicators of the development level of scientific and education environment in the RF subjects in 2010 (the second option of calculations: the average value in the Russian Federation is considered 1.0)

RF Subjects	Indicator values	RF Subjects	Indicator values	RF Subjects	Indicator values
Russian Federation	1.0				
First group (high indicator value)		**Third group** (average indicator value)		**Fourth group** (indicator value below average)	
Moscow	3.84	Vladimir Oblast	1.4	Karachayevo-Cherkess Republic	0.97
Yamalo-Nenets Autonomous Okrug	3.4	Penza Oblast	1.4	Republic of Mordovia	0.97
Saint Peterburg	2.6	Kursk Oblast	1.39	Volgograd Oblast	0.96
Mari El Republic	2.57	Republic of Tyva	1.38	Republic of Bashkortostan	0.96
Tomsk Oblast	2.51	Kemerovo Oblast	1.37	Republic of Sakha (Yakutia)	0.96
Moscow Oblast	2.5	Tambov Oblast	1.36	Khabarovsk Krai	0.96
Lipetsk Oblast	2.44	Astrakhan Oblast	1.35	Krasnodar Krai	0.95
Kaluga Oblast	2.41	Kirov Oblast	1.35	Omsk Oblast	0.95
Chuvash Republic	2.33	Pskov Oblast	1.34	Republic of Kareila	0.93
Nenets Autonomous Okrug	2.29	Yaroslavl Oblast	1.33	Zabaikalsky Krai	0.93
Oryol Oblast	2.24	Murmansk Oblast	1.33	Altai Krai	0.92
Kostroma Oblast	2.21	Vologda Oblast	1.29	Irkutsk Oblast	0.89
Second group (indicator value above average)		Republic of Udmurtia	1.28	**Fifth group** (low indicator value)	
Samara Oblast	2.18	Orenburg Oblast	1.23	Arkhangelsk Oblast	0.88
Nizhny Novgorod Oblast	2.12	Saratov Oblast	1.21	Kaliningrad Oblast	0.87
Bryansk Oblast	2.07	Belgorod Oblast	1.2	Kabardino-Balkar Republic	0.87
Magadan Oblast	2.01	Tver Oblast	1.2	Altai Republic	0.87
Perm Krai	1.88	Chukotka Autonomous Okrug	1.18	Republic of Adygea	0.86
Ulyanovsk Oblast	1.76	Stavropol Krai	1.15	Tyumen Oblast	0.86
Ivanovo Oblast	1.69	Republic of Buryatia	1.14	Primorsky Krai	0.86
Novosibirsk Oblast	1.67	Krasnoyarsk Krai	1.14	Republic of Dagestan	0.84
Republic of Kalmykia	1.66	Ryazan Oblast	1.09	Republic of Khakassia	0.83
Chelyabinsk Oblast	1.59	Republic of North Ossetia – Alania	1.09	Sakhalin Oblast	0.79
Novgorod Oblast	1.54	Kurgan Oblast	1.09	Republic of Ingushetia	0.58
Leningrad Oblast	1.51	Jewish Autonomous Oblast	1.06	Chechen Republic	0.46
Rostov Oblast	1.51	Smolensk Oblast	1.05		
Republic of Tatarstan	1.44	Khanty-Mansi Autonomous Okrug – Yugra	1.04		
Voronezh Oblast	1.43	Kamchatka Krai	1.04		
Tula Oblast	1.41	Amur Oblast	1.02		
Sverdlovsk Oblast	1.41	Republic of Komi	1.01		

References

1. Bakhtizin A.R., Akinfeyeva E.V. Comparative estimation of innovation potential of Russian Federation regions. Studies on Russian Economic Development. 2010. No. 3. P. 73.
2. Beketov N.V. Science in Russia and in the world. ECO – All-Russia economic journal. 2003. No. 11. P. 12-22.

3. Brekhova T.B. Key trends of innovation and educational processes in Russia. Education and society. 2012. No. 2 (73). P. 19-23.
4. Kovaleva N.V., Kuznetsova V. I., Nechayeva E.G. Informational-analytical system of ranking the regions according to the indicators of education development: methodology and results of the experiment. Part 2. Journal of educational studies. 2008. No 1. P. 210-239.
5. Leonidova G.V., Golovchin M.A., Solovyova T.S., Gutnikova E.A. Integrated assessment of the development of educational systems on the municipal level. Under the general editorship of Doctor of Economics A.A. Shabunova. Vologda: ISEDT RAS, 2012. 72 p.
6. Leonidova, G.V. Integration of science, education, business as the solution of strategic tasks in the training of qualified specialists. Materials of inter-regional scientific-practical conference "Formation of a management personnel reserve: regional experience". Available at: http://www.ags-vologda.ru (access date: 31 May 2012).
7. Science of Russia in figures: statistical book. Moscow: Centre for Science Research and Statistics, 2004.
8. National educational initiative "Our new school". Available at: http://mon.gov.ru/dok/akt/6591/ (access date: 31 May 2012).
9. Official data portal of the unified state exam. Available at: http://ege.edu.ru (access date: 31 May 2012).
10. Regions of Russia. Socio-economic indicators. 2011: stat. book. Moscow: Rosstat, 2011.
11. Russian innovation index. Ed. by L.M. Gokhberg. Moscow: National Research University "Higher school of economics", 2011.
12. Russian statistical yearbook. 2011. - Moscow: Rosstat, 2011.
13. Strategy for innovation development of the Russian Federation for the period up to 2020 (approved by the Decree of the Government of the Russian Federation No. 2227-R dated 8 December 2011).
14. The strategy-2020: the new model for growth – the new social policy. The final report on the results of the experts' work on the relevant issues of the socio-economic strategy of Russia for the period up to 2020. Available at: http://2020strategy.ru/ (access date: 31 May 2012).
15. Federal target programme of education development for 2011 – 2015. (approved by the Decree of the Government of the Russian Federation No. 61 dated 7 February 2011).

UDC 332.122:338.432 (470.13)

Conditions of the sustainable development of agricultural sector in the Komi Republic (in the case of remote areas)

The article estimates the sustainability of agriculture in the remote areas of the Northern region in the pre-reform and transformation periods. It shows the influence of market reforms on agricultural production dynamics and reveals the factors and conditions hampering sustainable agricultural development in the remote areas. To ensure the sustainable development of the sector, a set of organizational and economic measures is proposed, which includes agricultural legislation updating, the increase of the state support of agricultural producers, retaining qualified personnel in the sector, the formation of multifunctional agriculture in rural areas, the creation of modern systems of planning, forecasting and scientific and information support.

Sustainable development, agriculture, remote areas, the complex of organizational and economic measures, innovations, state support.

Anna S.
PONOMAREVA
Postgraduate student of the Institute of Socio-Economic and Energy Problems
of the North Komi scientific centre of the Ural RAS department
anita-85_07@mail.ru

The urgency and necessity of agriculture's transition to the sustainable development in the remote areas of the Komi Republic are caused by the increase in production of local environmentally safe foodstuffs, dealing with the problems of indigenous population employment, increasing the living standards of peasant community, stable and balanced nature management.

Today, the region's agriculture is characterized as unstable. Therefore, developing a set of science-based measures, aimed at the stabilization and sustainable development of northern agriculture, has become an important and urgent task.

The research is aimed at evaluating the current state of the agricultural sector in the remote areas of the Komi Republic and working out the key guidelines for the sustainable agricultural development of theses territories.

The following tasks were solved based on the research objectives:

1. Analyzing the development of agriculture in the remote rural areas in the pre-reform period and the period of market reforms.
2. Identifying the factors and conditions that constrain the sustainable development of agricultural production.
3. Proposing a set of measures for the sustainable development of the sector.

* This article was prepared as a part of research projects of UB RAS No. 12-U-7-1013 and post-graduate students and young scientists No. 11-7-TM-399.

The theory of sustainable development has become the most popular one in the recent decades. However, there is no common definition of this notion today. Modern ideas about sustainable development, the notion and essence of sustainable agricultural development, the analysis of factors, conditions and indicators of sustainability are studied completely by the author [3, 4].

Specificity of agriculture

Any territory is divided into rural and urban areas. Remote rural areas are characterized by remoteness, low population density, a lack of necessary infrastructural facilities, poor transport accessibility, a lack of material and financial assets for development, poor institutions and low competitiveness of commodity producers [2]. According to these features, the following regions have been referred to the remote rural areas: Ust-Tsilemsky District, Izhemsky District, Udorsky District, Troitsko-Pechorsky District, Ust-Kulomsky District and Koygorodsky District.

Remote rural areas occupy 42% of the Republic's territory. 100.7 thousand people or 11.2% of the total population lived here in 2010. The population size has declined by 29% in these regions and by 28% in the Republic over the period from 1990 to 2010. Ust-Tsilemsky District has the largest area and the lowest population density. The average population density accounts for only 0.3 persons per square kilometer here, 1.1 persons per square kilometer in the remote areas on average and 2.2 persons per square kilometer in the Republic.

The area of remote rural territories is large but only 0.9% of it is used for agricultural purposes. The share of the most productive land – arable land – is only 0.1%, this indicator is 0.2% in the Republic. The share of tilled land is 14% in the remote areas and 24% in the Republic. Natural hayfields and pastures predominate over agricultural land; there are 5.8 hectares of grassland per 1 hectare of arable land.

The sectoral structure and specialization of agriculture have been formed under the influence of natural conditions, geographical, historical, and socio-economic factors. The share of livestock sector accounts for 69%, while the share of crop production is 31%. Livestock farming is a key sector in Izhemsky, Ust-Tsilemsky and Koigorodsky districts.

Dual purpose cattle breeding and reindeer breeding are the main areas of the livestock sector. The crop sector is focused on the production of feed, cultivation of potatoes and vegetables.

53 agricultural organizations, 175 peasant farms and 40 thousand household farms were involved in the production of agricultural products in 2010. Household farms prevailed in the production of all the kinds of products.

The remote areas under our study are the parts of the Northern, Central and Southern agricultural zones.

The Northern agricultural zone includes Izhemsky District, Ust-Tsilemsky District, Udorsky District and Troitsko-Pechorsky District, the Central agricultural zone includes Ust-Kulomsky District and the Southern agricultural zone includes Koygorodsky District. There are more favorable conditions for agriculture in the Southern and Central agricultural zones.

Per capita availability of biological resources is higher in the remote areas than in the Republic. In 2010, per capita farmland was 3.1 times more and per capita arable land was 1.8 times more here than in the Republic. Per capita share of cattle was 2.7 times more, cows – 3.3 and sheep – 4.3 times more in the remote areas than in the Republic.

As for the natural environment in these regions, it should be noted that they are mostly favorable for the further development of agriculture, especially for cattle-breeding (sufficient rainfall provides a relatively high fertilizers efficiency; almost round-the-clock daylight in the northern zone promotes the

rapid growth of plants; there are significant areas of natural forage land here). The large areas of floodplain meadows in the Pechora, Mezen, Vychegda and Sysola basins are valuable in the national economy.

There are opportunities for organic production and forming an appropriate market segment in these regions. It is possible to receive a kind of rental income due to the sale of environmentally friendly products.

Another group of social factors and conditions has a negative influence on the development of agricultural production. Remote rural areas are characterized by the following social problems:

• depopulation due to migration and natural decline in the population;

• low population incomes; the gap in wages between agricultural and industrial workers; working people live below the poverty line;

• a lack of skilled employees; low level of management in the agricultural sector;

• significant lag of remote rural areas behind urban and suburban areas in the development of social infrastructure and quality of service;

• low transport accessibility and low opportunities to receive the essential social goods (education, health, culture, public services). There is a hard-top road to Syktyvkar only in two out of six regions (Koigorodsky and Ust-Kulomsky districts). The vast majority of settlements are connected with the district centres by earth roads.

The study of the most important factors and conditions that affect the development of agriculture in the remote areas allowed us to define the strengths and weaknesses of the agricultural production and identify opportunities and threats (risks) due to the use of SWOT-analysis *(tab. 1)*.

Table 1. SWOT-analysis of the agricultural development in the remote areas of the Komi Republic

	I. Opportunities	*II. Threats*
External environment	• Demand for environmentally safe food products in the regional, national and international markets • Availability of budgetary funds in the region for the implementation of the target-oriented programmes aimed at the development of agriculture and rural areas • Financing of agriculture and rural areas by industrial enterprises • The focus of social and economic policy on the development of remote areas • Cooperation and agro-industrial integration	• Unfavorable environmental conditions for agriculture • Inefficient management structure of agricultural and rural development • High dependence of livestock production on the delivery and market of concentrated feed • High costs and risks, restraining the involvement of private investors • Increased competition • A lack of processing facilities oriented to farmers • Disparity in prices for agricultural and industrial products • Low state support • Monopoly of the I and III spheres of agriculture • Underdeveloped agrarian legislation • Scientific, informational and consultancy isolation of rural areas • Limited access of agricultural and commodity producers to the production markets, material and technical means and financial resources
	III. Strengths	*IV. Weaknesses*
Internal environment	• High demand for local products and guaranteed consumption of them • Significant natural and labour resources • Long daylight hours during the growing season; good moisture supply of plants • Floodplain meadows for the development of cattle-breeding • High genetic potential of cattle stock • Favourable conditions for the production and export of organic products • Opportunities for the diversification of agricultural production • High potential of agrarian sciences	• Significant gap between urban and rural quality and standards of living • High depreciation of fixed assets • Outdated technology and equipment • Low professional qualification of personnel • Outflow of skilled personnel • Poor management • Poor rural living environment (underdeveloped infrastructure, landscaping and services) • High cost of local products as compared with imported goods • Low competitiveness and inefficiency of agriculture • High unemployment rate and low living standards • High migration activity of population • The lack of a clear developmental strategy • The lack of alternative employment spheres and income sources

Agriculture in the pre-reform period

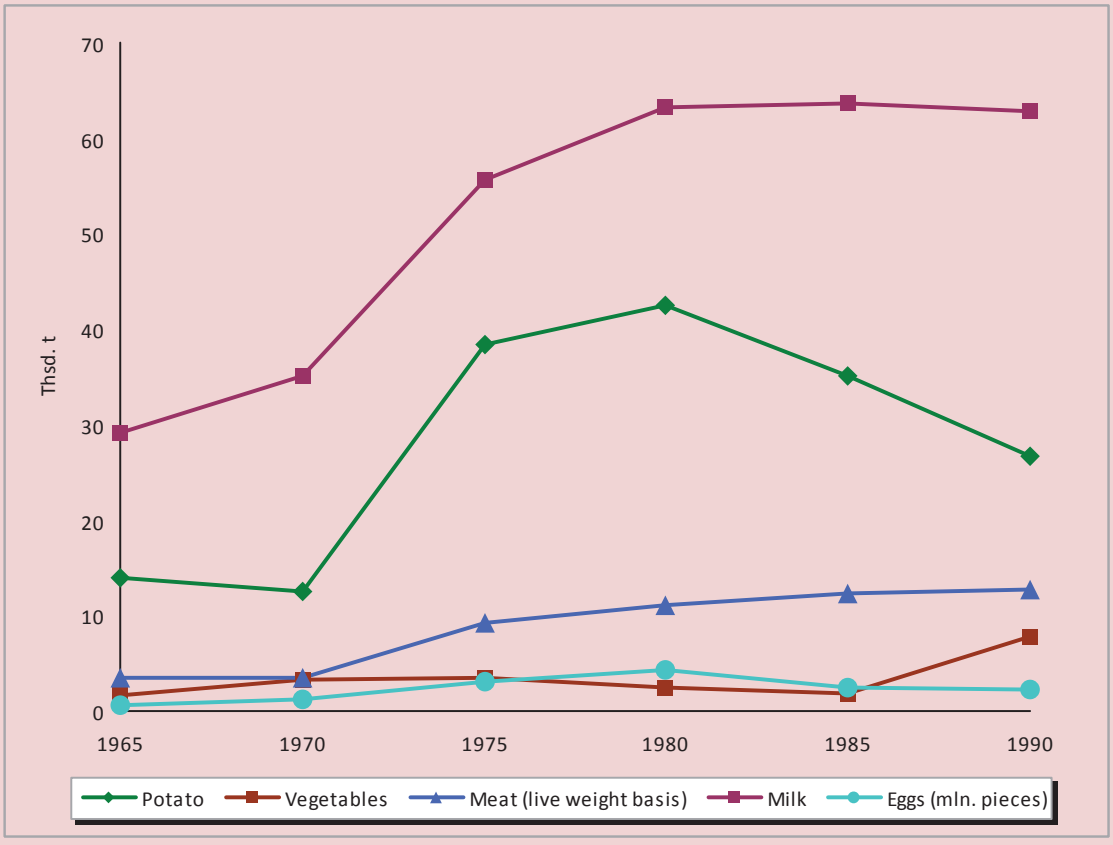
The dynamics of crops and livestock production in the remote areas was positive till the early 1990s (with the exception of vegetable production in the period from 1980 to 1990). Potato production increased 1.9-fold, meat production – 3.8-fold, milk production – 2.2-fold, eggs production – 4.4-fold in 1990 as compared with 1965 *(fig. 1)*.

Remote areas were characterized by positive dynamics in the increase of per capita livestock production. There was a decline in per capita milk production only in Udorsky District. Per capita milk production increased 2.4-fold and meat production increased 4.3-fold in the remote areas in 1990 as compared with 1965. In general, per capita milk production has decreased by 3% over this period in the Komi Republic.

There were positive changes in pricing and financial position of agricultural enterprises due to the increase in purchasing prices for agricultural products. Production of all the major products was profitable in 1990. The level of agricultural production profitability accounted for 44%, which corresponded to an optimal rate (40 – 50%).

Harmonizing the living standards of urban and rural population was the main area of social policy in the pre-reform period. There was a steady increase in rural families' total incomes, which became close to the incomes of urban population. It should be noted that there was a trend to increase the provision of rural population with different types of social and living services. There was a comprehensive development of central farmsteads.

Figure 1. Dynamics of production in all the categories of enterprises in the remote areas of the Komi Republic for 1965 – 1990, t



The impact of market reforms on the sustainability of agriculture

There were contradictory socio-economic processes in the rural areas in the period of market reforms. Legal and organizational conditions for functioning of the various forms of ownership and economic management have been created in the recent years; the basis for the inclusion of market development mechanisms has been laid. A new socio-economic structure of agricultural production, characterized by private, collective and individual legal organizational forms of management, has been created.

The role of personal subsidiary plots and private farms has increased and the role of collective sector has decreased in the agricultural sphere of remote regions. If in 1990 the share of agricultural enterprises in milk production accounted for 78%, in meat production – 77%, in potato production – 29%, in vegetable production – 55%, then in 2010 they produced 23% of milk, 13% of meat, 1% of potato and 0.1% of vegetables. The share of households in the production of milk has increased from 23 to 66%, meat – from 23 to 82%, potatoes – from 71 to 98%, vegetables – from 45 to 99.5%. Agricultural enterprises dominated in the production of milk only in Koigorodsky and Udorsky districts. Peasant (farm) households did not play a significant role in the production of agricultural products, especially in crop production. In the remote areas, the share of milk production in the farm households increased from 0.3% in 1995 to 7.2% in 2010, the share of meat production increased from 0.7% to 5%, respectively.

The transition to market economy had a negative impact on the agricultural sector in the remote areas. In 1990 – 2010, milk production in all the categories of farms and households decreased 3.2-fold, and there was 4.2-fold decline in meat production (live weight basis) *(fig. 2)*. There was the greatest production decline in the collective farms: milk production decreased 9.2-fold, meat production decreased 22.5-fold, potato production – 30.1-fold, vegetables – 108.3-fold. There was a growth in milk production in the households until 1995, and the production of meat, potatoes and vegetables increased till 2000.

There was a sustained decline in per capita livestock production during the period of market reforms. With decreasing population from 142.3 to 100.7 thousand people, per capita milk production in rural remote areas decreased from 442 to 198 kg, meat production decreased from 90 to 30 kg.

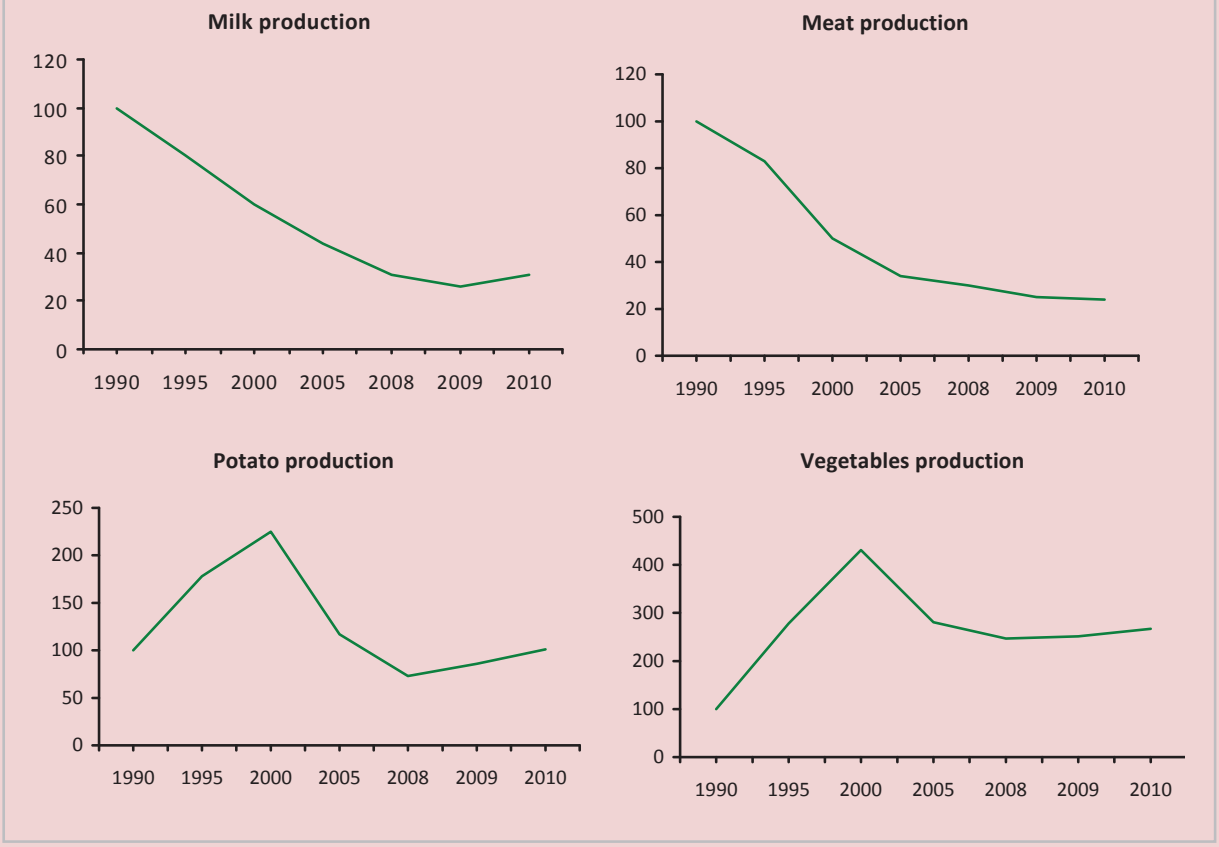
The area under crops and total number of livestock also decreased. The area under crops in these areas decreased from 21.2 to 11.3 thousand hectares in the period from 1990 to 2010, including the decline in the areas under potato from 2.7 to 1.7 thousand hectares and decline in the areas under feeding crops from 18.2 to 6.1 thousand hectares. The number of cattle decreased from 56.3 to 11.9 thousand head, including the number of cows – from 22.8 to 6.6, the number of pigs – from 17.9 to 3.1, the number of sheep and goats – from 21.2 to 8.4 thousand head. There was the most rapid livestock decline in the agricultural enterprises *(fig. 3)*.

In plant growing there was a worsening of agrochemical and water-physical properties of soil, the increase in the area of wetlands and bushed areas due to the destruction of drainage systems and stopping land reclamation in the late 1990s.

Removal of nutrients from the soil with the crop is more than soil dressing. Nowadays, the application of organic and mineral fertilizers provides less than 10% of the need in maintaining soil fertility.

There is an organizational, technical and technological lag of the sector. The number of all the marks of tractors has decreased from 1752 to 212 machines over the period from 1990 to 2010 in the remote areas; the application of mineral and organic fertilizers has decreased

Figure 2. Dynamics of production in all the categories of farms in the remote areas of the Komi Republic for 1990 – 2010 (1990 = 100)



from 113 kg and 22 tons, respectively, per 1 ha of crops on 100% of nutrients basis down to 0.8 kg and 7 tons, respectively.

Available technology is aging dramatically. According to the 2006 All-Russian agricultural census, the share of tractors that are exploited 3 years and less accounts for only 3% in the agricultural organizations of the remote areas; the share of machines aged over 9 years is 84%.

The outflow of agricultural workers has led to the deficit of qualified personnel in the industry. There is only one agronomist, animal technician and engineer in most households due to the insignificant volumes of production and low production concentration.

The level of profitability is 4 – 5 times lower than the norm necessary for the implementation of expanded reproduction. The level of livestock production profitability, which is the leading industry in the regions under our study, remains extremely low. Beef production is unprofitable. The analysis of the financial stability of agricultural enterprises in 2011 shows that more than half of them are in the crisis.

Some positive changes in the agriculture of the remote areas are caused by the implementation of the national project "Development of agriculture" (2006). It should be noted that there is an increase in the meat production and mass of profits, and a decrease in the share of unprofitable agricultural organizations. Unfortunately, we could not overcome the tendency to reduce the number of cows and milk production. There is no serious progress in improving the quality of life in the rural areas.

According to the poll of agricultural managers and specialists in the remote areas, the factors that restrain the sustainable development of household include: disparity in prices for agricultural and industrial products – 55% of respondents; weak material and technical base – 52% of respondents, a lack of qualified personnel and poorly developed engineering and transport infrastructure in the rural areas, including poor roads – 43%, low government support – 41%, lack of funds for investment and innovation – 36%.

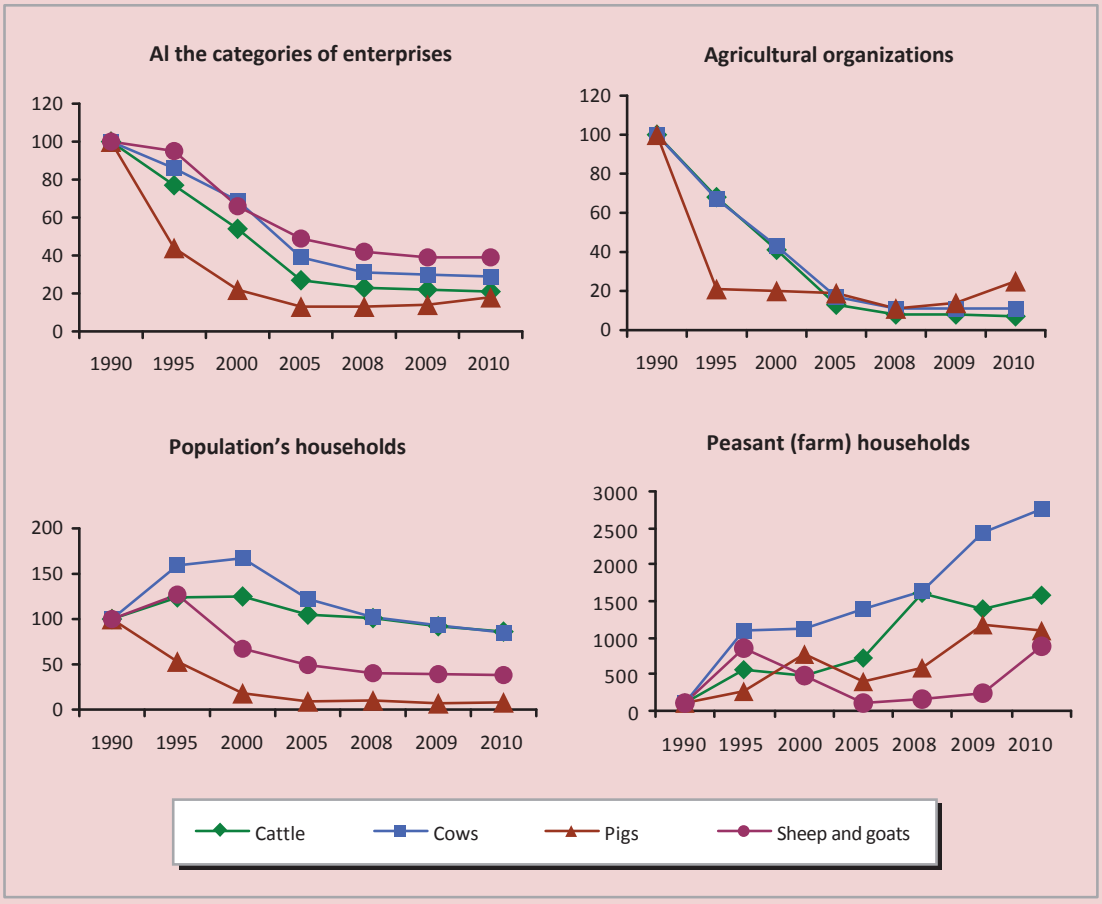
The basic trends in the sustainable development of the agricultural sector

The current economic, social and environmental state of the agricultural sector in the remote rural areas of the Komi Republic is unstable, which can get an extremely negative form due to the elimination of agricultural production and the reduction of habitable rural areas.

We have proposed a set of measures to overcome the crisis and transit to the sustainable development of agriculture:

1. Developing renewed agrarian legislation. First of all, it is necessary to develop and adopt the direct Federal law of full value "On Agriculture of the Russian Federation" [1, p. 39] aimed at: toughening the requirements for target-oriented use of farmlands; neutralizing the influence of monopolistic structures in agriculture; resource supply for the industry; protectionist policy with a focus on agricultural income support through the sponsorship

Figure 3. Dynamics of livestock in the remote areas of the Komi Republic for 1990 - 2010 (1990 = 100)



of agricultural prices; maintaining price parity of agricultural producers due to the budget compensations; reducing the share of exported products; expanded access of peasants to financial markets. It is necessary to change the criteria of considering the organizations and households as agricultural producers in the new law. Nowadays, agricultural producers involve the organizations and individual producers, whose incomes should include at least 70% of profit due to selling and processing agricultural products. The diversification of agricultural economics as applied to the remote areas of the North assumes reducing this threshold to 40 – 50%. At the national level, it is necessary to adopt the laws on the restoration and development of agriculture, innovation policy and strategy in the agricultural sector, which should clearly define the strategic trends in the agrarian policy, recognize agriculture as a priority sector of the economy, determine the direction, methods, mechanisms and measures of state support for the industry and stimulation of innovation activities in the agricultural sector.

2. Full financial support for the sustainable agricultural development in the areas under our study, which would require a 4 – 5-fold increase in the budget as compared with the current level. Most budget allocations (70 – 80%) should flow through the regulated prices for agricultural products in order to make the conditions for expanded industry's reproduction. Nowadays, more than two-thirds of agricultural enterprises have no access to preferential credits due to the high risk of their creditworthiness. Therefore, it is necessary to make the conditions for increasing a pledge base and direct financial state support in order to modernize production, use selection and genetic, technical and technological innovations, and increase the level and quality of farmers' life.

It is reasonable to use budget funds in the construction of modern livestock farms. It is necessary to strengthen the contribution of the state in financing agricultural innovation, industrial and social infrastructure in the rural areas; it's necessary to compensate the losses of agricultural producers due to rising prices for petrol, diesel fuel, electricity, gas, fertilizers, machinery, seeds, and concentrated forage.

We have made the calculation of the size of state support for municipal unitary enterprise "Vashka" located in Udorsky District of the Republic of Komi, based on the projected profitability rates of 30, 40, 45% and bringing the average wage rates in the agricultural sector to the average level of the Republic's national economy. State support accounts for 6.1 million rubles at the present rates of profitability (3%) in MUE "Vashka". In view of bringing the average wage rates in the agricultural sector to the average level of the Republic's national economy (28.8 thousand rubles), the size of state support will be 28.7 million rubles at the profitability rate of 30% and 30.3 and 31.1 at the profitability rates of 40% and 45%, respectively *(tab. 3)*.

Therefore, the size of state support should be increased 4.7 – 5.1-fold in order to ensure the sustainable development of agricultural organizations.

According to the managers and specialists poll, the following areas of budgetary allocations to agriculture have been defined: compensation of forage costs – 77% of respondents; subsidies to compensate for the construction of livestock buildings, vegetable stores and technical modernization of the enterprise – 66% of respondents; support for livestock breeding – 61% of respondents; support for the improvement of soil fertility – 59% of respondents; compensation of the cost of mineral and organic fertilizers and chemicals – 43% of respondents.

3. The access of agricultural enterprises and farms to the financial markets; increase in the role of long-term loan: a soft loan for the construction and modernization of livestock facilities should be provided for 20 – 25 years, and for the purchase of agricultural machinery

Table 3. Calculation of the size of state support for MUE "Vashka", thsd. rub.

Lines	Indicator	2011
1.	Cost of goods sold (including commercial and administrative expenses)	15608
2.	Sales revenue	9984
3.	Sales loss (p. 2 – p. 1)	-5624
4.	Other incomes	6099
5.	Including subsidies from the budgets of all the levels	6099
6.	Profit before tax (p. 4 – 3)	475
7.	Profitability rate (p. 6 / p.1×100)%	1.57
	The size of state support under the current labor compensation for profitability	
8.	30% (p. 1×130/100 – p. 2)	10306,4
9.	40% (p. 1×140/100 – p. 2)	11867,2
10.	45% (p. 1×145/100 – p. 2)	12647,6
11.	Additional salary fund for farmers	18412,4
	The size of state support when bringing the average wage rates in the agricultural sector to the average level of the Republic's national economy for profitability	
12.	30% (p. 8+p. 11)	28718,8
13.	40% (p. 9+p. 11)	30279,6
14.	45% (p. 10+p. 11)	31060,0

and equipment – by 6 – 8 years. Expanding the system of credit cooperation and leasing in the village. Canceling the debt of agricultural producers, canceling the taxes for agricultural organizations for five years and introducing the patents on business activities instead of taxes for farm enterprises.

4. Increase in incomes of the agricultural sector up to the level of the national economy. Significant improvement of the social environment: meeting the demand for comfortable housing, improving access to education, health, cultural, trade and consumer services, and improvement of traffic conditions. Creation of the system of lifelong agricultural learning – primary vocational, specialized secondary, higher vocational education, retraining and development of competence. Developing the target programme on agricultural staffing at the level of organizations, municipalities and regions.

5. Elimination the monopoly of intermediary and processing structures, which requires the translation to a cooperative basis of production cycle, processing and marketing of agricultural products. The priority of local agricultural producers in purchasing products in the regional and municipal funds. The access of agricultural producers to retail outlets and food markets. State involvement in the products pledge (potatoes, vegetables) by allocating budget funds and soft loans.

6. Forming multi-management economy in the rural areas: the integration of agriculture, forestry and handicraft industry; processing of agricultural products and wild plants; recreational use of rural territories. Creating the conditions for the diversification of agro-industrial economy requires the correction of the Forest Code of the Russian Federation, the Land Code of the Russian Federation, the Law "On Peasant (farm) households".

7. Creating a system of indicative planning and forecasting of agro-food sector. Developing and adopting the concepts and programmes for the sustainable agricultural and rural development at the national and municipal levels. Creating the modern scientific, informational and counseling system.

The implementation of measures, aimed at the modernization of the agrarian legislation, production modernization, redistribution of financial resources in favor of agriculture in the remote areas, forming multifunctional economy in the rural areas, creating a system of planning, forecasting, research and informa-

tion security, will require the political will of the Republic's government, a consistent long-term work aimed at overcoming the protracted and sustainable crisis in the agricultural sector of these regions, industry's transition to dynamic development, the improvement of working and living conditions of the peasants.

Summing up the facts mentioned above, we should note the following:

1. The prerequisites for the sustainable agricultural development of the remote areas include increasing the production of environmentally safe food products and increasing the self-sufficiency of the population with local foodstuffs, improving the living standards of the rural population, stable and balanced nature management.

2. Evaluation of agricultural development in the remote areas of the Republic in the pre-reform period shows the positive dynamics of agricultural production, improving the living standards of farmers. All the farms were profitable in the pre-reform period. The profitability level of agricultural production allowed to carry out the process of expanded reproduction.

3. Market transformations were accompanied with a decline of agricultural production, degradation not only of the industrial production potential, but also the peasant community. The main causes of the agricultural sector's instability include the disparity in prices for agricultural products and material resources supplied in the rural areas; decline in the state support; violation of corporate bonds; corporatization of agro-service enterprises aimed to serve the rural producers who have made them virtually independent of the village workers; backward technology, high level of fixed assets depreciation; extremely low living standards of rural workers; lack of qualified personnel in the industry, lack of management and infrastructure.

4. The main trends in the sustainable development of agriculture are related to the use of new technologies and balanced reproduction of resource potential, forming multiform and multifunctional economy in the rural areas, scientific and informational support, increased government support of agricultural producers.

References

1. Buzdalov I.N. Agriculture under the pressure of interindustry and macro-economic reformations. Economy of today's Russia. 2009. No. 3. P. 28-40.
2. Dmitrieva T.E. Methodological summary of the spatial development of the northern region. Economy of the North-West: challenges and prospects. 2009. No. 1 (38). P. 22-29.
3. Ivanov V.A., Ponomareva A.S. Methodological foundations of the sustainable development of the agricultural sector. Economic and social changes: facts, trends and forecast. 2011. No. 4 (16). P. 109-121.
4. Ivanov V.A., Ponomareva A.S., Terentyev V.V. Factors and conditions for the sustainable development of the agri-food sector and rural areas of the North. Ed. by V.N. Lazhentsev. Syktyvkar: North Komi scientific center of the Ural RAS department, 2011. P. 6-38.

UDC 334.012.64(470.311)

Staff training as the most important condition for the development of small and medium-sized businesses

The paper proves that the major reason for the slow development of small and medium-sized businesses in Russia is a lack of effective training and retraining system of business staff. The directions of using public-private partnership to achieve these aims are revealed in the case of the Moscow Oblast.

The Moscow Oblast, small and medium businesses, business staff, public-private partnerships.

Zhanna K.
LEONOVA
Ph.D. in Economics, Associate Professor
of the Moscow State Socially-Humanitarian Institute
zh_leonova@mail.ru

The world experience shows that the transition to an innovative type of economic management without small and medium-sized businesses is impossible. For example, there are 80 companies that deal with innovation processes per 100 small businesses (coefficient is 0.8) in Finland, which is among the top twenty exporters of high technology products [4]. The similar coefficient is equal to 0.7 in Singapore.

There are some positive trends in the development of small and medium-sized businesses in today's Russia *(fig. 1)*. There were 1602.5 thousand small enterprises as of January 1, 2010 [7], which was 20% more than the year before. The number of small businesses per 100 thousand inhabitants increased to 189 and amounted to 1129 enterprises; the cumulative growth of the small and medium-sized enterprises for the year was equal to 9.3% [8].

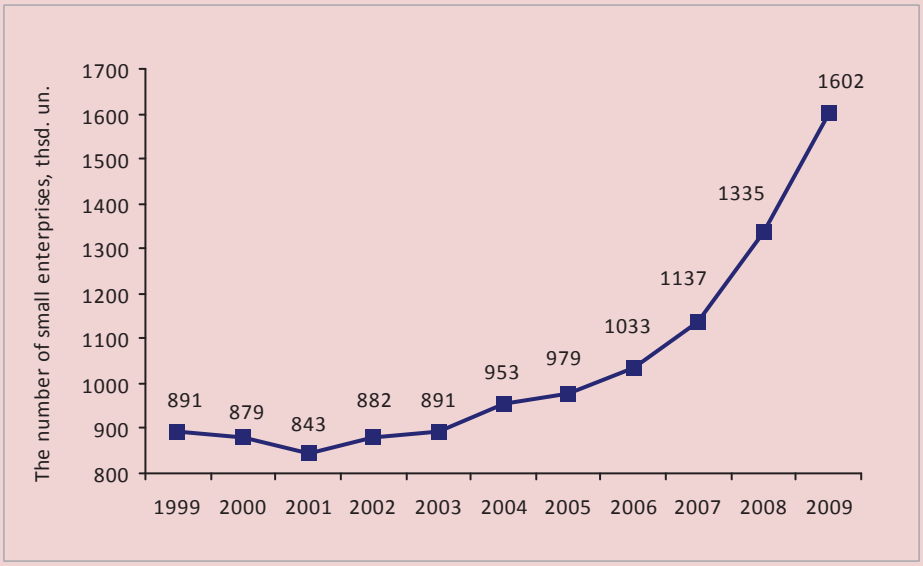
However, the contribution of Russian small and medium-sized businesses in country's GDP is only 15 – 17%, while it is 40% or more in developed countries. For example, there are 24 million small businesses per 245 million people in the USA [2].

Only 10% of small and medium-sized enterprises in Russia are engaged in innovation; the vast majority of them are involved in the retail trade and service sector [7].

This situation is typical for the Moscow Oblast: there are 74.4 thousand small businesses per 6753 thousand people here [10], i.e. 110 enterprises per 100 thousand people; the share of companies that are engaged in innovation is equal to 0.3% [5].

Everybody understands the need to change the situation with regard to small and medium-sized enterprises. In particular, the President of the All-Russian Public Organization of Small and Medium Business "Support of Russia" Sergey Borisov noted at the International Forum in Yaroslavl in September 2011 that "today, Russia must make a true breakthrough and increase the role of small businesses in the country's economy. Here, both the changes in the attitude of people to this type of activity and the development of entrepreneurial talents are very important" [13].

Figure 1. The number of small businesses in 1999 – 2009 (including micro-enterprises, without medium-sized businesses and individual entrepreneurs) [6]



The causes of slow development of small and medium-sized businesses are determined by the whole range of factors. The most important of them is a lack of effective system of entrepreneurial staff training and retraining.

This position was confirmed during our entrepreneurs opinion poll in the South-Eastern region of the Moscow Oblast. 510 managers of small and medium-sized enterprises took part in the poll.

The main method of research was based on a personal quantitative structured interview.

The average number of employees per one enterprise in the study is 17 persons, including 14 permanent and 3 temporary employees; about half of the staff consists of qualified and unskilled workers. At the same time, there are no human resource specialists in the majority of small and medium-sized enterprises; general director or his/her deputies act as these specialists.

The sampling structure of this poll is presented in *tables 1, 2* and *figure 2*.

The study shows that there is a serious staff deficit in small and medium-sized business *(fig. 3)*, especially among qualified (41%) and unskilled (8%) workers. A lack of qualified and service employees makes itself felt most strongly in manufacturing and constructing small and medium-sized businesses, as well as in the retail industry.

Secondly, managers in selling are in demand. This need has been pointed out by 17% of the heads of small enterprises.

All the respondents are interested in additional staff training *(tab. 3)*. The directors of construction (4.1 out of 7 points) and manufacturing (3.7 points) companies need for the assistance in this matter. The businesses that operate less than three years are troubled by this problem most of all (5.2 points). The attitude of respondents to the problem of non-government support in solving staffing problems has been also estimated.

There is a high potential demand for the programmes in economics and business finance – 36% of respondents; the demand for staff training programmes is in the second place – 33% of respondents. The demand for the programmes in innovative technologies accounts for 24%, law – 22%, selling – 21%, management – 19%, information technologies – 18% *(fig. 4)*.

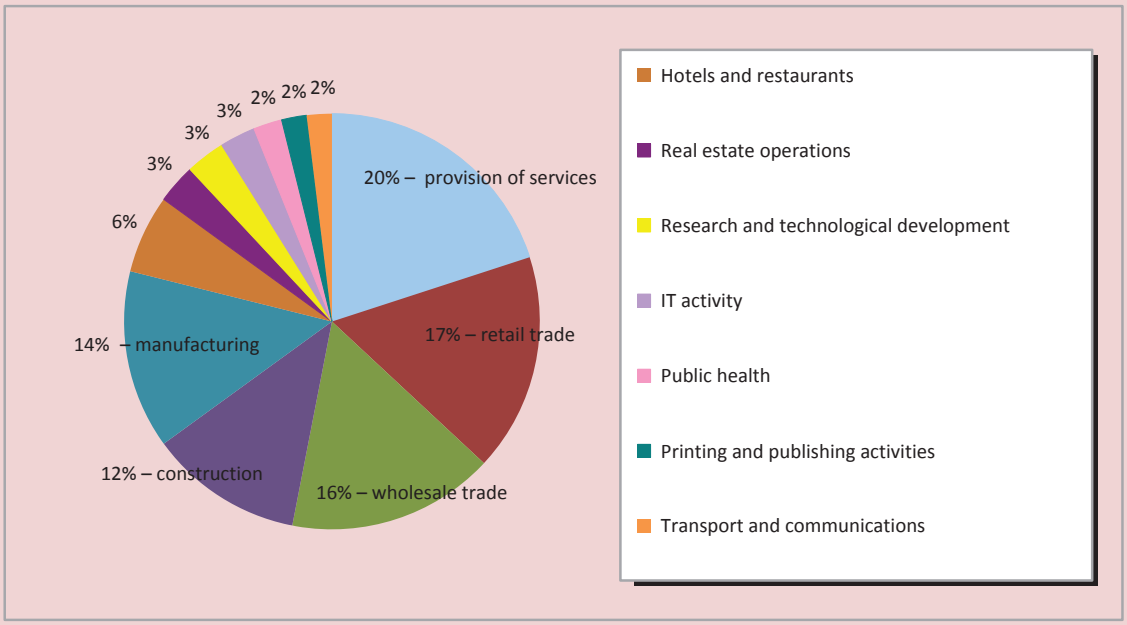
Table 1. Sampling structure of entrepreneurs opinion poll in the South-Eastern region of the Moscow Oblast

Respondent's position	The share of group, in %	Age of respondents, years	Age of an enterprise, years
Founder / owner	11	25 – 34	2 and less
General Director	51	35 – 44	3 – 5
Commercial / Finance Director	22	45 – 54	6 – 10
Human resources manager	16	Over 54	Over 10
The table has been made by the author according to the results of the study.			

Table 2. Annual turnover of the enterprises, managers of which took part in interviewing

Groups according to turnover	The share of group, in %
Less than 250 thsd. rub.	12
250 – 1 250 thsd. rub.	15
1 250 – 5 000 thsd. rub.	26
5 000 – 25 000 thsd. rub.	32
More than 25 000 thsd. rub.	15
The table has been made by the author according to the results of the study.	

Figure 2. Activities of the enterprises which took part in the poll



The data of the managers opinion poll of small and medium-sized businesses in the South-Eastern region of the Moscow Oblast also shows that there is a demand for seminars and conferences to exchange experiences and workshops for HR managers. However, retail (3.4 points) and construction (3.3 points) companies are more open in this matter. And the managers of all the companies regardless of the period of companies' operating have expressed their willingness to take part in the training seminars.

The problem of financial support for organizing and conducting training and re-training the staff of small and medium-sized businesses was being discussed during the poll.

Table 3. Attitude to staffing problems (response to the question: "What forms of state support does your company need to solve staffing problems?"; in points: 1 – it isn't important, 7 – maximum value)*

Form of state support	Types of activity of an enterprise					Age of an enterprise			
	Wholesale trade	Retail trade	Services	Construction	Manufacturing	Under 3 years	3 – 5 years	6 – 10 years	Over 10 years
Compensation for the cost of professional training	4.5	4.4	4.6	5.3	4.4	5	5.1	4.9	4.1
Assistance in staff recruiting	3.2	2.7	2.9	4.1	3.7	5.2	3.8	2.8	3.2
Consultancy in staffing	3.1	2.9	2.8	3.8	3.9	2.9	3.2	3.8	3.1
Renewal of staffing regulatory system	2.6	2.6	3.6	2.7	3.8	2.8	2.9	3.7	3
Seminars and conferences to exchange experience	2.6	3.6	2.7	3.8	2.8	3.1	2.9	2.9	3
Seminars for human resource managers	3	3.2	2.7	2.8	2.3	2.9	3.4	2.8	2.6

* The table has been made by the author according to the results of the study.

Figure 3. The most popular professions that have been identified during the poll (response to the question, "What specialists does your company need most of all?"; in % of the heads of small enterprises who took part in the poll)

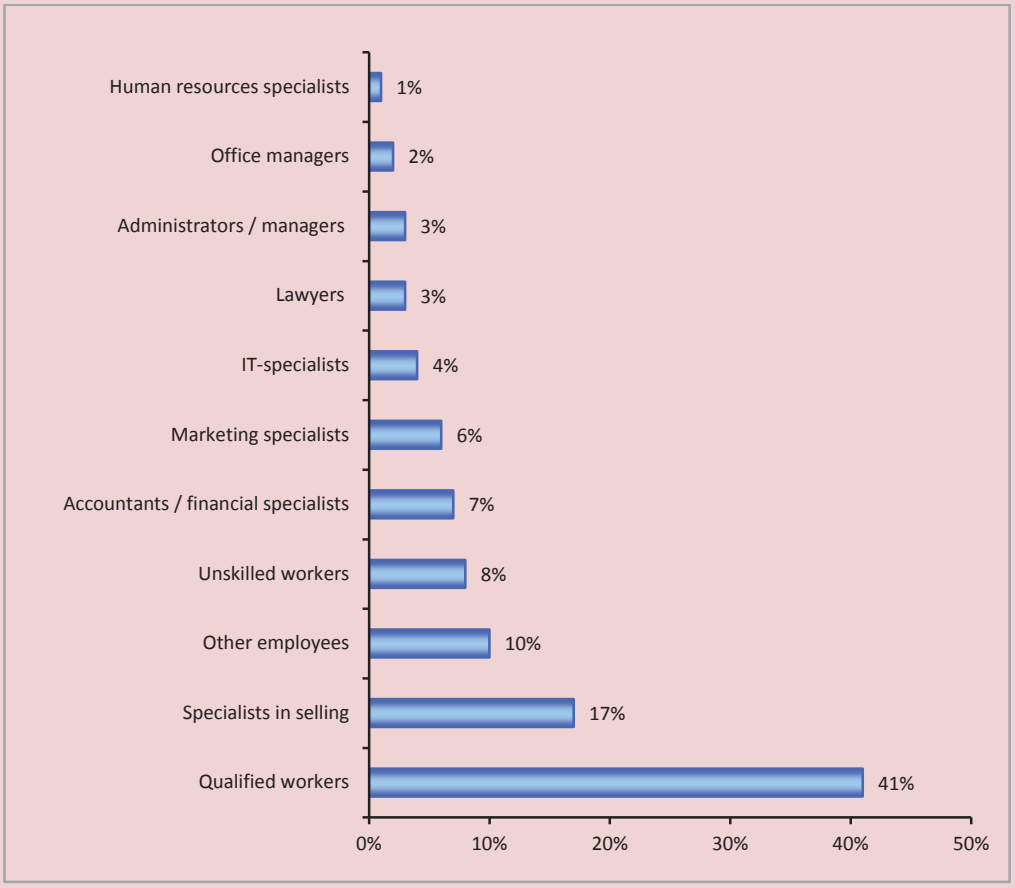
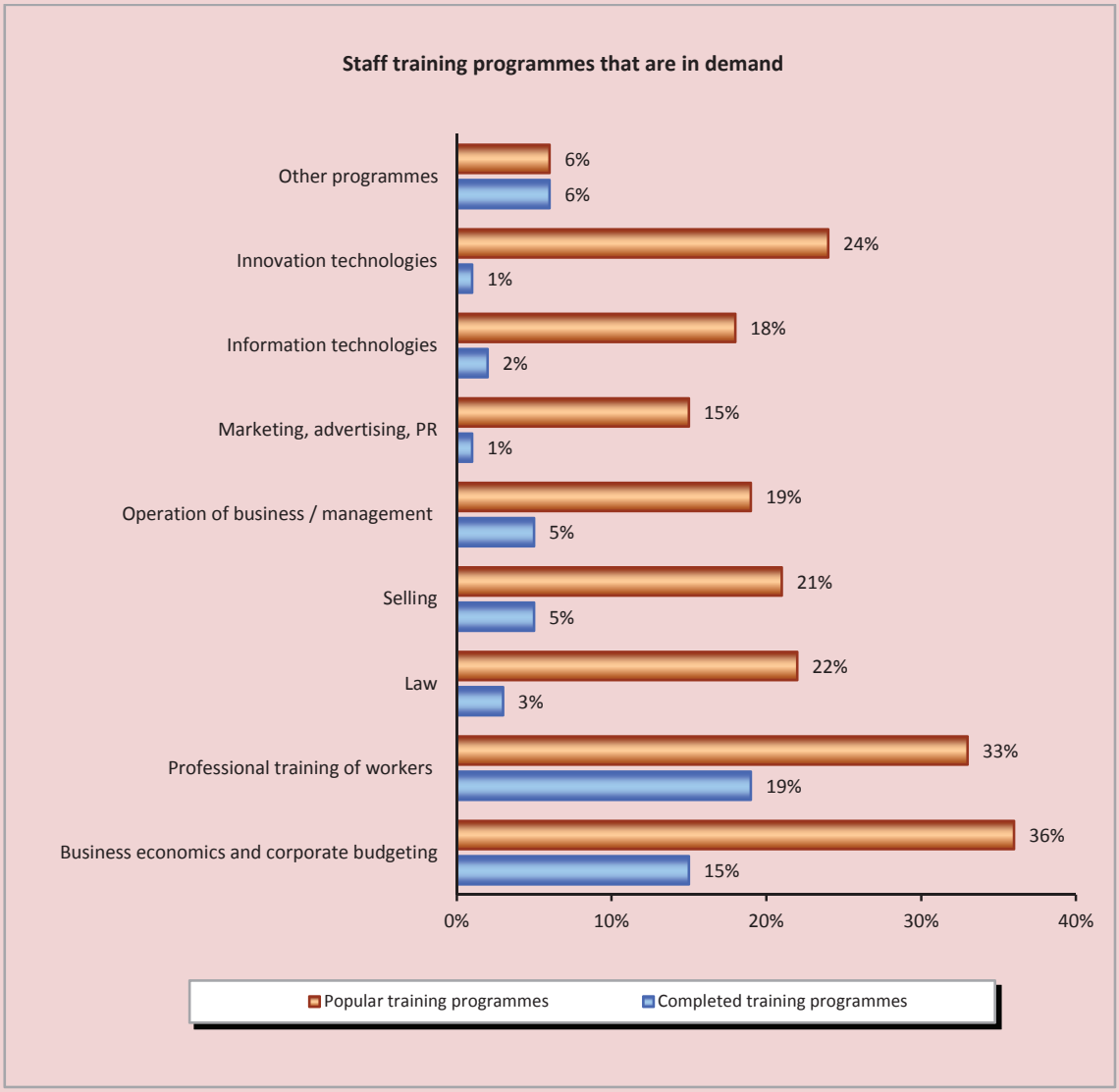


Figure 4. Staff training programmes that are in demand among small and medium-sized businesses (in % to the number of respondents)



On average, one small enterprise situated near Moscow spends 34.5 thousand rubles per year to train all the employees, i.e. 2.5 thousand rubles per one employee annually *(fig. 5)*.

With the state co-financing of entrepreneurial staff training and retraining programmes, the usefulness of which was stressed by all the respondents, companies are ready to increase their staff training expenses *(fig. 6)*.

Everyone expressed the willingness to increase funding for the programmes up to 12.5% on average answering the question "How much is your company ready to spend for staff trai-ning per year if the government adds the same sum of money?"

According to managers of small and medium-sized businesses, increasing the state financial support for training programmes will

Figure 5. Staff training expenses, rub.

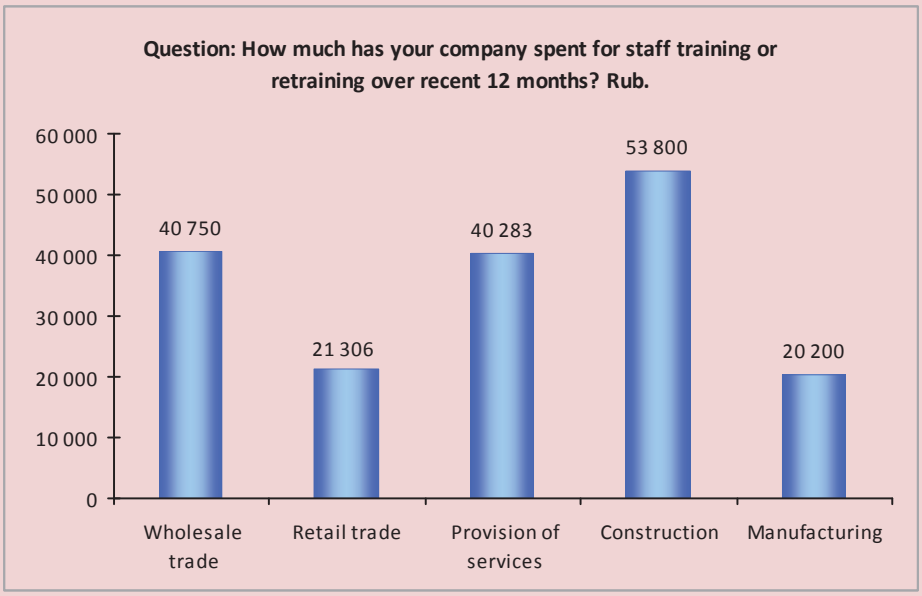
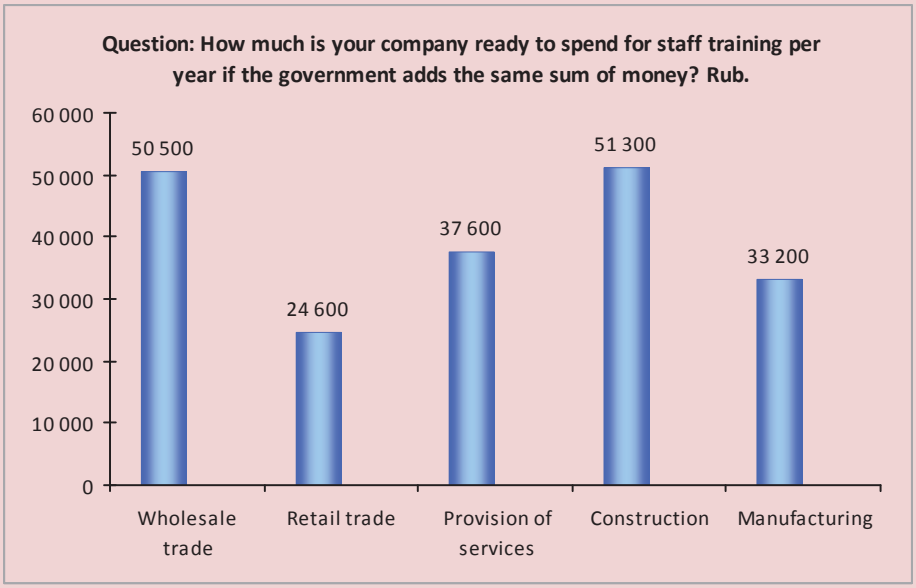


Figure 6. The potential volume of training expenses, rub.

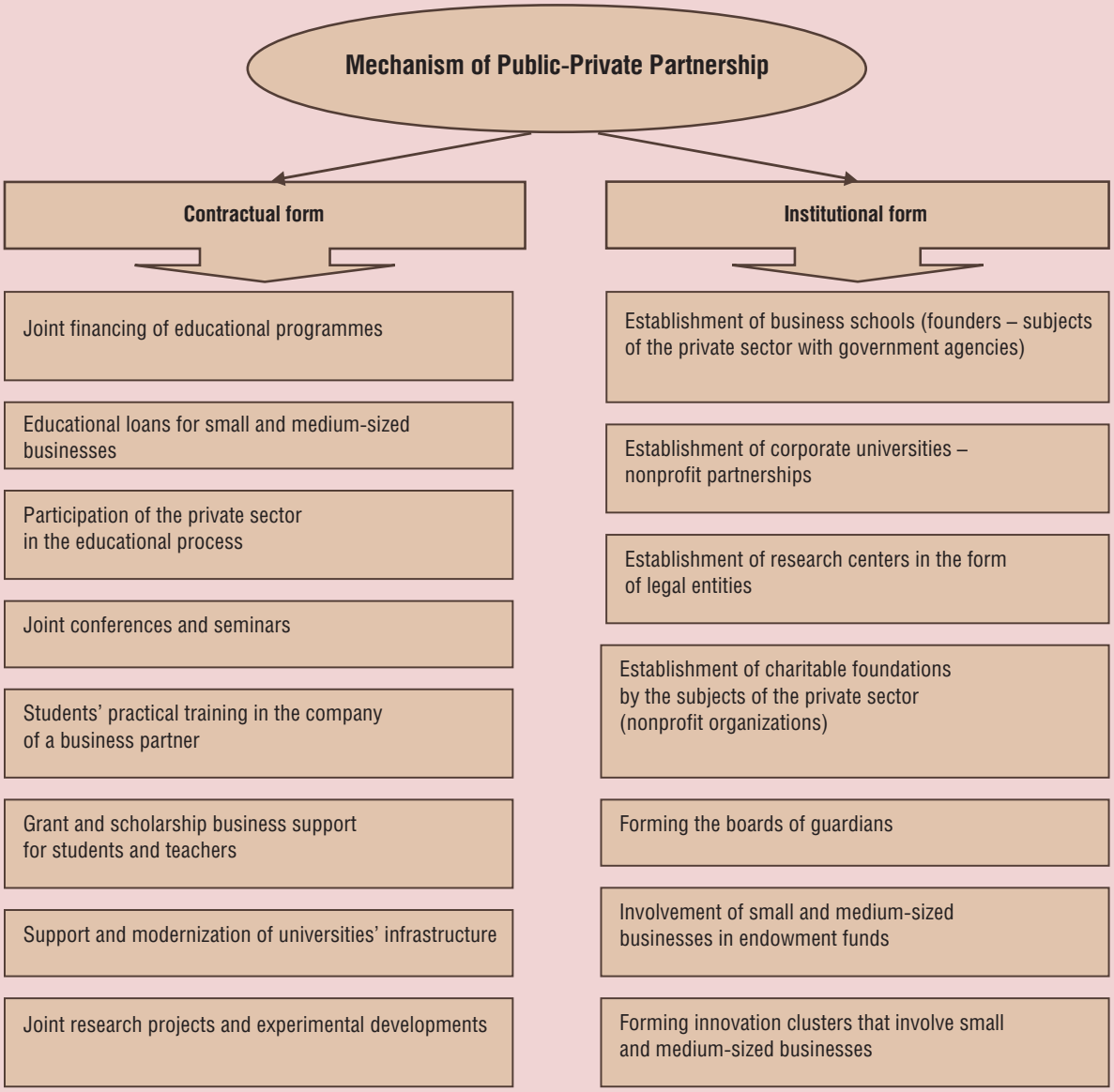


allow the state to take part actively in the development of support system for small and medium-sized business.

Impact of a financial factor is also confirmed by a survey conducted by the Executive Portal and the International Institute of Management LINK: 50% of respondents who have a desire to train and receive training, do not take part in the business educational programmes due to a lack of finance [1].

Indeed, the system of business education in Russia is concentrated in large cities. And the average cost of training varies from 3,000 to 13,500 U.S. dollars [11].

Figure 7. Mechanisms of public-private partnership [3]



Using the mechanisms of public-private partnership (PPP) in the entrepreneurial staff training and retraining system is possible both in the contractual and institutional forms *(fig. 7)*.

As a result of the poll, the mechanisms of public-private partnership, which are preferable for the management of small and medium-sized businesses situated near Moscow, have been revealed. More than 50% of respondents prefer a contractual form of public-private partnership (joint financing of educational programmes; joint conferences and seminars; students' practical training in the company of a business partner; joint research projects and experimental developments). Only 12% of respondents are ready to take part in the development of school boards and organization of business schools.

This study allows us to draw a conclusion about the insolvency of such an element of economic relations as the entrepreneurial staff training system. However, small and medium-sized businesses are able to respond quickly to the changes in the information field due to their isolation.

Therefore, using the mechanisms of public-private partnership will enhance the pro-cess of effective staff training for entrepreneurship.

The cooperation between the participants of today's market requires a higher level of strategic thinking of the managers of small and medium-sized enterprises.

References

1. Business Education. Commercial Director. 2011. No. 9.
2. Report of Dmitry Medvedev at the meeting of the State Council of Russia, March 27, 2008. Available at: http:www.rost.ru
3. Public-private partnerships in education. Ed. by O.P. Molchanov, A.Ya. Livshin. Moscow: KDU, 2009. 242 p.
4. Innovative development – basis of the modernization of Russia's economy: National Report. Moscow: IMEMO RAS, HSE, 2008. 168 p.
5. Information-analytical collection "Innovation activity in the Moscow Oblast". Available at: http://me.mosreg.ru/inov_razv/1024.html
6. Leonova Zh. K Innovative small business as a strategic resource of national security. In: National interests: priorities and security. Moscow: Publishing House "Finance and Credit", 2011. No. 6.
7. Small and medium-sized businesses in Russia. 2010: Stat. Coll. Rosstat. Moscow, 2010. 172 p.
8. Small business in Russia in 2009 and in the first half of 2010: the impact of government support on the sector: proceedings of the V Interregional round-table discussion "Financing of small and medium-sized enterprises in the Ural-West Siberian region". Ekaterinburg, 2010.
9. Proceedings of the round-table discussion at the St. Petersburg International Economic Forum. Available at: http://www.kommersant.ru/doc/1661216
10. Regions of Russia. Socio-economic indicators. 2010: Stat. Coll. Rosstat. Moscow, 2010. 996 p.
11. Russian Statistical Yearbook. 2010: Stat. Coll. Rosstat. Moscow, 2010. 813 p.
12. Demand trends in business education. Available at: http://new.begingroup.com/
13. Yaroslavl Forum: experts are making forecast. Available at: http://www.gpf-yaroslavl.ru/

Kondakov I.A.

Readers' rating of the Journal

Igor A.
KONDAKOV
Ph.D. in Economics, Head of the ISEDT RAS Department
kia-24@mail.ru

The editorial board of the journal "Economic and social changes: facts, trends, forecast" carries out the readers' survey concerning the relevance and quality of published materials. The members of the journal's editorial council and editorial board as well as 92 researchers of the Institute of Socio-Economic Development of Territories of the Russian Academy of Sciences (in 2011 – 79 pers.) took part in the survey in April 2012. Some of the survey results are stated below.

According to the 2010 – 2011 results, more than 80% of the respondents assessed the journal's changes as "positive" and "rather positive than negative" *(tab. 1)*.

The events, having a positive influence on the journal's development over the recent 2 years, include the following:

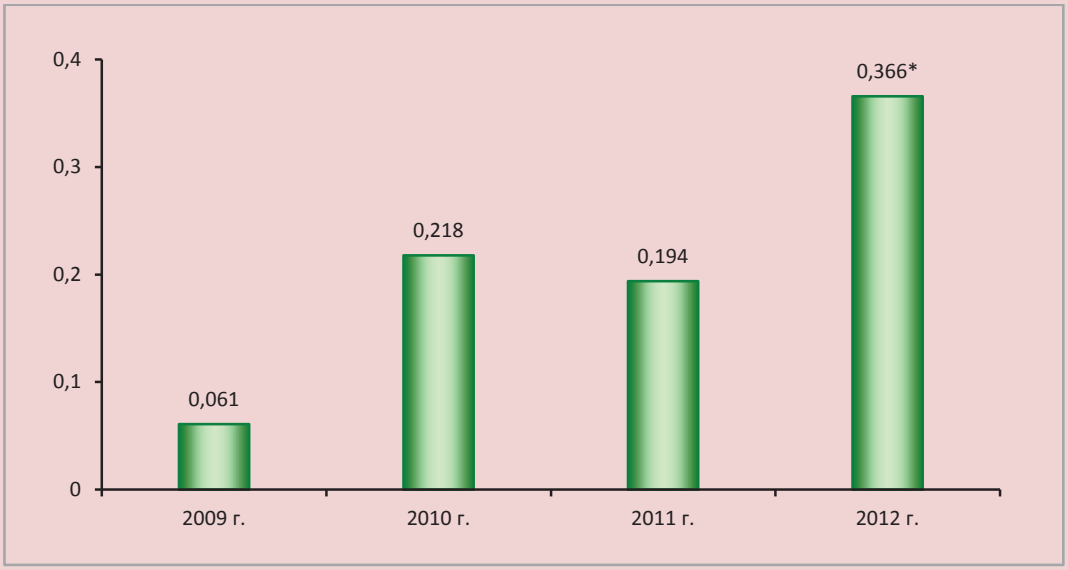
firstly, according to the decision of the Presidium of the Higher Attestation Commission (VAK) of the Ministry of Education and Science dated 19 February 2010, the journal is included in the list of scientific editions recommended by VAK for the publication of the main results of Ph.D. and Doctoral theses;

secondly, in 2011 the journal's issuing frequency changed from 4 to 6 times a year (every 2 months), which allowed for a 2/3 increase in the annual number of published articles (from 56 to 94);

Table 1. Rating of the answers to the question: "How would you assess the journal's changes?" (in % of the number of respondents)

Answer option	In 2011 (summing up the 2010 results)	В 2012 г. (summing up the 2011 results)
Positive	42.6	43.4
Rather positive than negative	40.4	40.6
Rather negative than positive	1.1	0
Negative	0	0
No considerable changes	4.2	7.5
Difficult to answer	11.7	8.5

Figure 1. RISC impact factor of the journal "Economic and social changes: facts, trends, forecast"



* The value of the impact factor for 2012 was obtained by the author's calculation on the basis of Scientific electronic library data.

thirdly, the editorial board began the systematic placement of full-text versions of the journal on the Internet on the platform of the Scientific electronic library (eLIBRARY.RU), where the impact factor of the Russian index of scientific citation (RISC)[1] is calculated *(fig. 1)*; according to this indicator, the journal "Economic and social changes: facts, trends, forecast" in 2010 rated 38 among 149 economic journals *(tab. 2)*;

fourthly, well-known scientists cooperate with the journal as the members of the editorial board (Academician V.V. Okrepilov, Doctor of Economics, Professor I.A. Maksimtsev, Doctor of Technical Sciences, Professor A.V. Putilov, Doctor of Technical Sciences Yu.Ya. Chukreyev), and authors of the journal articles (Academicians S.Yu. Glazyev, A.A. Kokoshin, V.V. Okrepilov, A.I. Tatarkin, Corresponding Members R.S. Grinberg, V.N. Lazhentsev, N.M. Rimashevskaya);

fifthly, cooperation with foreign scientists has been actively developing: the journal regularly publishes articles by authors from Belarus, Ukraine, Kazakhstan, China, France, Finland;

sixthly, the information about the articles published in the journal is regularly sent to the database of VINITI RAS, international information systems Google Scholar, Ulrich's periodicals directory, Index Copernicus.

The competitive advantage of the journal "Economic and social changes: facts, trends, forecast" is the issuing (along with the Russian version) of its translated English version. This increases the chances of the journal's inclusion into foreign databases. For example, at present, the agreement on the journal's inclusion in the

[1] *Impact factor* is calculated according to RISC data on the journal's citing for the previous two years. The number of references made in the target year in all RISC journals to the articles published in this journal for the previous two years is divided by the total number of these articles. I.e., actually, this indicator reflects the average number of references to one article in a journal (source: Scientific electronic library eLIBRARY.RU website. Available at: http://elibrary.ru/titles_compare.asp).

Table 2. Rating of the journal "Economic and social changes: facts, trends, forecast" among the economic journals according to the RISC impact factor in 2010

Rating in 2010	Name of the journal on economics	RISC impact factor 2010
1	Voprosy Ekonomiki	3.938
2	Russian Economic Journal	1.253
3	Foresight-Russia	1.036
4	Russian Management Journal	0.837
5	Terra Economicus (earlier: Economic Bulletin of the Rostov State University)	0.783
6	Region: Economics and Sociology	0.781
7	Spatial Economics	0.738
8	Open Education	0.735
9	Journal of the New Economic Association	0.727
10	Money and Credit	0.674
…	……	…..
38 (out of 149)*	**Economic and Social Changes: Facts, Trends, Forecast**	**0.218**
…	……	…..
49	Vestnik of Saint Petersburg University. Management Series	0.154
…	……	…..
57	Vestnik of Moscow State University. Economics Series	0.124
…	……	…..
71	Voprosy Regionalnoy Ekonomiki	0.091
…	……	…..
87	Rossiyskoye Predprinimatelstvo	0.057
…	……	…..
113	Vestnik of Samara State University of Economics	0.025
…	……	…..
149	Economics of Development	0.000

In 2009 the journal "Economic and Social Changes: Facts, Trends, Forecast" ranked 77 among 140 economic journals in the rating of RISC impact factor.
Source: Scientific electronic library website. Available at: http://elibrary.ru/titles_compare.asp.

database EBSCOhost[2] is being worked out. In addition, the journal is submitted to other American databases for consideration: Web of Science[3], ProQuest[4], EconBiz (www.econbiz.de). German search portal for economists, operating since 2002 as a virtual library, expressed a willingness to cooperate and acquire the English printed version of the journal.

The implemented activities promoted the increase in the number of materials submitted for publication, this diversified and expanded the list of issues and questions covered in the journal. *Table 3* states the journal's headings, which respondents noted to be the most interesting ones. These include, first of all, the materials concerning the problems of branch-wise and regional economic development, the functioning of the social sphere, strategic management and public finances, the peculiarities of the territories' transition to the innovation development path, etc.

[2] *EBSCOhost* (www.ebscohost.com) – a service, providing since 1990 the access to 4000 influential business and economic journals (USA).

[3] *Web of Science* (http://webofknowledge.com/) – integrated web-platform, providing researchers and specialists with the information on all the spheres of knowledge from 8700 scientific journals, 12 thousand items of conferences' proceedings, over 4400 web-sides (USA).

[4] *ProQuest* (www.proquest.com) – provider of electronic information resources that include over 60 thousand journals, 800 thousand books, textbooks, monographs, 2.9 million dissertations, etc. (USA).

Table 3. Distribution of the answers to the question: "What headings in your opinion are the most interesting?" (average score)

Heading	In 2011 (summing up the 2010 results)	In 2012 (summing up the 2011 results)
Branch-wise and regional economy	7.8	8.7
Innovation development	7.7	8.6
Development strategy	8.4	8.6
Social development	8.4	8.5
From the chief editor	8.9	8.4
Young researchers	8.1	8.2
Public finances	6.5	8.1
In the world of books	8.0	8.0
Scientific life	8.3	8.0
Discussion tribune	-	7.9
Modeling and informatics	7.5	7.9
Nature management economy	7.1	7.9
Economic theory	7.2	7.8
Of editorial mail	-	7.0

Table 4. Rating of answers to the question: "How would you assess the level of materials published in the journal?" (in % to the number of respondents)

Answer option	In 2011 (summing up the 2010 results)	In 2012 (summing up the 2011results)
High	25.5	23.6
Sufficiently high	63.9	66.0
Average	10.6	9.4
Below average	0	0
Low	0	0

The changes that took place over the last two years not only increased the quantity but also improved the quality of the published materials. So, by the results of 2010 – 2011, almost 90% of respondents assessed the level of articles as "high" and "high enough" *(tab. 4)*.

At present, the journal "Economic and social changes: facts, trends, forecast" will be released in four versions: printed Russian and English, electronic Russian and English. Russian printed and e-versions are still the most popular. However, in 2011 as compared to 2010, the interest of the readers to English versions increased *(tab. 5)*.

While considering the relevance of the materials published in the journal, one should also pay attention to the visiting of its site (esc. vscc.ac.ru). In January – September 2012 internet users viewed[5] almost 111 thousand pages, and 354 visitors registered[6] in the site in order to work with full-text versions of the journal's articles, this figure exceeds the 2011 values by 15%. Students and specialists comprised more than a half of registered visitors.

Answering the survey questions, the respondents made a number of proposals, the implementation of which could improve the quality of the journal's content. In their opinion, it would be advisable to supplement it with

[5] *Page view* – the downloading and depiction of a certain web page on a user's computer.

[6] *Registration of visitors* – the number of visitors, registered on the web site for a certain period of time.

Table 5. Rating of answers to the question: "How much in demand, in your opinion, are the different versions of the journal?" (in % to the number of respondents)

Answer option	In 2011 (summing up the 2010 results)	In 2012 (summing up the 2011 results)
Russian printed		
Very much in demand	37.2	46.2
In demand	56.4	44.3
Little in demand	2.2	5.7
Not in demand	1.1	0
Russian electronic		
Very much in demand	58.5	62.3
In demand	31.9	31.1
Little in demand	5.3	1.9
Not in demand	0	0
English printed		
Very much in demand	3.2	3.8
In demand	26.6	34
Little in demand	50	42.5
Not in demand	18.1	13.2
English electronic		
Very much in demand	9.6	12.3
In demand	31.9	47.2
Little in demand	36.2	28.3
Not in demand	11.7	6.6

such headings as "Economic integration and spatial development", "Municipal management and development of rural territories", "Energy economics and problems of energy efficiency", "Modeling and prediction", "Activities of enterprises", "Sciences, associating economics" and others.

In connection with the issue of the journal's promotion, respondents suggested the following:

a) to organize the journal's realization in print and electronic form, including through bookstores and internet-shops;

b) to use more widely the opportunities for the journal's inclusion into domestic and foreign databases;

c) to expand the range of the authors – leading specialists (domestic and foreign) in the field of social sciences, in particular, attracting them to write collaborative articles.

The editorial board thanks all the readers who participated in the survey. Your evaluation and suggestions are important and they are actively used to improve the quality of the journal's content and presentation.

Information about authors

Antonova Alina Andreyevna	
Academic degree	
Academic rank	
Full name of the organization – the place of employment	RAS Institute of the Problems of Regional Economy
Work status	Junior Scientific Associate of the Laboratory of the Theory and Methods for the Development of the Regional Economy
Off. Tel. / Fax	8 (812) 316-18-92 / 316-18-92
E-mail	kcn-c4@inbox.ru
Mailing address	38 Serpuhovskaya St., Saint Petersburg, 198013, Russia
Babosov Yevgeniy Mikhaylovich	
Academic degree	Academician of the National Academy of Sciences of Belarus, Doctor of Philosophy
Academic rank	Professor
Full name of the organization – the place of employment	National Academy of Sciences of Belarus
Work status	
Off. Tel. / Fax	
E-mail	babosov@yandex.ru
Mailing address	
Barabanov Andrey Sergeyevich	
Academic degree	Ph.D. in Economics
Academic rank	
Full name of the organization – the place of employment	Institute of Socio-Economic Development of Territories of Russian Academy of Sciences
Work status	Scientific Associate of the Laboratory for the developmental of manufacturing activities, Department of Social and Economic Development and Management in the Territorial Systems gional e ms urg, 199
Off. Tel. / Fax	(8172) 59-78-10
E-mail	qwerdsa-asb@mail.ru
Mailing address	56A Gorky Street, Vologda, 160014, Russia
Bilkov Valentin Alekseyevich	
Academic degree	Doctor of Agricultural Sciences
Academic rank	Associate Professor
Full name of the organization – the place of employment	Vologda Oblast Department of agriculture, food stocks and trade
Work status	Head of Animal Breeding Section
Off. Tel. / Fax	8 (8172) 72-54-90
E-mail	v.bilkov@vologda-agro.ru
Mailing address	19 Predtechenskaya St., Vologda, 160000, Russia
Bochko Vladimir Stepanovich	
Academic degree	Doctor of Economics
Academic rank	Professor
Full name of the organization – the place of employment	Institute of Economics of the Ural RAS Department
Work status	Deputy Director
Off. Tel. / Fax	8 (343) 371-57-16
E-mail	vbochko@mail.ru
Mailing address	29 Moskovskaya St., Yekaterinburg, 620014, Russia

Gnezdilova Anna Ivanovna	
Academic degree	Doctor of Technical Sciences
Academic rank	Professor
Full name of the organization – the place of employment	Vologda State Dairy Farming Academy named after N.V. Vereshchagin
Work status	Professor of the Department for the organization of production and business
Off. Tel. / Fax	
E-mail	gnezdilova.anna@mail.ru
Mailing address	2 Schmidt St., Molochnoye, Vologda, 160555, Russia
Golovchin Maksim Aleksandrovich	
Academic degree	
Academic rank	
Full name of the organization – the place of employment	Institute of Socio-Economic Development of Territories of Russian Academy of Sciences
Work status	Scientific Associate of the Laboratory for Research of Labour Potential Development
Off. Tel. / Fax	(8172) 59-78-10
E-mail	mag82@mail.ru
Mailing address	56A Gorky Street, Vologda, 160014, Russia
Grinchel Boris Mikhaylovich	
Academic degree	Doctor of Economics
Academic rank	Professor
Full name of the organization – the place of employment	RAS Institute of the Problems of Regional Economy
Work status	Chief Scientific Associate of the Laboratory of the Theory and Methods for the Development of the Regional Economy
Off. Tel. / Fax	8 (812) 317-85-86 / 317-85-86
E-mail	boris.grinchel@mail.ru
Mailing address	38 Serpuhovskaya St., Saint Petersburg, 198013, Russia
Gubanova Elena Sergeyevna	
Academic degree	Doctor of Economics
Academic rank	Professor, Honored Worker of Higher Professional Education of the Russian Federation
Full name of the organization – the place of employment	Vologda State Technical University
Work status	Head of the Finance and Credit Department
Off. Tel. / Fax	
E-mail	gubanova_elena@mail.ru
Mailing address	15 Lenin Street, Vologda, 160000, Russia
Didyk Vladimir Vsevolodovich	
Academic degree	Ph.D. in Economics
Academic rank	
Full name of the organization – the place of employment	G.P. Luzin Institute of Economic Problems of Kola scientific centre of RAS
Work status	Deputy Director for Science
Off. Tel. / Fax	8 (81555) 7-64-72, 7-93-10
E-mail	iep@iep.kolasc.net.ru
Mailing address	24A Fersman Street, Apatity, Murmansk Oblast, 184209, Russia
Ilyin Vladimir Aleksandrovich	
Academic degree	Doctor of Economics
Academic rank	Professor, Honoured Scientist of the Russian Federation
Full name of the organization – the place of employment	Institute of Socio-Economic Development of Territories of Russian Academy of Sciences
Work status	Director
Off. Tel. / Fax	8 (8172) 54-43-79
E-mail	ilin@vscc.ac.ru
Mailing address	56A Gorky Street, Vologda, 160014, Russia

Ivanov Valentin Aleksandrovich	
Academic degree	Doctor of Economics
Academic rank	Professor
Full name of the organization – the place of employment	Institute of Socio-Economic and Energy Problems of the North Komi Scientific Centre of the Ural RAS department
Work status	Head of the Agrarian Economics Laboratory
Off. Tel. / Fax	(8212) 24-52-45 / 24-42-67
E-mail	ivanov@iespn.Komics.ru
Mailing address	26 Kommunisticheskaya St., Syktyvkar, 167982, Russia
Ivanter Viktor Viktorovich	
Academic degree	RAS Academician, Doctor of Economics
Academic rank	Professor
Full name of the organization – the place of employment	Institute of Economic Forecasting of RAS
Work status	Director
Off. Tel. / Fax	8 (499) 129-36-33
E-mail	vvivanter@ecfor.ru
Mailing address	47 Nakhimovskiy Av., D-418, Moscow, 117418, Russia
Kalachikova Olga Nikolayevna	
Academic degree	
Academic rank	
Full name of the organization – the place of employment	Institute of Socio-Economic Development of Territories of Russian Academy of Sciences
Work status	Junior Scientific Associate
Off. Tel. / Fax	8 (8172) 59-78-10
E-mail	onk82@yandex.ru
Mailing address	56A Gorky Street, Vologda, 160014, Russia
Kamenskaya Elena Vladimirovna	
Academic degree	Ph.D. in Economics
Academic rank	
Full name of the organization – the place of employment	Pskov Research Institute of Agriculture
Work status	Senior Scientific Associate of the Economics Department
Off. Tel. / Fax	(8112) 673-110, 673-119, fax 673-119
E-mail	pniish@ellink.ru, 22alena@mail.ru
Mailing address	1 Mira St., v. Rodina, 180559, Pskov Oblast, Pskov District, Russia
Komkov Nikolay Ivanovich	
Academic degree	Doctor of Economics
Academic rank	Professor
Full name of the organization – the place of employment	Institute of Economic Forecasting of RAS
Work status	Head of the Department of Organizational-Economic Problems of Scientific-Technological Management
Off. Tel. / Fax	8 (499) 129-37-33
E-mail	
Mailing address	47 Nakhimovskiy Av., D-418, Moscow, 117418, Russia
Kondakov Igor Anatolyevich	
Academic degree	Ph.D. in Economics
Academic rank	
Full name of the organization – the place of employment	Institute of Socio-Economic Development of Territories of Russian Academy of Sciences
Work status	Head of the Department of Editorial and Publishing Activities, Scientific and Information Support
Off. Tel. / Fax	8 (8172) 59-78-28
E-mail	kia-24@mail.ru
Mailing address	56A Gorky Street, Vologda, 160014, Russia

Kostyleva Lyudmila Vasilyevna	
Academic degree	Ph.D. in Economics
Academic rank	
Full name of the organization – the place of employment	Institute of Socio-Economic Development of Territories of Russian Academy of Sciences
Work status	Senior Scientific Associate, Head of the group
Off. Tel. / Fax	8 (8172) 59-78-10
E-mail	lvk888@mail.ru
Mailing address	56A Gorky Street, Vologda, 160014, Russia
Lastochkina Mariya Aleksandrovna	
Academic degree	Ph.D. in Economics
Academic rank	
Full name of the organization – the place of employment	Institute of Socio-Economic Development of Territories of Russian Academy of Sciences
Work status	Scientific Associate of the Laboratory for Research of Labour Potential Development
Off. Tel. / Fax	8 (8172) 59-78-10
E-mail	mashkop@mail.ru
Mailing address	56A Gorky Street, Vologda, 160014, Russia
Leonova Zhanna Konstantinovna	
Academic degree	Ph.D. in Economics
Academic rank	Associate Professor
Full name of the organization – the place of employment	Moscow State Socially-Humanitarian Institute
Work status	Associate Professor of the Economics and Management Department
Off. Tel. / Fax	8-496-615-13-19
E-mail	zh_leonova@mail.ru
Mailing address	30 Zelenaya St., Kolomna, Moscow Oblast, Russia
Ma Xuesong	
Academic degree	
Academic rank	
Full name of the organization – the place of employment	Jiangxi Academy of Social Sciences
Work status	
Off. Tel. / Fax	0086-791-88591201
E-mail	ncmxs@126.com
Mailing address	649 North Hongdu Ave., Nanchang, Jiangxi, 330077, P.R. China
Medvedeva Nataliya Aleksandrovna	
Academic degree	Ph.D. in Economics
Academic rank	Associate Professor
Full name of the organization – the place of employment	Vologda State Dairy Farming Academy named after N.V. Vereshchagin
Work status	Head of the Department of Statistics and Economic Analysis
Off. Tel. / Fax	8(8172) 52-47-07
E-mail	medvedevana@molochnoe.ru
Mailing address	2 Schmidt St., Molochnoye, Vologda, 160555, Russia
Okrepilov Vladimir Valentinovich	
Academic degree	RAS Academician, Doctor of Economics
Academic rank	Professor
Full name of the organization – the place of employment	
Work status	Deputy Chairman of the St. Petersburg Scientific Center of RAS, CEO of FBU “Test-St.-Petersburg”
Off. Tel. / Fax	8 (812) 244-62-27
E-mail	okrepilov@rustest.spb.ru
Mailing address	1 Kurlyandskaya St., St. Petersburg, 190103, Russia

Orobinskiy Dmitriy Fedorovich	
Academic degree	Doctor of Economics
Academic rank	Professor
Full name of the organization – the place of employment	Vologda State Dairy Farming Academy named after N.V. Vereshchagin
Work status	Professor
Off. Tel. / Fax	8 (8172) 52-46-12
E-mail	ic1@mf.molochnoe.ru
Mailing address	2 Schmidt St., Molochnoye, Vologda, 160555, Russia
Ostretsov Vladimir Nikolayevich	
Academic degree	Doctor of Economics
Academic rank	Professor
Full name of the organization – the place of employment	Vologda State Dairy Farming Academy named after N.V. Vereshchagin
Work status	Professor of the Department of Production and Business Organization
Off. Tel. / Fax	8 (8172) 52-53-97
E-mail	
Mailing address	2 Schmidt St., Molochnoye, Vologda, 160555, Russia
Ponomareva Anna Sergeyevna	
Academic degree	
Academic rank	
Full name of the organization – the place of employment	Institute of Socio-Economic and Energy Problems of the North Komi Scientific Centre of the Ural RAS department
Work status	Postgraduate Student
Off. Tel. / Fax	(8212) 24-52-45 / 24-42-67
E-mail	anita-85_07@mail.ru
Mailing address	26 Kommunisticheskaya St., Syktyvkar, 167982, Russia
Peng Zhimin	
Academic degree	
Academic rank	
Full name of the organization – the place of employment	Hubei Academy of Social Sciences
Work status	
Off. Tel. / Fax	0086 27 86789 2360 / 0086 27 8678 3511
E-mail	peng_sky165@yahoo.com.cn
Mailing address	Wuhan, Hubei, 430077, P.R. China
Shabunova Aleksandra Anatolyevna	
Academic degree	Doctor of Economics
Academic rank	Associate Professor
Full name of the organization – the place of employment	Institute of Socio-Economic Development of Territories of Russian Academy of Sciences
Work status	Acting Deputy Director for Science
Off. Tel. / Fax	8 (8172) 59-78-20
E-mail	aas@vscc.ac.ru
Mailing address	Doctor of Economics
Shaverina Marina Valentinovna	
Academic degree	
Academic rank	
Full name of the organization – the place of employment	Vologda District Administration
Work status	Head of Animal Husbandry and Breeding Section of the Department of Socio-Economic Development of the Village of Vologodsky Municipal District
Off. Tel. / Fax	8 (8172) 72-50-16
E-mail	vologda@vologda-agro.ru
Mailing address	24 Pushkinskaya St., Vologda, 160000, Russia

Shushkov Roman Anatolyevich	
Academic degree	
Academic rank	
Full name of the organization – the place of employment	Vologda State Dairy Farming Academy named after N.V. Vereshchagin
Work status	Senior Lecturer
Off. Tel. / Fax	8 (8172) 52-56-03
E-mail	roma970@mail.ru
Mailing address	2 Schmidt St., Molochnoye, Vologda, 160555, Russia
Silakova Mariya Alekseyevna	
Academic degree	
Academic rank	
Full name of the organization – the place of employment	Pskov Research Institute of Agriculture
Work status	Scientific Associate of the Economics Department
Off. Tel. / Fax	(8112) 673-110, 673-119, fax 673-119
E-mail	pniish@ellink.ru, anoshkina.masha99@rambler.ru
Mailing address	1 Mira St., v. Rodina, 180559, Pskov Oblast, Pskov District, Russia
Solovyova Tatyana Sergeyevna	
Academic degree	
Academic rank	
Full name of the organization – the place of employment	Institute of Socio-Economic Development of Territories of Russian Academy of Sciences
Work status	Chief Research Assistant of the Department of Population's Living Standards and Lifestyle Problems Research
Off. Tel. / Fax	8 (8172) 59-78-10
E-mail	Solo_86@list.ru
Mailing address	56A Gorky Street, Vologda, 160014, Russia
Terentyev Vitaliy Vasilyevich	
Academic degree	Ph.D. in Economics
Academic rank	
Full name of the organization – the place of employment	Institute of Socio-Economic and Energy Problems of the North Komi Scientific Centre of the Ural RAS department
Work status	Leading Scientific Associate
Off. Tel. / Fax	(8212) 24-52-45 / 24-42-67
E-mail	anita-85_07@mail.ru
Mailing address	26 Kommunisticheskaya St., Syktyvkar, 167982, Russia
Tikhomirova Valentina Valentinovna	
Academic degree	Ph.D. in Economics
Academic rank	
Full name of the organization – the place of employment	Institute of Socio-Economic and Energy Problems of the North Komi Scientific Centre of the Ural RAS department
Work status	Senior Scientific Associate
Off. Tel. / Fax	(8212) 44-06-84
E-mail	tikhomirova@iespn.komisc.ru
Mailing address	26 Kommunisticheskaya St., Syktyvkar, 167982, Russia
Tuvayev Vladimir Nikolayevich	
Academic degree	Doctor of Technical Sciences
Academic rank	Professor
Full name of the organization – the place of employment	Vologda State Dairy Farming Academy named after N.V. Vereshchagin
Work status	Head of the Department of Graphics and Technical Mechanics
Off. Tel. / Fax	
E-mail	
Mailing address	2 Schmidt St., Molochnoye, Vologda, 160555, Russia

Vorontsova Tatyana Vladimirovna	
Academic degree	
Academic rank	
Full name of the organization – the place of employment	Institute of Socio-Economic Development of Territories of Russian Academy of Sciences
Work status	Research Engineer
Off. Tel. / Fax	(8172) 59-78-10
E-mail	s.t.v.-@mail.ru
Mailing address	56A Gorky Street, Vologda, 160014, Russia

Requirements to manuscripts

The proposed articles should contain the results of the studies characterized by novelty and practical orientation. They should be available in the form of presentation for a wide range of readers and meet the scientific focus of the journal (economic and sociological researches).

The article should generally **include** the following **aspects**: the purpose of research; method and methodology of work, its results and the field of their application; conclusions. The findings may be accompanied by recommendations, suggestions and hypotheses, resulting from the contents of the article. References should demonstrate the author's professional outlook and the quality of the research.

Authors are responsible for the selection and authenticity of the facts, quotations, statistical and sociological data, proper names, place names and other information, as well as for ensuring that the article does not contain the data that cannot be liable to open publication.

The cost parameters in tables (diagrams) related to different time periods are usually represented in the form of comparable scores. If tables (diagrams) contain comparative data on some territories, kinds of economic activities, etc., they should be presented in rank order, indicating the period of ranking.

The volume of articles should be no more than 40 000 printed characters (1 author list), including spaces and footnotes, for doctorates and PhDs (including the co-authors having no degree). It should contain no more than 20 000 printed characters (0.5 AL) for the rest of the authors. Exceptions are possible only in terms of a preliminary agreement with the editorial board.

The author should send the text of the article and supporting information in printed form by mail (1 copy on one side of the sheet) and identical materials by e-mail. The printed copy must be signed by the author(s).

The text of the article is sent in MS Word format, in accordance with the following parameters: headset Times Roman, font size – 14-point type, line spacing – 1.5, footnotes in Arabic numerals are placed at the end of the text in the order mentioned in the text. Graphs and charts for an electronic version of the articles are performed in MS Excel. They should be done in a separate file, which must contain not only the graphics, but initial data (tables). Flowcharts are drawn in MS Word or MS VISIO-2003.

The article should be assigned **the UDC index** (it is located above the title of the article).

The article should be accompanied by **the abstract** (600-700 printed characters; the summary is supposed to contain the following aspects: statement of problem, research techniques and information resources, characteristic of basic research results, the ways of problem solving), **key words in the English and Russian languages, references.**

The works in references are arranged in alphabetical order, firstly in the Russian language, then – in English (other languages – in Latin). When the author makes reference to the work, it is necessary to give its number in square brackets.

Information about authors is attached to the article in a separate file. It should contain the title of the article **(in Russian and English)**, surname, name and patronymic (in full), academic degree, academic rank, full name and address of the organization – the place of employment, work status, telephone and fax numbers, e-mail address and mailing address for correspondence.

The electronic version of the article should include author's color photo (print size – 4x6 cm; file type – TIF (preferred) or JPEG; photo format – 300 dpi).

In accordance with the requirements of the Civil Code of the Russian Federation the authors and the editorial board of the journal should conclude a License agreement enclosed by the Product acceptance and conveyance certificate. These documents are drawn up on the form below and signed by all authors of the article. They should be submitted to the editorial board along with the text of the article. A copy of the agreement signed by the editorial board will be sent to the authors by mail with a copy of the author's journal issue.

Manuscripts should be sent by mail to: 56A Gorky Street, Vologda, 160014, Russia, ISEDT RAS, the editorial board, marked "for publication in the Journal "Economic and Social Changes: Facts, Trends, Forecast", and to **e-mail:** common@vscc.ac.ru. Fax: (8172) 59-78-02. Tel. (8172) 59-78-31.

It is obligatory to refer to the journal at full or partial reprint of manuscripts in another publication.

All manuscripts are liable to reviewing. If a reviewer has any questions, the article is returned for revision.

Delivery date of the article is the date when the editorial board receives the final version of the article. The editors reserve the right to make editorial changes and cuts that do not distort the meaning of the article.

Since 2010, the journal has opened a rubric "Young researchers", which publishes manuscripts of postgraduate students. The article should be written without co-authors. It must be certified by a research supervisor and recommended by the research organization to which the postgraduate student is assigned.

Attention! In cases these requirements are not met the article is not considered by the editorial board.

Electronic version of the journal is available at: http://esc.vscc.ac.ru.

SUBSCRIPTION INFORMATION

Dear Colleagues,
we offer you to subscribe to the journal
«Economic and Social Changes: Facts, Trends, Forecast».

The founder: Institute of Socio-Economic Development of Territories of Russian Academy of Science (ISEDT RAS) (previously - VSCC CEMI RAS).

The Journal publishes the researching results on the performance evaluation of regional socio-economic systems of the North-West Federal District of Russia, economy sectors of the District's subjects and municipalities in the following directions:

- Development strategy;
- Regional economy;
- Social development;
- Foreign economic relations;
- Information economy;
- Problem of expanded reproduction, etc.

The Journal is included in the database of **Russian Science Citation Index** (RSCI).

According to the decision of the Presidium of the Higher Attestation Commission of the Russian Education and Science Ministry № 6/6 of February 19, 2010 the Journal is included in the List of leading scientific publications, recommended for publishing the results of doctorial and candidate theses.

The main purpose of the Journal is to provide the scientific community and practitioners with the possibility to familiarize themselves with the results of research in the sphere of scientific support for the regional economy, to participate in discussions on these issues.

The Editorial Board which carries out an independent examination of scientific papers consists of the leading scientists from several regions of Russia.

The Journal is published 6 times a year.

The Journal is included in the inter-regional part of the Russian press catalogue "Post of Russia": Subscription Index **83428**.

Catalogue price of one issue of the journal is 250 rubles (excluding delivery). The subscription form is annexed.

Editor	O.V. Tretyakova
Make-up page	T.V. Popova, E.S. Nefedova
Proof-readers	A.A. Sokolova
Translators	O.V. Tretyakova, A.A. Sokolova

Passed for printing November 9, 2012.
Date of publication November 14, 2012.
Format 60×84 1/8. Digital recording.
Con. pr. sheets 25.0. Number of 100 copies. Order No. 348.
Price is open.

The journal is registered by the Federal Service
for Supervision of Telecom and Mass Communications (Roskomnadzor).
Certificate of registration PI FS77-37798 dated October 12, 2009.

Founder: Federal State Budget Scientific Establishment Institute of Socio-Economic Development
of Territories of RAS (ISEDT RAS)

Address of the Publisher and Editorial office:
56A, Gorky St., Vologda, 160014 Russia
phone (8172) 59-78-03, fax (8172) 59-78-02, e-mail: common@vscc.ac.ru