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The review provides a detailed analysis of main trends in Russia's economy in 2009. The paper contains five big sections that highlight single aspects of Russia's economic development: the socio-political context; the monetary and credit and financial spheres; the real sector; social sphere; institutional challenges. The paper employs a huge mass of statistical data that forms the basis of original computation and numerous charts.

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The State of Research and Innovation Sphere in Russia in 2009

New Political and Technological Priorities in Scientific and Innovation Development

In the wake of the global crisis the issue of innovation development is mentioned more often than in previous years, despite the fact that "innovation" context has greatly contrasted with the actual results of the formation of the national innovation economy. The principal difference last year was that, first, the innovation vector of development (at least at the level of strategic plans) has appeared in virtually all key ministries and departments, and secondly, in the issues of technological progress, i.e., based on the achievements of science and innovation, the President of the country started to pay much more attention to it.

In 2009 a special Commission has formulated a concept on modernization and technological development of the Russian economy which task is to review public policy in the issues of modernization and technological development, the selection of priorities, forms and methods of government regulation and coordination of activities of executive authorities in this field. Issues of innovation promotion in general and R & D funding in particular became one of the central problems in its work.

At the first meeting of the Commission, the President of Russia declared 5 trends of the "technological breakthrough"¹:

- Energy efficiency and saving;
- Nuclear technology;
- Space technologies, including the transmission infrastructure of all kinds of information;
- medical technologies, including diagnostic equipment and medicines;
- strategic information technology, including the creation of supercomputers and software development.

In the context of modernization and technological development, particular emphasis was made to encourage businesses to innovation, improvement of the work of development institutions and technical regulation. Moreover, the President² also stressed the importance of addressing such issues as the creation of a favorable environment to foreign companies and research organizations to build the research and design centers, the development of ties with the scientific diaspora and invitation of top scientists and engineers to Russia.

In the annual speech of the RF President to the Federal Assembly³ there was proclaimed the need to:

- establish a permanent mechanism to attract to Russia the prominent Russian and foreign scientists, and entrepreneurs who have experience in commercialization of new developments (including the simplification of rules of recognition of academic degrees and diplo-

¹ <http://www.kremlin.ru/transcripts/4506> June 18, 2009.

² Russia, go Ahead! Dmitry Medvedev's article. <http://www.kremlin.ru/news/5413> September 10, 2009.

³ <http://www.kremlin.ru/transcripts/5979> November 12, 2009.

mas of higher education received in the leading universities of the world, as well as facilitating visa regime);

- expansion of grant support to the developers of new technologies on a competitive basis;
- creation business incubators on the basis of modern universities;
- establishing in Russia a powerful center for research and development, which would be focused on the support of all the priority areas;
- oblige large companies to participate in the formation of advance order for the results of research.

In particular, two key measures of "enforcement" nature in respect to public companies were discussed at a meeting of the Commission on Modernization. The proposals were formulated as follows¹:

- introduction of mandatory corporate innovation development programs for public companies according to the approved by the government requirements that should be taken in line with, rather than as a part of investment programs;
- introduction of a "standard share" to each individual public company to be allocated for R & D, basing on its industry specifics and comparison with similar companies abroad.

As per the message results, there was formed a list of instructions to the Government, which should be performed by March 1, 2012. The documents to be prepared are covering the following range of tasks:

- 1) expansion of the support to the developers of new technologies by providing grants on a competitive basis;
- 2) simplification of the rules of recognition of academic degrees and diplomas of higher education received in the leading universities of the world;
- 3) simplification of the rules of employment of the needed in Russia foreign specialists, reducing the time frames of issue and extension the term of visas issued to them;
- 4) introduction of international expertise in the implementation of priority research projects.

In the above list there are clearly identified priority areas to the State, which currently include: cooperation with compatriots (three out of four assignments are devoted to this issue), expansion of grant financing, incentives to business for a greater support of research and development. It is clear from the lists, that the chosen priorities are variable in scope. On the one hand, there is a quite particular problem, as the creation of a super center to work on all areas of research, but on the other hand, in fact, a new policy is planned in regard to the large business. It should be noted that the discussed measures of "enforcement" to business remind principles of the Soviet economy. The proposed approach is not practiced in countries with developed innovation systems. In some countries there is indicative planning, but there is no detailed "standards" for each state-owned company (or companies where the state owns the "golden share") for expenditure on R & D and no requirements draw up a plan for innovation development. These issues are in the authority of companies' management, rather than in the federal government competence, and company management is carried out according to market principles.

The issue of technological priorities deserves special consideration. Until now, the priority trends of scientific and technological development and the corresponding critical technologies were defined basing on estimates (in the last year – foresight ones), formed by the Ministry of

¹ Minutes of the meeting of the Commission on modernization and technological development of economy of Russia. December 25, 2009. <http://www.kremlin.ru/transcripts/6460>

² <http://www.kremlin.ru/news/6001>

Education and Science and later approved by the President. Another revision of priorities was made in 2009, and by September was prepared a draft, developed by the RF Ministry of Education, which contains the revised list of priorities (see *Table 1*).

Table 1

The Lists of Priorities for Science, Technology and Engineering Development in the Russian Federation

List of 2006	List of 2009 (draft)	List of the RF President
Information and Telecommunication Systems	Information and Telecommunication Systems	Information technologies
Environment conservancy	Environment conservancy	–
<i>Industry of nanosystems and materials</i>	<i>Industry of nanosystems</i>	–
<i>Living system</i>	<i>Life sciences</i>	Medical technologies
<i>Energy and Energy Efficiency</i>	<i>Energy efficiency and conservation</i>	Energy efficiency and conservation
<i>Transportation, aviation and space systems</i>	<i>Transportation and space systems</i>	Space technologies, including the infrastructure of all kinds of information transmission
–	–	Nuclear technology

Source: 1. Priorities for the development of science, technology and engineering in Russia and the List of critical technologies in the Russian Federation. Approved by the President on May 21, 2006, by the Order Pr-842. 2. Priorities for the development of science, technology and engineering in Russia and the List of critical technologies of Russia. Draft of the Ministry of Education and Science. September 30, 2009 3. The first meeting of the Committee on Modernization and technological development of Russian economy. June 18, 2009. <http://www.kremlin.ru/transcripts/4506>

As can be seen from the *Table 1*, the presidential priorities differ from the old formats not only informative, but in terminology. Traditionally, the priorities are formulated in terms of broader areas and disciplines ("living systems", "transportation and space systems") or industries ("nano technologies"). Presidential priorities are formulated more narrow and specific, in terms of *technologies*.

As a result, there is developed an unprecedented situation, when, in fact, there are two lists of priority scientific and technological areas: one, which is structured as existing federal targeted programs (FTP), and first of all, the federal program for R & D support – “Research and development on priority directions of scientific-technological complex development of Russia” for 2007-2012, and the new "presidential" priorities, which, according to the reports on the meetings of the Committee for Modernization and Technological Development of Russia's economy, various ministries and agencies¹ should increasingly focus their work. Probably, one should expect a revision of programs and a number of activities aimed at supporting the development of various technologies. In particular, RAS has already responded to the new list, has revised the subjects of research and found that for the projects on 5 areas of technological breakthroughs it is currently spent approximately 23% of funding for Basic Research Program. It was determined that this figure can be increased to 35%.²

If we compare the policy speeches of the President on the issues of science and technologies development with the main provisions of the speech of the US President Barack Obama on April 27, 2009 at the National Academy of Sciences of the United States, which became extremely popular in Russia, it becomes obvious, that the development priorities of the two countries coincide in many ways. First, the thematic priorities are overlapping. In the US a top priority, which is linked with a number of other initiatives (both financial and institutional ones),

¹ See, for instance: Poisk, No. 49. December 4, 2009. P. 5.

² We can do without a sledgehammer. RAS will help to provide a fundamental basis to modernization//Poisk. No. 3–4. January 22, 2010. P. 5.

there named the ecologically safe energy and energy efficiency. A priority remains for the United States in a traditional area - health care, in particular the fight against various diseases, and the quality of health care ("best service at lower prices"). Among the 5 "presidential" priorities of technological development there are energy conservation, and new medical technologies.

Secondly, in his speech, the US President stresses the importance of international cooperation, especially in the specified priority areas, as well as establishes a policy of increased openness and the validity of scientific policies and their implementation. These trends can be found in the Russian strategic documents as well. Thus, we can say that the development of innovation systems are increasingly transparent, and countries with different levels of economic development are beginning to choose more and more similar strategic directions of science and innovation support.

However, unlike Russia, the United States and West European countries, the government in the time of crisis has provided substantial additional funding for research, including basic research, while Russia has begun and continues to tighten the budget for research and development¹. At the same time, the development of anti-crisis measures was much delayed - in fact, intensive discussions began in the first half of 2009. Moreover, both, approaches and measures were non-system, contingency approach in a way. Government policy was based on the concept of efficient use of existing mechanisms and instruments, rather than creating new ones. There was started a review of instruments and measures, which showed that many elements of the innovation system are in place, but communication is not developed, and there are significant gaps between various components. In general, it became obvious that the innovative system is ineffective in each of its components. Therefore, a trend to the use of existing mechanisms after appropriate adjustments is correct, but it cannot be attributed to the rapid response measures.

As a result, there did not appear such trends of scientific policy, which could be interpreted as a anti-crisis ones. Measure of the pre-crisis period were continued. Among the main directions of the government the following ones should be highlighted: support of science in universities, assignment of "status" to organizations and joint structures (federal universities, former industrial associations of industrial and academic research institutes, facilitation of obtaining the status of the State Scientific Center);

- HR policy: measures to attract the Russian scientific diaspora in keeping young people in science;
- support to innovation small business and development of the relevant infrastructure;
- Improvement of tax incentive measures for R & D.

Before the estimation of the effectiveness of the measures imposed, it is important to consider, what was the economic crisis impact on the overall situation in the field of science and technological innovation.

Impact of the Crisis on the State of R&D

The impact of crisis in the sphere of science and innovation was evident in the first place in the reduction of private sector spending for research and development and reduction of the number of employees in R & D departments of companies. By the end of December 2008, ex-

¹ Policy Responses to the Economic Crisis to Restore Long-Term Growth: Results of the OECD Questionnaire. OECD: DSTI/IND/STP/ICCP(2009)1/ADD. February 20. 2009.

penses of private companies to implement innovative projects declined by nearly 80% since the beginning of the crisis, business angels – by 50%, venture capital funds - by 40%¹.

For projects performed in the framework of the Federal Target Program "Research and development on priority trends of scientific-technological complex of Russia in 2007-2012", the companies began to violate their financial liabilities, what has led to the termination of some contracts that were carried out in cooperation with academic institutions (universities). According to the Ministry of Education and Science, in 2009 commitments to extrabudgetary funding of R & D projects in the framework of the federal program were implemented by 60-70%².

It is indicative, that the reduction in their own R & D departments in companies has not led to more active cooperation of companies with public scientific organizations. In the crisis situation, when optimization of resources spending is required, the existing problems of interaction become more acute. Companies generally negatively assess their experience with public sector scientific organizations³. The arguments against cooperation is weak human resource capacity of research institutes and universities, the virtual absence of scientists of the most productive working age (35-50 years), the slow rates of performing orders for research and development. The problem in many cases is unclear allocation of intellectual property rights, as well as the quality and the form of results. As a result, when the need arises in outsourcing, the companies prefer to deal with individual professionals, rather than organizations.

In general, according to the estimates of Russian Science Agency (Rosnauki), by September 2009 the share of innovation-active enterprises has decreased by 1 / 3 as compared to 2005, and the number of small innovative companies has decreased by half.⁴ Many small firms were working on the principle of outsourcing, performing R&D works for large and medium-size companies. The latter in response to the crisis considerably reduced the volume of R & D orders. In turn, banks have stopped lending to small high-tech companies, as the least stable in their development. All this has created a serious threat of losing a "critical mass" of small innovative enterprises.

As a second feature of the crisis one can consider changes in the staffing situation, characterized by sharply increased outflow from science, among both, researchers and other categories of employees. If in 2006-2007 the outflow of personnel from the science was rather insignificant (0.7% per year), and the number of researchers even increased from time to time (for example, in 2006 compared with 2005, the growth amounted to 1.7% of researchers), then in 2008, as compared with the previous year, the number of researchers has decreased by 4.2%, while the total number of employees engaged in research and development reduced by 5%.

Therefore, there was no temporary overflow of personnel to the sector research and development, as it was during the 1998-1999 crisis. Herewith, this sharp decline in the number of employees in R & D can not be explained by the reduction of funding for science, since these

¹ National Association of Innovations and Development of Information Technology Assessment (NAIRU). *Source*: In the hope of government support // Expert, Siberia. December 22, 2008. <http://inno.ru/press/news/document33157/>

² We are doing everything possible. http://strf.ru/material.aspx?d_no=19500&CatalogId=221&print=1 April 29, 2009.

³ Based on the results of interviews conducted by the author of this section in June - July 2009 in a number of high-tech companies of Moscow.

⁴ From the report of I. Bilenkina, Deputy Head of Federal Agency for Science and Innovation, presented at the X-th Russian Venture Fair. Moscow, September 24, 2009. Estimated data: Science, Technology and Innovation of Russia: 2009. Short publication. M.: INRA Sciences, 2009. P. 12-13.

processes started in 2009 and will grow in 2010. Most likely, the current HR situation is the result of the low efficiency of government scientific policy.

The third sign of the crisis was the reduction of the public budget funding for research and development. The share of budgetary R & D expenditure in 2009 amounted to an average of 30%, varying depending on the agency, specific program and activities performed within the programs. In 2010, it is planned to reduce the costs further - at 7.5 billion rubles, as compared with 2009, when the reduction in funding for basic research amounted to 3 billion rubles, for applied research - by 4.5 billion rubles; financing of the RAS and its regional branches was decreased by to 5.6 billion rubles.¹

Reductions will be uneven - funding priorities will be grants and awards to young scientists (presidential and government ones) and grants for the support of leading scientific schools. However, the number of such grants will be reduced (with some increase in their amount). In terms of expenditure the Ministry of Finance of Russia has decided not to sequester the so-called norms of costs for wages. Therefore, the level funding for wages, scholarships and allowances for the ranks of full members and corresponding members of the state academies of sciences will be maintained. In this regard, for example, in the RAS other cost items decreased by 40-50%,² including expenses for utilities, maintenance of equipment, purchase of consumables. The new positions will be suspended.

Financial support of a number of federal targeted programs will be also significantly reduced. In the first turn, the Federal Program "Research and development on priority directions of scientific-technological complex of Russia for 2007-2012" and the Federal Program "Development of infrastructure of the nanotechnology industry in 2008-2010". There will be no new tenders for these programs in 2010, and funding will be provided only for the concluded contracts.³

Herewith, in 2009 the cost of some contracts have already been reduced by 10-15%, while maintaining the originally approved scope of works. However, funding for the Federal Program "Scientific and scientific-pedagogical staff for innovation Russia for 2009-2013" remains at the planned level. Under this program, financing is provided, in particular, for the scientific and educational centers, collaborative projects with domestic scientists, and various academic events and conferences. Financing for public research funds will be reduced by at least 10%. In this regard, for example, Russian Public Research Fund already faced with significantly increased competition for projects. It reached the level of 1:10, while in the previous 15 years it did not exceed 1:5⁴.

Therefore, the reaction to the crisis was the reduction of the national budget financing, with its simultaneous redistribution in favor of certain items (directions). Priority was conservative support of personnel, including scientific schools, and the reduction of those programs, in the framework of which research on priority areas of science and technology are financed.

¹ The next is the less. Research budget will be reduced // Poisk. No. 1-2, January 15, 2010, P. 3.

² For one salary. RAS budget funds for research are getting less // Poisk. No. 5. January 29, 2010, P. 3.

³ Congratulations with the new grant! What does Rosnauka offer to the scientists in the coming year? // Poisk. NO. 3-4. January 22, 2010, p. 4.

⁴ From distress to inspiration// Poisk.No. 48. November 27, 2009. P. 4.

Measures to Support the Best Universities and Organizations that Perform Research and Development Works: "Progressive Inequality" Development

In 2009, one of the main priorities was to support university research, in particular, by giving special status (rank) to the selected universities. There appeared so many statuses, that no one can immediately tell the differences between them. At the present time, there are federal, national research universities, there are also universities - participants of innovative educational programs and, finally, Moscow and St. Petersburg State University (MSU and SPSU), which in 2009 there was established the status of "unique scientific and educational complexes"¹. MSU and SPSU (along with the N.E. Bauman MSTU) can now set up their own educational standards and requirements for the educational programs, implemented by themselves.²

In fact, the selection of the best universities began in 2006 when the Government has initiated an innovative educational program (IEP) in the framework of the national project "Education". As a result of the tender, there were selected 57 high schools, which within two years received a substantial budget financing. The aim was to increase support to the high-quality educational and research activities through the purchase of new equipment, staff development, development of new training materials and manuals. This was the first major experience of universities' training in project management, selection of development priorities, as well as the skills of procurement in cases of force majeure, because the budgetary funds were late and time was short for the correct execution of all formal procedures. IEP can be regarded as a first step in the policy of raising the status of higher education institutions – in public opinion, universities, which won the tender, are considered the strongest one in the country.

Then, in 2006 there was formed two federal universities - Siberian Federal and South Federal (SFU and YuFU). They were created by joining several different-profile schools, thus becoming the largest in the country. The federal universities have regional relevance: according to official documents of the universities, they were created to improve the competitiveness of leading industries in the regions. Giving the status of "federal" is accompanied by a significant budgetary financing, which can be spent for certain (but not all) issues. Herewith, Southern Federal University identifies itself also as "research university", which is essentially true. The federal universities, in contrast to the objectives outlined in the IEP, should pay considerable attention to the development of science and its integration with education, in particular, by inviting foreign teachers and researchers, increasing the share of undergraduate and graduate students from abroad and other activities. For all these trends there approved target indicators for universities towards which they should aspire to. Since the initiative to give a "federal" status actually involves the creation of entirely new organizations, this status is permanent. Moreover, in early 2010, federal universities moved to the new organizational and legal form of an autonomous institution.³ For them, a transitional three-year period is established, during which the government will provide support to the universities in various forms, including the possible

¹ Federal Law No.259-FZ of November 10, 2009 "On the Moscow State University named after M.V. Lomonosov and University and St. Petersburg State University".

² The list of federal government educational institutions of higher professional education, self-setting educational standards and requirements for ongoing educational programs of higher professional education. Presidential Decree No.732 of July 1, 2009.

³ Regulation of the RF Government Prime Minister, dated January 16, 2010 No. 12-p. <http://government.ru/gov/results/9056/>

provision of the equalization grant, which will cover the funding gap the state targeted financing.

A completely different picture is typical for the research universities - the third initiative, which is started in pilot mode in late 2008. In 2009 a tender was announced, and 12 schools were selected, which received this status.¹

Many of these schools have previously been involved in the IEP and the experience of crisis management was not in vain: the results of the tender for research universities were assessed at the beginning of October, and the allocated to the universities annual amount of funding was to be spent by 15 December. Research universities will be supported from the budget within 5 years, and they have to implement their development programs by 2018. Herewith funding from the budget is rather significant - thanks to it, the budgets of universities actually doubled. It is assumed that up to 70% of allocated funds will be spent on the purchase of equipment, so that as a result, every university would create 5-7 world-class laboratories. It is certainly important and necessary, though the experience of the IEP shows that the purchase of modern equipment does not yet provide a quality breakthrough in scientific and educational activities.

The status of "national research" university in some way confusing, because behind it there is a temporary, although long-term, project financing of development programs of universities, base on a slightly adjusted principles of IEP. Research universities obtain an additional budget funding in the framework of traditional mechanism for federal programs – on the terms of 20% co-financing (as in the IEP) and are allowed to spend funds on certain items to implement their stated development programs.

Similarities and differences between the IEP, research universities and federal universities are displayed in *Fig. 1*.

How effective can be the given status? It depends, firstly, on how universities have been selected, which have received the status. Secondly, it depends on the conditions created to the status universities in order to enable them to achieve their goals.

The decision to establish federal universities can be regarded as purely political, adopted at the highest government level, without extensive coordination and discussions. This was once again confirmed in 2009, when President Dmitry Medvedev signed a decree on the establishment of five federal universities² in Russia, selected with regard to the regional factors, but unknown to the public criteria. Moreover, as follows from numerous discussions, the transformation of higher schools in the federal ones was surprise to their employees.

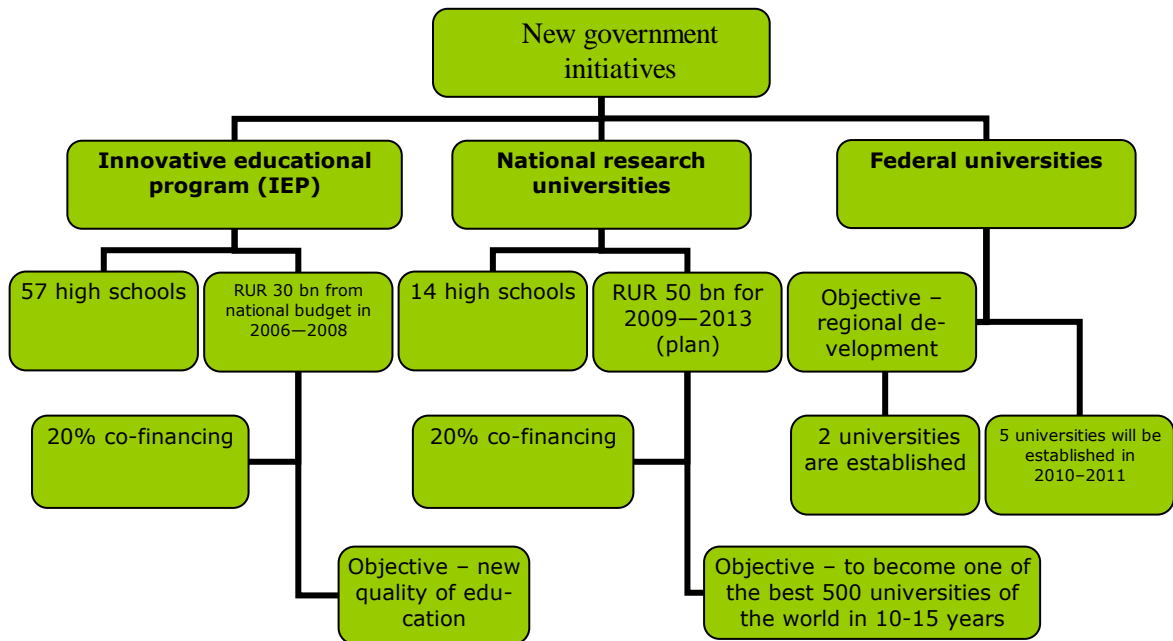
If the main criterion for the selection of universities to transform them into federal ones consisted in the uniformity of the distribution of federal universities through the regions, then one should not expect special effect from the fact that some universities will be merged and they will receive an additional funding. This is confirmed by available foreign experience. In addition, nearly three-year development history of SFU and YuFU has identified a number of challenges, primarily related to the existing administrative and bureaucratic restrictions which could be eliminated (such as was done for MSU and SPSU). The transformation to the autonomous agencies removes only part of the problems and at the same time becomes a source of new ones (for example, it is not clear how scientific research will be supported, how relationships with the founder will be built, etc.). Therefore with regard to the experience of SFU and

¹ Federal Government Order No. 1613-p from November 2, 2009.

² Presidential Decree No.1172, dated October 21, 2009 "On establishment of federal universities in the North West, Volga, Urals and Far Eastern Federal Districts".

SFU, granting of federal status to the new universities should be accompanied by non-financial measures as well. Otherwise there automatically arises low efficiency of budget spending.

Fig. 1. Types of Universities with a New Status



Selection of universities can also be considered as political decision, as 12 universities were selected from 136 applicants. It is known from the practice of expert selection that when the level of competition is more than 10 nominations for one "place", the choice is not based on the quality of applications as there will be obviously more high-quality projects than the number, which can be financed. What happened as a result? On the one hand, there were selected strong high schools - from 14 universities, which today acquired the status of "national research" (12 selected through a tender in October 2009 and 2 pilot universities that have received this status in late 2008 - National Nuclear Research institute (MEPI) and National Technological University "Moscow Institute of Steel and Alloys (MISA NITU), 12 were the winners of IEP. On the other hand, in the rating of Russian universities *in terms of scientific achievements*, which was made for the education agencies in 2009 by an independent rating agency "ReytOR, newly emerged "research" universities occupy a good but not the best posi-

tion: only 5 universities of the 14 belong to the first twenty ones. However, if we take into account that the research university is not "real" title, inconsistent with the Western standards, granted not for the inventions and achievements of the universities, but only the support to universities in the form of the five-year development programs, everything falls in place. In 2010, a tender is planned to select 16 more universities, which will be awarded the status of a national research university.

It is distinctive, that great hope assigned by the Government to the intensification of innovation in the activity of research universities, the creation of new scientific results and their commercial efficiency in the industry. Meanwhile, it is known from foreign experience that there is no direct relationship between extended funding to the institutes and universities and research "output". In particular, the estimates have shown that there is no direct correlation between the doubling of the budget of National Institutes of Health in the United States, which took place in 1998-2003 and the dynamics of patenting, licensing and agreements on joint research with the business. Herewith, the absence of a clear correlation is typical not only for the period of the budget doubling, but for the next 5 years, when based on the new discoveries made during abrupt budget increases on biomedical research and development, patenting and licensing could be significantly increased.¹

Basic provisions governing the activities of Russian research universities, remain the same as for other universities. In this regard, there is a difference between Russian initiatives and similar programs implemented in several countries with growing economies. For example, in Kazakhstan, 9 universities have the status of national ones, which means not only additional national budget funding, but also the introduction of a number of specific guidelines, including those that wages are higher than the average rate. With regard to the Western experience, particularly that of the best universities in the world, the USA and Britain, where no status is not provided for the universities. The category "research university" is not awarded, but established by the fact of its activities as a result of *voluntary* participation in the ranking and its position by a number of criteria - such as the amount of research funding per one tutor, publications, citations and international awards (Nobel and Fields awards), the demand for graduates in the labor market, the development of their careers.

As a result, the question naturally arises: why there is a need for statuses, such as "national research university"? Will the artificial creation of "inequality" contribute to improve the quality of education and science in high schools? And would not the policy be more effective, if the government preferred creation of favorable conditions for work, including the development of science for all universities? And they could have then apply for budgetary financing of research projects depending on their capacity to receive or not this additional funding on a competitive basis. Thus, ultimately, an "elite" group would emerge among the total mass of universities, which will be a natural result of the development in a competitive environment and equal opportunities.

By all appearances, Russia remains committed to the path of "status" with the aim to "rise in the ratings" - the mentality, that goes beyond the strictly scientific or innovation activity, but rather capturing them. In fact, the idea of assigning a status has a historical trend, if we recall a number of other distinguished and well-established titles (the leading scientific schools, public research centers). Thus, in the course of time the concept of status and level of prestige get smeared out. This happened with the status of leading scientific schools, the same thing hap-

¹ http://ott.od.nih.gov/about_nih/statistics.aspx

pens with the status of the State Scientific Center (SSC). In January 2010, the Federal Law "On Amendments to the Article 5 of the Federal Law "On Science and State Science and Technology Policy" entered into force¹. Now the status can be assigned to the organization of any form of ownership, which has a unique equipment and the ability to demonstrate the international recognition of its scientific and technological activities. Thus, currently the SSC is not a unique organization of the former industrial science, responsible for the development of certain industries (technologies) in the country, but the successfully operating organizations with unique equipment.

The policy of creating a "progressive inequality" has involved not only universities, but also a number of organizations in other sectors of science. The selected principle is the same: the new status, And in view of it - merger of organizations, creation of conglomerates, and the support of the new structure through a significant surplus budget funding, allocated on the basis of a special government order. Under this scheme a new National Research Center - Kurchatov Institute was established in 2009. By the Decree of the RF President 3 organizations were joined to the Institute, one of which is an academic institution, and two others are Federal State Unitary Enterprises.² By the same decree Kurchatov Institute becomes the chief manager of budgetary funds, as "the most remarkable institution of science", and then by the order of the Government of Russia receives additional budget funding for the program of its development.³ As in the case of federal universities, with the formation of new organizations the administrative arbitrariness was observed, since the staff of the number of "merged" organizations were not aware of the impending reorganization.

For the new structure quantitative performance indicators of development are established, many of which seem too low (for example, to increase the percentage of young scientists and experts in the total number of employees to 10%), especially against the background of the allocated additional budget funds (RUR 10 billion for 3 years).⁴ A similar approach is likely to be used in the enlargement of the Central Aerohydrodynamic Institute (TsAGI) - under its management Ministry of Industry and Trade plans to join all the other research institutes, relevant to the development of aircraft technologies.⁵ All in all, it is planned to establish 5.7 national research centers under such scheme.⁶

On the one hand, the additional support of the best universities and "centers of excellence" can contribute to the emergence of qualitatively new scientific results. On the other hand, consolidation of structures means to some extent the growth of monopolies in science, which, as experience shows, leads to a decrease in the quality of scientific research. Therefore, such a critically important procedures for the selection and formation of status organizations, as well

¹ Federal Law No. 358-FZ of 27 December 2009 "On Amendments to Article 5 of the Federal Law "On Science and Government Science and Technology Policy".

² RF President's Decree No. 1084, dated of September 30, 2009 "On additional measures to implement a pilot project to establish a National Research Center "Kurchatov Institute".

³ RF government Order of ratifying the "Programs of support and development for the research, technology and engineering infrastructure of the National Research Center "Kurchatov Institute" No. 1730-p of November 16, 2009.

⁴ National Kurchatov Institute http://strf.ru/material.aspx?d_no=26643&CatalogId=221&print=1 January 13, 2010.

⁵ Boris Alyoshin will take care of aerodynamics // *Commerzant*. No. 225. December 2, 2009. P. 9.

⁶ At the start of five years. Preme Minister instructed the Kurchatov Institute experts // *Poisk*. No. 1-2. January 1-2, 2010. P. 3

as the balance between the support for advanced institutions and the creation of an overall favorable environment for the development of scientific research.

In the past year, systemic organizational reform of the sphere of science has not been initiated,¹ despite the issue of the governmental regulation "On the performance evaluation of scientific organizations, performing research, development and civil engineering works" (No. 312 as of April 8, 2009). Under this decision all organizations after a proper inventory will be divided into three categories - the leaders, stable and those that lost the scientific profile and development prospects. Then, measures have to be taken to optimize the organizational structure of science structure and funding flows. In fact, this work has been substituted by project for the status granting.

Priorities of National HR Policy in Science

In 2009, the priorities of the last year are totally preserved in HR policy: the main focus was sustained on the issues of supporting and involving young people in science, as well as the development of relations with former Russian scientists, who are working abroad to attract them, either temporarily or permanently, to the Russian science.

In 2008, for the first time in the last 10 years was observed an upward trend in the share of academic staff aged 30-39 years (*Table 2*), in the background of the continuing decline in the two subsequent cohorts. This can be explained by a considerable number of government initiatives, aimed at supporting the young (under 35) scientists.

Support of young people in science in the period under review was characterized by two different processes. On the one hand, the amount of government grants was increased (grants of the RF President were increased 4 times!) for the young scientists, while reducing their total number. However, payments of monetary assets have been greatly delayed and started only in autumn, i.e., the youth programs were also characterized by force majeure conditions of national budget financing. On the other hand, young people did not have more opportunities to stay in science for a long time. Thus, the end of the pilot project in the RAS, resulting in the reduction of 20% of jobs, has not led to the release of seats for young scientists. For social reasons, many scientists of retirement age were not transferred to part-time or temporary contracts, but retained their jobs. As a result, the number of the young scientists, annually employed in the institutions of RAS has decreased from 1,012 persons in 2005 to 630 in 2008². RAS Management is planning to implement a new approach that could lead to an increase of the share of young scientists. Actually it means the annual reduction of the number of employees of RAS institutions by 3-4%, and providing the released jobs to the youth candidates³.

Table 2

Researchers Age Structure Dynamics, %

Year	Under 29 years old	30–39 years old	40–49 years old	50–59 years old	60 years old and older	Total
2000	10.6	15.6	26.1	26.9	20.8	100
2002	13.5	13.8	23.9	27.0	21.8	100
2004	15.3	13.0	21.9	27.8	22.0	100

¹ More information on the initiative to assess the organizations, see: Russian Economy in 2008. Trends and Prospects. Issue 30. Moscow: IET, 2009. P. 408-410.

² Poisk. No. 21. May 22, 2009. P. 4.

³ In the phase of activation. Young Scientists RAS are alerted. Poisk. No.47. November 20, 2009. P. 9.

2006	17.0	13.1	19.0	27.8	22.1	100
2008	17.6	14.2	16.7	26.3	25.2	100

Sources: Science in Russia. Statistical handbook. Moscow: HSE, 2005. P.35; Science Indicators: 2007. Statistical handbook. Moscow: HSE, 2007. S. 63; Science Russia in Figures: 2008. Statistical handbook. Moscow: CSRS, 2008. P. 17.

Position of Sciences is also in the fact that the scientific foundations, Russian Foundation for Basic Research (RFBR) and Russian Humanities Research Fund (RFH) - could provide more funds to the young people, in particular, funding temporary positions in the institutions. Taking into account the fact that the budgets of research funds are many times less than the RAS budget, one should have formulated the problem in another way: to expand the system RAS "program for post-graduates," according to which there would be allocated surplus rates for young scientists. Meanwhile, in the framework of this program there were opened only 400 positions¹ only for the core staff of the RAS.

It should be noted that in 2009 there were new factors, contributing to the outflow of young people from science. Russia joined the Bologna process, exchange programs were expanded, which inspired the outflow of students from the country, rather than the circulation of personnel. Unexpectedly, a negative impact on the staffing situation in science and innovation was provided by the activities of public corporations. The State Corporations (Rosatom, RUSNANO) attract the most active graduates and post-graduates, offering them much higher salaries as compared with academic institutions or small innovative enterprises. Therefore, the scope of scientific innovation began to suffer not as much as only from insufficient inflow of the young staff, as from the low-quality human resources. And here there is not only the impact of the outflow of the active staff outflow to the corporations capable to the departure abroad, but also a general weakening of school education, a decline in training in several disciplines, especially natural science.

In regard to the incentives to the circulation of personnel and increased interaction with fellow countrymen one could note the beginning of implementation in 2009 of the Subprogram "Research performed by scientific teams under the guidance of visiting researchers", aimed at mobilizing Russian scientists working abroad. This is a part of the Federal Target Program "Research and scientific-pedagogical staff of innovative Russia for 2009-2013". The Subprogram is providing funding for projects that are implemented by Russia's scientific teams on a competitive basis under the guidance of famous Russian scientists working abroad. Each year, approximately 100 two-year research projects will be selected, funding for which is 2 million rubles per year. Herewith, the Project Manager will spend two calendar months of the year in Russia. The objectives of this subprogram are: development of a sustainable and effective cooperation with the Russian scientists working abroad on a permanent and temporary basis, their involvement in the Russian science and education, implementation of their experience, skills and knowledge for the development of national systems of science, education and high technology.

As of 2009 results, it is decided to finance 110 projects, which are carried out in 84 Russian organizations. The distribution of project managers by countries has little difference from the projects of other tenders (in parameters): 60% - are scientists from the USA, Germany and France. This foreign scientists are quite respectable and, as a rule, keep permanent positions:

¹ (or the same.) In the Phase of Activation. Young Scientists RAS are alerted// Poisk. No. 47. November 20, 2009. P. 9.

33% are professors, 25% are the Heads of Divisions, Departments and Laboratories. 52% of Project Managers have the second (Russian) citizenship. Thus, half of the participants have no visa problems, which facilitates the development of cooperation.

In 2010 it is planned to start another program on attracting foreign scientists, not only representatives of the Russian Diaspora, the idea of which is to finance the best foreign scientists willing to come to work to the Russian universities to carry out their research projects. Here-with, the application should be filed by the Russian university, which undertakes to create the best conditions for the foreign specialist in the project, in the framework of the tender there will be evaluated as the scientists themselves (by the number of publications and citations), as the application for funding prepared by them with the university. Experts should be both, Russian and authoritative foreign scientists, and the final decision will be made by a specially created committee, whose membership is approved by the Government. For the realization of this program it is expected to allocate about 12 billion rubles for 3 years (2010-2012).¹ Apparently, in the development of this program it was taken into account the available experience in the support of joint projects (for example, in the adjustments of evaluation criteria in regard to the invited specialists, as well as procedures for project assessment). Attention is drawn to the fact that the program would be applicable only to universities and foreign scientists wishing to work in any of the institutions of RAS, Russian Academy of Medical Sciences or scientific research institutes, will not be able to do so. Thus, the program clearly demonstrates the Government's commitment to supporting it is high school science.

In connection with the unfolding activities to attract the Russian diaspora, it is important to assess to what extent the scientists who left the country are ready for cooperation, in what forms, in their view, such cooperation should take place, as well as whether - and under what conditions - the return of those who left.

Exhaustive and unambiguous answers to the set up questions can not be obtained, because the scientific diaspora is very diverse. Intentions and estimates depend on age, the time of departure, the field of science. Nevertheless, some idea of what opinions of scientists who left the country on cooperation with Russia, what forms of cooperation are most attractive to them, can give the in-depth interviews with the members of Russia scientific diaspora. The information presented below is the result obtained on the basis of personal interviews of the author of this section with the Russian scientists working abroad, held in November 2008 and again in May 2009 in the U.S.²

Results of interviews indicate that in Russia attracts the diaspora representatives by an opportunity of communication, including friends and relatives, while other countries attract and retain basically in terms of social arrangement, and science as its integral part.

Unanimous negative assessments were given on two aspects - the organization of science in Russia and Russian state of society in general. Poor resource base, as well as low wages in the science, were mentioned not as often as the problem of its organization and the state of the Russian society in general. Bureaucratization of academic life is the factor that significantly reduces the optimism about the prospects of cooperation with representatives of the scientific

¹ Yu.Medvedev. Attractive million. Will the best scientists of the world go to the Russian universities/Rossiyskaya Gazeta. February 3, 2010. <http://www.rg.ru/2010/02/03/nauka.html>

² In-depth interviews were attended by scientists of natural sciences: physics, geologists, chemists, material experts, working in national laboratories in the U.S.. All respondents are men in the age from 35 to 60 years old. .

diaspora. The level of bureaucracy for filing applications for project lots, procedures for generating tender documentation and reporting is so high that for the scientists working abroad, where the application for funding can be justified quite briefly and clearly, have no sufficient motivation to participate in the Russian tenders. Moreover, the understanding of the emigrants of bureaucracy and inflexibility of the scientific system in Russia is even incomplete in comparison with what actually expects them in connection with a possible visit to Russia for a short, or even more so for the long term of work. And these are serious problems, in particular, in connection with the peculiarities of the projects financed from national budget funds, with the issues of integration in the existing hierarchical structure of the institutes and universities, with adaptation to the peculiarities of research management, etc.

At the same time, there are most powerful factors of attraction overseas - the system of social organization, children who grow up in another country and gradually forgetting the Russian language, the work to enjoy and very well paid. However, virtually any emigrant keeps up relations with Russia on an individual level, but all official cooperation is far more rare, and only few experts are involved in the Russian science.

The most common form of cooperation are joint projects, including with those experts who temporarily come to work to the United States and other countries. It is gradually beginning to develop such kind of interaction, as the expertise of projects under the order of the Russian entities (primarily RUSNANO), as well as foreign funds that have a program of support for the Russian science.

For Russian scientists living abroad, the most attractive in decreasing order of frequency of mentioning are the following forms of cooperation with Russia:

- trips to Russia for consultations and participation in conferences. This allows to combine specific research interests with an opportunity to visit the motherland;
- expertise (of scientific projects, public programs and plans, projects at the regional level), reviewing articles;
- joint projects with parallel performance thereof in Russia and abroad;
- lectures in the Russian universities;
- establishment of joint structures - departments in universities, laboratories in research institutions;
- arrival of Russian students in foreign laboratories in order to enable them to gain experience with modern equipment and an idea how differently can the science be organized.

The most popular are consulting and expertise. In the support of these activities there were cited arguments such as knowledge of immigrants of different systems (including Russian one), with all their strengths and shortcomings, and skills to work in those systems, as well as personal relations and direct contacts. However, gradually there develops such trend as the establishment of joint structures or the involvement of Russia in the advanced centers of leading scientists from the Russian diaspora. Under this scheme there was established a new Research and Education Center "Bionanophysics" based on Moscow Physics-Technical Institute (MPTI). More than 30 former Russian scientists agreed to take part in its activities. The concept of the center implies that each of its laboratories will work in close cooperation with foreign scientific institutions - leaders in their fields¹. The remuneration for the young scientists is funded in the center at the expense of the Sub-program of support for the scientific and educational centers

¹ They don't let the stars to work // Expert. No. 44. November 16, 2009.

of the Federal Program "Scientific and scientific-pedagogical cadres of innovative Russia for 2009-2013", and the purchase of equipment is planned from the funds, transferred by MPTI upon the receipt of the status of a research university. A similar center, operates for several years on the basis of the Nizhny Novgorod State University,¹ but still, for the scale of Russia, this is a minimum.

In general, from the survey of the opinions of scientists living in Russia and abroad, we can conclude that both parties have incentives for cooperation and interaction on a rather pragmatic basis.

The success of government initiatives to attract foreign scientists and tutors will largely depend on the extent to which the bureaucratic barriers to cooperation will be removed. Thus, currently a contract with the foreign experts, invited to Russia by universities as professors can be concluded only for one year. Therefore, foreign scientists have annually to undergo the procedure of dismissal and then reemployment, what takes time and makes the overall situation unstable.

The ideology of expanding the contacts should be formed at the level of organizations and universities and encouraged by the State as part of standard scientific environment. We need to start with small steps: to invite representatives of the scientific community as experts, to organize joint seminars, provide grants for travel to Russia, but not only in order to communicate with friends and relatives, but also to devote part of the trip, for example, lectures to students and post-graduates. Given the growing problem of the quality of higher education, this measure is relevant.

In connection with the already being implemented program of joint projects, it should be noted that if the objective is the greatest contribution of foreign researchers in the development of the Russian system of education, science and high technology (that is the way it is formulated as one of the objectives of the subprogram), it would be useful to modify several terms of the program. In particular, it makes sense to oblige the visiting scientists to read a short course of lectures, to conduct several workshops, as well as to announce tenders on topics of relevant priority trends in of science and technology of the RF. Herewith, the task of "retention" of foreign researchers should not be the main purpose, because it deprives the event of flexibility. On the one hand, there may arise a pressure on the participants in the projects, which will repel, rather than attract them, and on the other hand, those who will stay, may be not only those who are needed for a long time. Ideally, for the two-year research projects there should not be the task of foreign investigators retention in Russia. Instead, the goal might be further development of scientific and other relations.

Finally, stimulating the circulation of personnel means also the expansion of Russian scientists ability to work and have probation abroad. The first step in this direction can be the financing of post-doctoral positions for the Russian researchers, interested to undergo three years of training in foreign laboratories of their compatriots and other foreign scientists.

Development of International Relations

Work to attract the diaspora representatives can be regarded as one of the aspects of the government international activities in science and technology. Meanwhile, one of the main trends in this area was the development of relations with the EU, in particular, the discussion of the conditions for Russia joining the 7-th EU Framework Program as an associate member.

¹ See for details: Russian economy in 2007. Trends and Prospects. Issue 29. Moscow: IET, 2008. p. 445-446. .

There are grounds for Russia to become an associate member. Among the "third" countries, Russia has been the most successful member of the 6-th EU Framework Program and continues to lead in the 7-th Framework Program in terms of number of projects in which the country participates, and the amount of funding obtained by the Russian teams. By these indicators Russia is ahead of such countries as China, India and Brazil. However, in terms of industries, participation of Russia is irregular; the highest "presence" of Russia is noted in such areas as sustainable development, global reforms and ecosystems, nanotechnology and nanoscience, as well as information communication technologies¹. In the 7-th Framework Program similar trend persists (the most active participation of Russia is noted in such areas as ICT, nanoscience and environment). However, this statistics does not provide an answer to the question of economic feasibility of Russia entry into the 7-th Framework Program, as the volume of funds received as a result the won tenders may be lower than the financial contribution to the country as an associate member of the Program.

What are the advantages of an associate membership as compared with the status of the "third" country?

The first one is an opportunity to be the coordinator of projects, rather than just their party. However, in order to be able to perform the functions of the coordinator, in Russia there must be organizations (structures) that can work in compliance with the standards and rule of the EU, including financial, accounting, auditing, etc. Regulations. There is relevant infrastructure in Russia yet.

Second one is participation in all tenders of the Framework Program. For example, currently grants of the European Research Committee to independent scientists and grants to advanced researchers are provided only to the scientists-residents of the European Union and associated countries,² whereas such grants would be very helpful as a tool to attract the leading scientists, including our former compatriots.

However, the associate membership in the 7-th Framework Program does not allow to participate in identifying the topical areas of cooperation, what would be very important for Russia. Other countries, willing to become the associate members, have the goal of the subsequent entry into the EU. Therefore, associate membership in the Framework Program can be considered as one of the steps to achieve it. Russia has no such goal, and therefore, the issue of associate membership should be discussed in the context of reasonable economic benefits. From this point, the bilateral agreements and cooperation are equally important. The fact that Russian scientific teams can obtain, by participating in the Framework Program, the experience of modern project management, access to modern equipment and information, exchange of ideas, the ability to access the European markets with high-tech products - can be obtained in the framework of bilateral and multilateral cooperation.

Multilateral cooperation could potentially lead to a fundamentally new scientific findings as a result of a synergistic effect, however, bilateral relations are much easier for administration. It is no accident that the country-members of the Framework Program are allocating for its implementation significantly less funding than for the development of bilateral international scientific and technical relations. Thus, Russia's accession to the Framework Program as an associate member deserves support, but not to the detriment of other forms of cooperation.

¹ According to the results for the 6-th Framework Program. *Source*: European Commission, FP6 Data, 2008.

² 7-th Framework Program for Research and Technological Development of the European Union. M., 2007. P. 8.

In the situation of the budget reduction the programs of support to science and innovation, realized through foreign scientific foundations, which have their representative offices in Russia, become relevant again. Meanwhile, upon the adoption in June 2008 of the RF Government Decree No. 485 "On the List of international organizations receiving grants (free assistance) as a taxpayer, are not taxable and not excluded from the income for tax purposes for the Russian organizations - grant recipients", have lost their force in exempting the international organizations from income tax. Other international and foreign organizations-grantors addressed to the authorized agencies with an application for inclusion in the new List. By 2010, there were no new foreign organizations-grantors, whose payments were not taxable. As a result of delays with the approval of the List, from January 1, 2009 everything is subject to taxation, including payment of individual grantees and the purchase of equipment from the grant funds. Therefore, the conditions of foreign scientific foundations in Russia deteriorated, which led to the freezing of a number of programs, including innovative ones.

Thus, the benefits of international cooperation are not used to the full extent. At the governmental level, there is no clear position on the development of national priorities for science and innovation, and hence, the priorities for international cooperation, as well as coordinated inter-agency and intra-organizational and financial policies of international cooperation. There is no monitoring and assessment of international cooperation within the country. Actually, there is no information about the strengths and weaknesses of instruments and forms of cooperation.

In addition, international cooperation can not be developed outside the broader economic and political context, and its success depends on what conditions are created inside the country to carry out research activities. Among the important conditions are such provisions as the state of scientific equipment, the work on which would be attractive to foreign partners, the level of legislation elaboration in terms of intellectual property rights, working conditions of foreign organizations and scientists coming to work to the country. The failure to resolve all those issues limit the scope and form of international scientific cooperation.

Support to Small Innovative Enterprises and Innovation Infrastructure

Increased attention to the supporting of small innovative business and related technological infrastructure was due to the fact that small firms were, first, the least protected elements of the innovation system in crisis situation, and, secondly, a small business is regarded as one of the most important "intermediaries" of the transfer of knowledge and transformation of enterprises into new products and technologies. It should be noted that the second provision is only partly true, because in the absence of large high-tech companies the support to small businesses will have a relatively low efficiency, either because small firms usually work on outsourcing, or they are buying big companies, or they die. The transformation of small firms in the medium and large ones is a relatively rare phenomenon. In other words, support to small firms cannot be the basis for the development of large business.

In a crisis situation, the problems associated with the mechanisms of support for small innovative entrepreneurship get aggravated. First, the government's attention was drawn to the inconsistency between the organizational and legal form of the basic national Fund supporting small innovative companies - the Foundation for Assistance to Small Innovative Enterprises in Science and Technology (Assistance Fund) to the norms of the Civil and the Budget Codes.

Secondly, new technological infrastructure did not start to work to full extent (technical-promotional zones (TIZ), technology parks), and in late 2009 there was started interagency transfer of responsibility for its development.

Currently the Assistance Fund is guided in its activities the Fund Regulations,¹ according to which it is a public non-profit organization, without specifying the organizational and legal form. On the one hand, it gives the Fund a certain freedom of action. On the other hand, it brings the Assistance Fund outside the norms of the Civil and Budget Codes. The Fund is the manager of budgetary funds, but according to the Budget Code (Article 38.1 "The principle of departmental distribution of the budgets expenditures"), it can allocate funds only to those organizations that are under its supervision. Assistance Fund has no subordinate organizations and allocates funds for R&D on the basis of tenders, making contracts (under the Federal Act No. 94-FZ of July 21, 2005 "On Procurement of goods, works and services for national and municipal needs ") with the winning organizations, regardless of their affiliation.

Nevertheless, the activities of public funds support for science and innovation (primarily in regard to the Russian Fund of Federal Property (RFFI) and Russian Government National Fund (RGNF) was legitimate because federal law No. 63-FZ of April 26, 2007 "On Amendments to the Budget Code of Russian Federation in terms of regulating the budgetary process and bringing in line with the budget legislation of the RF some legal acts of the Russian Federation" gave them a deferral until January 1, 2010 to bring the documents in compliance. Strictly speaking, The Assistance Fund was not affected by those provisions, but acting on the basis of its Regulations which does not specify, if the Fund is a budgetary or autonomous agency, or acts in any other legal-organizational form, it is found within the area of regulatory uncertainty and hence risk.

In this situation there are several possible solutions.

First choice: Assistance Fund can be converted into an autonomous institution. On the one hand, it removes an obstacle in the form of requirements to allocate funds only to subordinate organizations and makes it possible to receive funds from the federal budget subsidies. On the other hand, autonomous institutions can not be the main managers of budgetary funds, and because in this case the Fund is deprived of a separate budget line and would receive funding indirectly, through the ministry or department. Accordingly, it would be difficult to guarantee the preservation of the Fund's current standard of funding (1.5% of budget allocations for civilian science). This is especially true in view of the economic crisis, as the legal basis of autonomous institutions functioning is not well developed. Subsidies, with help of which autonomous institutions are financed are vulnerable budget lines and can be cut down in the first place.

The second option would be to amend the Budget Code, namely the provisions which gave special status to the Fund, and allow it to be the main manager of budgetary funds and allocate these funds through grants. Permission to the Assistance Fund to fund R&D through grants, rather than under the law on public procurement would simplify many of the procedural aspects.

The third option is an extension of the current statuses of funds, but that is not a solution of the issue. However, namely this way was chosen, and at the end of December 2009 the Federal

¹ Regulations of the Assistance Fund to Small Innovative Enterprises in science and technology (approved by the RF Government No.65 dated February 3, 1994) (as amended on January 5, 12 December 1995, March 6, 1996, 31 March 1998.).

Act was adopted to extend for another year the existing procedure for financial support through grants and budgetary subsidies.¹

Technology infrastructure, which was developing in the form of special projects since 2006 - IT Parks in nine regions of the country, as well as four technology-innovative zones - has proved to be so ineffective that the management of those projects was transferred to the new agencies. Federal Agency for Management of Special Economic Zones (RusSEZ) was dissolved and its powers transferred to the Ministry of Economic Development. Herewith, the changes were quite unexpected, with no public justification, in fact carried out without prior arrangement. The situation with IT parks is similar - apparently, this program will be transferred from Ministry of Communications to the Ministry of Economic Development.² In regard to Technical Innovation Zones it was noted that the general economic climate is so unfavorable for innovation, that the creation of "closed zones" is unable to change the conditions for innovation. In addition, zone residents have no tangible economic incentives to be engaged in technological innovation.

At the same time in the field of legal regulation and the formation of a new financial infrastructure to support small innovative businesses, especially those in the starting stage, there have been some changes that can be estimated positively.

One of the major changes is the adoption in August 2009 a new Federal law,³ under which the budgetary academic institutions, including the state academies of science, as well as universities, non-budgetary institutions, by the notification procedure can become the founders of business entities, created for commercialization of intellectual activity. Despite the existence of various risks and serious shortcomings, including gaps between the Act and the Budget and Tax codes, its adoption should contribute to the growth sector of small innovative enterprises.

As a contribution to the authorized capitals of small firms, agencies can transfer to them the rights for the objects of intellectual property. The adoption of this Law is successfully completed with new rules on limited liability companies (LLCs).⁴ According the entered into force on July 1, 2009 new edition of the Law on LLCs allowed to make contributions to the authorized capital in the form of property rights.

The measures provided by the Federal Law № 217-FZ, should create incentives for the development of small innovative businesses. However, meanwhile their practical implementation is complicated by inconsistency with a number of other existing regulations and established accounting practice of intellectual property (incomplete registration of intellectual property, registration of undervalued property).

1. Only the right to use to intellectual property can be transferred to the authorized capital, rather than the exclusive rights. Newly established companies cannot grant license rights for the results of intellectual activities to the third parties. This limits the ability of companies in business structuring, including the placement of production at existing production areas, be-

¹ Federal Law No. 314-FZ of December 17, 2009 "On Amendments to Certain Legal Acts of Russia in connection with the federal law" On federal budget for 2010 and the planned period for 2011 and 2012".

² Technology parks have replaced their profile // Kommersant. No. 225. December 2, 2009, P. 13.

³ Federal Law No.217-FZ of August 2, 2009 "On Amendments to Certain Legislative Acts of Russia on a budget research and educational institutions, business entities working for practical application (implementation) of the results of intellectual activity".

⁴ The relevant changes were introduced by the Federal Law No.312-FZ of December 30, 2008 "On Amendments to the first part of the Civil Code of Russia and some legislative acts of Russia".

longing to third parties.¹ This provision also allows research institutes and universities to establish multiple companies, which will have right to use the same results of intellectual activity.

2. The difficulty is in identifying those objects of intellectual property, for which research institutes and universities have exclusive rights. Many developments were created through the budget funds and the allocation of rights in this case is not always clearly defined in contracts. There arise some problems in the system RAS concerning the origin of intellectual property rights: they can be claimed by both, a scientific institution - the establishment of RAS, and by RAS itself.

3. According to the Law, the share of the institution in the authorized capital should be at least 25% in joint stock companies and at least one third in the LLC. This limits the development of partnership projects between research institutes and universities, where a number budget-funded agencies jointly establish a small business, because then the investor's share will be below 50%, which is unlikely to be acceptable to it.

The problem is also, where will be located and under what conditions will operate the created small firms. There is insufficient vacant space in the existing incubators and industrial parks, and the development of conditions for granting them a beneficial rent is only started. In this case, it should be noted that the government has reacted to this problem promptly, and is currently reviewing proposals of the RF Ministry of Education and Science to introduce benefits for the rent for small innovative enterprises, created by scientific and educational institutions. Under those rules in the first year there will be paid 40% of the market value of the rented premises, in the second year - 60% and in the third year - 80%.

In addition, the Ministry of Education and Science plans to hold two tenders to support the innovation infrastructure of the leading universities of Russia. In the framework of the first tender it is expected to implement a three-year program of infrastructure in 50-60 universities (business incubators, technology parks, etc.), legal protection of intellectual property, as well as advanced personnel training in the field of innovation. Herewith, among the selection criteria will be the number of established of small businesses in the university under Federal law No. 217-FZ. The second tender is aimed at supporting business entities through the provision of additional subsidies. Each business entity, established with the university under the Federal Law N. 217FZ, will be able to obtain on a competitive basis up to 100 million rubles per year from federal funds in case of 100% cost sharing.² In general, the Ministry of Education and Science pays special attention to the Federal Law No. 217, and even going to assess the effectiveness of scientific and educational activities of budgetary institutions, created by small innovative firms.³ The Assistance Fund, also participates in the support of established scientific institutions and business entities through the program START for special financing of small businesses, created by the Federal Law NO. 217.

With this "attention" from the federal government, universities have begun actively to create small businesses. By the end of 2009, from 364 high schools, administered by the Federal Agency of Education, 44 have established 116 business entities with 881 workstations⁴. It

¹ Innovations in Russia: legal challenges and legislative initiatives. Salans LLP. 2009.

² Ministry of Education is preparing two new tenders for high schools.

http://www.strf.ru/material.aspx?d_no=26704&CatalogId=223&print=1 January 15, 2010.

³ 217-FZ: the law is adopted, but is it working? http://strf.ru/organization.aspx?CatalogId=221&d_no=25423 November 19, 2009.

⁴ Innovations in higher education: sluggish mode.

http://www.strf.ru/material.aspx?d_no=26759&CatalogId=223&print=1 January 18, 2010.

takes only a few days to register a small business, so the real impact is yet to come - namely, how long the established small businesses will survive and how well they will work.

Another positive development can be seen in the changes taking place throughout the year in the Russian Venture Company (RVC). It has gone from nearly a closure (because of the placement of free funds on deposit at the banks, what was classified by the General Prosecutor's Office as the gross violations and ineffective use of public funds¹) to the development of a new performance strategy and establishment of Seed Stock.

RVC was also accused of inflating their expenses for administration in 2008. RUSNANO state corporation was blamed for the same failure in late 2009. According to the results of audits, the state corporation received 130 billion rubles, spent only 10 billion, of which 5 billion rubles of them were spent for its own activities.² There are many ways to interpret what happened. On the one hand, it is to some extent a lack of understanding on the part of auditing authorities of the specifics of those structures, which cannot and should not spend all funding as soon as possible. On the other hand, it is the result of the slow unfolding of the work and indeed its low efficiency in terms of organization and management.

The RVC Head was replaced, and the Head brought a new concept of the fund operation, based on good understanding of the problems and deficiencies of the established innovation infrastructure, which primarily include the lack of commercial potential of projects and skilled teams, interest in the origin of intellectual property rights, the lack of qualitative technology and business expertise, strategic investors, as well as the lack of service organizations (consulting, legal and others).³

In order to partially compensate for the above failures, RVC made a strategic decision to establish the Investment Fund of Seed Stock. The Fund establishment in the form of limited liability company with capitalization of 2 billion rubles was made in late November 2009. Investment in projects on the part of the Fund will not exceed 75% of project cost. Herewith, RVC expects to receive a 25% share in the financed venture project. It is expected that within 2-3 years there will be funded 80 start-ups. A notable feature of the new fund organization is that the selection of projects and presentation thereof the RVC Investment Committee will be implemented through a system of the so-called venture partners, i.e. organizations which will seek and "package" the projects. To become a venture partner, one has to meet a number of not very difficult conditions, but if after a year of work the venture partners are not be able to submit projects for consideration, it will be deprived of that status. This approach is quite reasonable from two perspectives. First, the RVC takes off the burden of the direct search for projects, negotiations with their authors, and secondly, through the system of venture partners, potentially there could be built a system of intermediary companies, qualified teams, which are currently very few.

In general, this direction of innovation support can be effective in the long run, if it results in creation of a reserve for new products and technologies, serving as a basis for favorable conditions for overcoming the crisis and the further innovation development.

¹ Prosecutor General's Office proposes to suspend the activities of RVC..

http://strf.ru/material.aspx?d_no=17999&CatalogId=221&print=1 February 26, 2009.

² Public corporations simply do not fit in the "shady" economy.

http://www.strf.ru/organization.aspx?CatalogId=221&d_no=25258 November 12, 2009.

³ Igor Agamirzyan. Three priorities in development.

http://strf.ru/material.aspx?d_no=23349&CatalogId=223&print=1 August 31, 2009.

However, when speaking about the development of venture capital industry in general, it should be noted that in the absence of the stock market and large high-tech companies, an excessive focus on the creation of numerous venture capital funds in financing the high-tech projects will not be efficient. According to the RADVI (Russian Association for Direct and Venture Investments), the majority of created in the country most venture capital funds (today there are 155 of them) are primarily the funds of direct investments. They invest in late stages of consumer market development, and investment in IPO (initial offering of shares in the market) is statistically close to zero.

Tax Incentives for R&D

Measures of tax incentives for innovation were actively introduced in 2007-2008, and in 2009 the government was paying close attention to this trend of innovation policy.

In 2009 an amendment was introduced, providing a possibility of recognition for certain single R&D expenditures, including effect less, and their writing-off by 1.5 index. The introduction of writing-off standard for R & D by a specified index is a progressive step at first glance. However, the effect of this measure may be lower than in developed countries. Overseas there is a progressive income tax rate, and reducing the tax base also reduces the tax rate. However, this exemption is applied only to certain types of R&D, the list which is approved by a special government decree.¹ It consists of 32 advanced technologies. At the same time, the list does not include research and development works aimed at developing technologies in traditional industries, what hinders them in innovative activity. In general, this measure could cause problems for tax administration and increase the risks of abuse on the part of taxpayers and tax authorities.

Another measure is the exemption of the grant recipients, including two government research funds - Russian Fund of Federal Property (RFFP) and Russian Humanitarian Science Foundation (RFSF), from income tax². In the situation of sequester of the amount of grants for innovative projects this measure can be regarded as a partial compensation for losses. However, the absurdity of the situation lies in the fact that there is no term "grant" in the Minutes of Association of public research Funds, so they can not apply this regulation .

In general, tax incentives for innovation activity is developed and becomes more diverse. However, a number of problems in tax regulation are more clearly revealed.

First, often imposed measures are inconsistent with other rules and regulations, therefore, they are either immediately become ineffective or rarely used by the taxpayers. Secondly, the terms and conditions of tax benefits applicability are set worded in the legislation so that allow various interpretations. To clarify the rules for the use of benefits and the interpretation of the law, the RF Ministry of Finance regularly publishes letters, but they do not always provide an unambiguous interpretation. This is one reason why experts give restrained and critical assessments of recently introduced measures: the rules of applicable benefits are ambiguous

¹ The RF Government Resolution No. 988 of December 24, 2008 "On approval of the list of scientific research and experimental developments, the expenses of the taxpayers for which, in accordance with Paragraph 2 of Article 262 of the Tax Code of the Russian Federation are included in other expenses in the amount of actual costs with coefficient of 1.5".

² The RF Government Resolution No. 602 of July 15, 2009 "On approval of the list of Russian organizations, on taxpayer's grants (subsidies), provided to support science, education, culture and art in Russia, which are not taxable".

and open ways to different interpretations, and therefore, there is arbitrariness in their application and administration.

Third, the "privileged" groups (organizations, products), in respect of which certain tax incentives are applied are often ignored in the norms of general tax regulations, which nullifies the provided benefits. A typical example is the support of small innovative businesses, which enjoys the priority attention on the part of the state. On the one hand, there are permanent discussions of the tools for the support and promote innovation of small businesses, a variety of measures aimed at reducing their tax burden are proposed. Thus, currently the issue is under discussion of canceling some restrictions for organizations wishing to apply the simplified taxation system, including the following measures:

- 1) to increase the upper threshold of annual income for eligibility to use the right for simplified taxation system to the innovative small businesses, to 200 million rubles;
- 2) to remove restrictions for the subjective part of founders, shareholders, scientific organizations and innovative companies;
- 3) to reduce the tax rate to all the innovation of small businesses from 6 to 3% for the simplified tax system, if the object of taxation is the total income, and from 15 to 5%, if the object of taxation is income, reduced by the amount of costs;
- 4) To provide an open list of deductible expenses for those taxpayers who use the system of "income minus expenses".¹

On the other hand, from January 1, 2010, the Federal Law No. 212-FZ of July 24, 2009 came into force "On the insurance premiums to the Pension Fund of Russia, Social Insurance Fund of Russia, the Federal Fund for Mandatory Medical Insurance and territorial funds of obligatory health insurance, according to which from January 1, 2010 the unified social tax is replaced by insurance premiums to the Pension Fund of Russia, Social Insurance Fund of Russia, the Federal Fund for Mandatory Medical Insurance and territorial funds of obligatory medical insurance. At the same time, in 2010, the rates will remain the same, but from 2011 they will be increased so that the tax burden on businesses using the simplified taxation system will grow by 2.4 times. Therefore, the discussed and introduced tax incentives for small innovative companies can be nullified by changes in the basic system of taxation of enterprises.

* * *

The crisis has aggravated the existing problems in the field of scientific innovation. Public funding, which is the main source of support to scientific research is getting reduced, while business has also reduced its expenses for R&D. The established development institutions are unable to cover the gaps, as the mechanisms of their work are far from perfect, the overall environment for innovation promotion, is underdeveloped. This situation is partly due to the imbalance of public policies. In general, specific measures to counter fight the crisis have not been adopted, and developed primarily through the available tools. New measures, introduced or proposed in 2009 - the establishment of research institutes and university status through the merger of organizations, permission to research institutes and universities to create small innovative enterprises, introduction of a new list of priorities, development of measures of "coercion" for business to participate in innovation activities cannot be regarded as crisis-counter fighting.

¹ State Duma proposes to cut down taxes for innovative small businesses. October 25, 2009. <http://www.bashinform.ru/news/220910/>

Herewith, government authorities expect and even demand too quick feedback from the new measures, and such pressure is likely to adversely affect the field of science and innovation. In addition, a major obstacle in the implementation of the adopted measures is that during their development the prevailing legal regulations were disregarded in regard to both, the sphere of innovation, as well as the relations outside its scope. Therefore, being theoretically promising and significant, those measures can not provide a the rapid positive effect in the near future.

The nature of the majority of the new measures indicates, that the decision-making process is increasingly based on the direct government interference in the innovation sector, whereas a number of approaches resembles the Soviet practice of "management". Meanwhile, government policy should be based on participation in the creation and dissemination of various incentives, forming a fair competitive environment, increasing the degree of freedom for the participants of the innovation system and encouraging cooperation and collaboration between them, rather than on direct interference. Important principles of government policy, which are currently omitted or insufficiently implemented are the maximum publicity in the preparation and implementation of new projects and initiatives, consistency of actions, account for the possible negative effects of new initiatives and measures to address them.