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SCIENCE FUNDING IN RUSSIA: DECLARATIONS AND REALITY

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The well-known proposition that science is a direct productive force in society has stood the test of time. The development level of science and the extent of its technological application throughout the world are the key factors in building a progressive production structure, raising the productivity of social labor, increasing the economic potential, and releasing material and financial resources for a solution of social problems. Conversely, negative processes in the field of science lead to all kinds of distortions in socioeconomic processes. This is borne out by Russian experience of the past decade. Whereas in the late 1980s the country had a substantial scientific and technical potential and a multisectorial science-based economy, in the course of the so-called reforms it has lost its bearings in the macroeconomic policy of expanded reproduction, and the resultant adverse trends have led to a deepening of the systemic crisis, to greater chaos and turmoil in development, to a distortion of the structure of the productive forces and a redirection of financial flows in the interests of the oligarchy. Considerable damage has been done to science. In spite of that and regardless of the warnings made by scientists, the dangerous “deregulation” course is still being pursued. Its “scientific supporters” declare without sufficient reason that Russia has entered the phase of economic growth. There is no shortage of formal declarations of government concern for the problems of science and technology, a point invariably mentioned in official documents.

The role of science and of scientific and technical activities is reflected in the currently effective Federal Law “On Science and State Scientific and Technological Policy” and in “The Doctrine of Development of Russian Science,” approved by RF President’s Decree of June 13, 1996. Another document, “The Basic Principles of the Policy of the Russian Federation in the Field of Science and Technology for the Period Until 2010 and for the Longer Term,” was approved in 2002. These documents are meant to create conditions for the development of basic research and leading schools of thought; to enhance the prestige of research work and ensure proper working and living conditions for researchers and specialists; and to reform the science sector by improving the

management, funding and organization of research. Attention is paid to such matters as integration of science and education, development of the system for training highly skilled researchers, creation of conditions for competition and enterprise in the field of science and technology, and innovative activities. On the whole, one can say that these documents reflect the need to gear Russia's scientific potential towards a solution of key socioeconomic problems and towards ensuring the country's security. Furthermore, a decision of the RF Security Council of March 30, 2002, put the task of developing national science among the top priorities of the Russian state.

Since these declarations were made a fairly long time ago, one could sum up the preliminary results. The main outcome is a worsening of the actual (not lip-service) attitude to the development of science, its highly unsatisfactory financing (Table 1). None of the above-listed priorities is ensured. "The Program of Socioeconomic Development of the Russian Federation for the Medium Term," approved by RF Government Order No. 910 (r) of July 10, 2001, is indicative in this respect. In that Program, "policy in the field of science" takes up two pages and includes propositions that keep being repeated from one document to another: a statement of the fact that in 1990-1999 fixed assets in the scientific and technical sphere shrank by more than two-thirds, that the share of innovative products in the total volume of industrial production is down to 3.5%, and that only 3.5 thousand young specialists are recruited for work in science every year. This is followed by statements about the special attention being paid to the support of basic science, about the need to reform the scientific and technical sphere, to transfer a part of the country's scientific organizations to regional jurisdiction, to reorganize the system of state research centers, to stimulate competitive extrabudgetary funding of science through science and venture funds, and to deepen the integration of science and education within the "school—IHE—graduate studies—doctoral studies" system. The Program also emphasizes the need to raise wages in science and to support various schools of thought.

The record of the past decade shows that good intentions and actual deeds are poles apart. High technology sectors and lines of production are degrading, and the share of science-intensive production within the GDP structure is going down as attention is being switched to the development of production in capital-intensive raw materials and primary processing industries. Hopes are still being pinned on the investment role of foreign capital and its ability to "pull up" lagging industries and even those which have degenerated altogether in the years of reform. Conspicuous examples of foreign capital taking part in the privatization of the most profitable industries in Russia and total neglect of capital investment in production show that these hopes are groundless. That is why fuller use should be made of domestic reserves and possibilities for reviving high technology lines of production.

The first thing that needs to be done for this purpose is to change the attitude to science funding and to make an audit of all the financial sources that have come under the control of criminal elements. Thus, despite the fact that the main channels of capital flight have been identified (advance transfers of foreign exchange on account of fictitious imports, underpricing of imported goods and overpricing of export goods and services, etc.), the situation here remains fairly bleak. The outflow of capital amounted to \$36.3 billion in 1994-1996, \$23.1 billion in 1997, \$23.9 billion in 1998, \$17.5 billion in 1999, \$18.8 billion in 2000, and \$17.4 billion in 2001; the preliminary estimate for 2002 is around \$10 billion. This adds up to over \$150 billion, a figure 1.2 times higher than the

external public debt, confirmed in the amount of \$123.7 billion as of the end of 2003.¹ As we see, there are still reserves to be tapped for an increase in budget funding of vitally important sectors, including science.

Since the problem of “redirecting” such financial flows to meet the needs of the country’s economy and social sphere is highly complicated, one could suggest other sources of finance, such as a reduction in the planned budget surplus through an increase in the funding of non-interest expenses, including spending on science.

It is known that since 2000 the government has been actively planning multibillion Federal budget surpluses, which are not allocated to any expenditure items: in 2000, the surplus was 102.9 billion rubles, the projected figure for 2001 was 272.1 billion rubles, and for 2002, 178.3 billion rubles.² The surplus for 2003 was confirmed at 72.15 billion rubles, or nearly twice the amount of actual science funding. Whereas in the past there was a special budget item allocating additional revenue among possible lines of expenditure, including science, today’s surplus—a financial reserve used by the government without any control—is provocatively high against the background of outrageous underfunding of science and other vital areas, including the real sector of the economy.

There is a steady decline in actual outlays on basic research as a share of the GDP: 0.41% in 1992, 0.39% in 1993, 0.29% in 1994, 0.27% in 1995, 0.35% in 1996, 0.36% in 1997, 0.23% in 1998, 0.25% in 1999, 0.31% in 2000, 0.26% in 2001, 0.27% in 2002, and 0.27% in 2003 (forecast).

Highly unsatisfactory financing of basic research has become a pronounced trend symbolizing the line towards conversion of the country into a raw material appendage of the states that have initiated the current “globalization.” In this case, globalization should be taken to mean intensifying export of capital from the developed world to backward countries in order to maximize profit with a simultaneous “paralysis” of branches of the economy still catering for the national market in the underdeveloped countries.

The attitude to science funding in the developed countries is quite different. Thus, in South Korea, Israel, Switzerland, Japan, Finland and Sweden expenditures on civilian research amount to 2.5%—3.5% of GDP. The above-mentioned tendency in Russia cannot be qualified otherwise than a slide towards stagnation and crisis. “The origins of the current crisis date back to the end of 1991, when the share of allocations for civilian science and technology was slashed by three-quarters (sic!): from 2% of GDP, a level characteristic of the industrial countries, to 0.5% of GDP, a typical figure for the less developed countries of the Third World.”³ It should be pointed out in this context that despite an increase in the absolute amount of Federal budget expenditures (including those on science), after the 1998 default, in real terms, budget outlays on science in 2001 were only 77% of the 1997 level. In 2002-2003, they are still below the 1997 level. The extremely limited financing of science means that the share of Russian high technology products in world markets remains very low. Today this share is 0.13%, compared with 35% for the European Union countries, 25% for the USA, 11% for Japan, 7% for Singapore, 4% for South Korea, and 2% for China.

In drafting Federal budgets, the budget authorities take no account of the relationships between budget spending on the development of basic research and such macroeconomic indicators as the rate of economic growth, the share of high technology products in total output, the amount of high technology products per rouble of research

funding, or Russia's share in the world market for high technology products. But high rates of economic growth cannot be achieved without the application of innovative high technology, which, for its part, is impossible without echeloned scientific and technological progress. And such progress always depends on the integration of science and education, on the state of basic research and R&D funding in general. World practice has developed a certain "standard" of science funding as a share of GDP (2%), and failure to attain this standard indicates that the situation may be critical. It is no accident that in countries which set the pace in international high technology markets the share of expenditures on basic science in the total volume of GDP is tightly controlled. This is being done with the use of a wide range of economic mechanisms: tax breaks, customs duties, budgetary support, investment incentives, leasing of research equipment, etc. In Russia, the top echelons of state administration do not seem to have realized the importance of the progressive trends within the innovation process in the developed countries. It is known that the best results are achieved by countries which have scant natural resources but have developed a powerful scientific and educational complex (Germany, Great Britain, Japan, the Scandinavian countries), whereas inadequate development of that sector tends to breed poverty and political instability even in countries with abundant natural resources.

Over the past few years, violations of prescribed standards in science funding have become manifest. The Federal Law "On Science and State Scientific and Technological Policy" of August 23, 1996, lays down that "Federal budget allocations for civilian research and experimental development shall amount to no less than four percent of Federal budget expenditures." A month before the adoption of that law, an RF President's decree approving "The Doctrine of Development of Russian Science" established the share of Federal budget allocations for civilian research and development at no less than 3% of budget expenditures, with an annual increase in the amount of these funds as the economy stabilized. Today the government claims that the economy has entered a period of stabilization. If that is so (and some industries have indeed shown signs of a recovery, which has not yet developed into a significant upturn), the government should evidently reckon with the need to increase spending on science at least to some extent as budget revenues go up. But neither the minimum ("Presidential") nor the maximum (established by the legislative authorities) rates of science funding have ever been met. Unfortunately, an indicative fact of our life is that the executive authorities are prone to ignore effective laws instead of observing them. The suspension of the aforesaid Federal Law provision regularly authorized by parliament on the government's initiative during the past three years (including 2003) in the part not covered by Federal budget funding, and also of a number of provisions of other laws has provided the basis for planning 2003 Federal budget expenditures "from the achieved level," i.e., once again below the statutory rate. However, the contradiction between such a stand taken by the government and the proposition on priority science funding needs to be resolved.

Federal budget expenditures for 2003 for all the sections of the functional classification provide for the maintenance of relative values in each section, with the exception of industry, the energy sector and construction, which are subject to relative cuts in budget financing. Given such a financial impact of the state on the mechanisms for using growth factors in the real sector of the economy, one cannot expect any

substantial economic growth. In 2003, allocations for basic research and promotion of technological progress (under comparable conditions) amount to only 35.5 billion rubles, or 1.54% of budget expenditures and 0.27% of GDP. Let us recall that the “threshold” value is around 2% of GDP. In terms of these parameters, there is no improvement at all compared with 2002.

An analysis of the Federal budget for 2003 shows that the priority of expenditures on science proclaimed by the RF government in its budgetary materials is not borne out if they are regarded under comparable conditions. A comparison of funding amounts must, of course, be made under comparable conditions, since the Federal budget expenditure pattern keeps changing from year to year.

In particular, for the second year running Federal budget expenditures have included large amounts of the single social tax subject to be transferred to the Pension Fund. Spending on science now includes a part of the expenditures that used to be posted to “Exploration and Use of Outer Space,” and also expenditures on the maintenance of utility enterprises and seismic stations. So, under comparable conditions actual science funding in 2003 is to amount to 35.5 billion rubles. The rate of increase in allocations for science envisaged for 2003, as compared with 2002 (in comparable terms), is relatively lower than for state administration (2.18 and 2.47 times, respectively). This shows that the government bureaucracy is better financed than science. One has to state that none of the indicators in financing the country’s research and production complex are fully in accord with the provisions of “The National Security Concept of the Russian Federation,” confirmed by RF President’s Decree of January 10, 2000. That document notes some extremely negative processes: a weakening of the country’s scientific, technical and technological potential, a cutback in research in strategically important areas of scientific and technological development, a brain drain, and ineffective alienation of intellectual property products. All of that is fraught with a further loss of positions in areas where Russia still has a global lead, degradation of science-based lines of production, and greater technological dependence on other countries. The implications of these words are clear to all.

Nor does the 2003 Federal budget fully meet the requirements formulated in the protocol adopted by a joint session of the RF Security Council, the Presidium of the State Council and the Council for Science and High Technology under the RF President on March 20, 2002. Thus, expenditures on basic research and promotion of scientific and technological progress (under comparable conditions) constitute under 1.6% of total Federal budget expenditures, whereas in accordance with that protocol they should constitute 2.18%, but not less than 39.9 billion rubles. Science funding in terms of volume has been readjusted to fit that figure: under incomparable conditions, the science budget is 40.2 billion rubles. But let me repeat once again: under comparable conditions, allocations for science in 2003 are to amount to just over 35 billion rubles.

Obviously, the projected change for the worse in science funding does not agree with the letter and spirit of “The Basic Principles of the Policy of the Russian Federation in the Field of Science and Technology for the Period Until 2010 and for the Longer Term,” confirmed by Presidential decree, since that document, on the contrary, provides for faster growth of budget allocations for science compared with other areas of government spending. In its proposals to specify the priorities of socioeconomic policy for 2003 and for the period until 2005, the RF Ministry of Finance referred to the above-

mentioned decision of the RF Security Council of March 30, 2002, but interpreted its provision on the priority of science funding in a most peculiar way, noting an absolute increase in the science budget since 2000. It is common knowledge, however, that priority is a relative concept and reflects the preference given to some object (subject) compared with others, and not the movement of absolute values (parameters) in the development of one and the same object over time. During the past few years, government spending on science has declined (in relation to GDP and to the overall amount of Federal budget expenditures). And that in conditions where the “support structures” of basic science—state research centers—are in need of substantial renewal of their research equipment. In 2002, for the first time after 1992, the balance between allocations for basic and applied research was disrupted. Whereas in 2001 the share of outlays on basic research was 48.4%, in 2002 it was 52.3%. This makes it more difficult to bring the results of basic research up to the point of practical use.

One cannot fail to notice that the Federal budgets for 2002 and 2003 do not envisage any measures to improve the structure of expenditures connected with special government programs. Their “revision” often leads to a suspension of the funding of programs already being implemented, while the process of selection of programs to be carried out is still not geared to investment. Annual program funding is approved for broad expenditure items: investment, R&D and other expenses. The share of the latter for all programs has been growing, which results in a diffusion of funds and a decline in the share of outlays on investment and R&D. The scientific research component of such programs is inadequate.

For programs scheduled to be implemented in 2003, the share of capital investment is 21.2%, outlays on R&D, 10.2%, and other expenses, 68.6%. As we see, the process of development and implementation of special government programs at the Federal level reflects the basic defects of budget policy. The budgets of recent years have, unfortunately, been current expense budgets, with an obvious underestimation of the growth of increasing the share of capital expenditures. This applies, in particular, to science budgets.

It is high time to check the trend towards a reduction in the amount of funds going to renew the stock of equipment and testing facilities. Since 1996, the share of expenditures allocated in the field of science for capital investment has been stably low (around 4%), while current expenses have predominated (around 96%). Since the 1998 crisis, average annual appropriations for research (at comparable prices) have increased in absolute terms by only 15%. Less than one-half of the investment part of these expenditures has been used to acquire research equipment. In the present situation this is not enough: the stock of research equipment is badly outdated and cannot ensure experimental work on a modern level.

An obvious “capitalization” of special government programs funding is in evidence in the implementation of only some of these programs. One example is the Federal Program “Electronic Russia 2002-2010,” where the share of R&D is 8.1%, and of investment, 54.4%. But the overall trend towards a reduction in the capital intensity of programs being implemented, including programs connected with science, has not been overcome. From 1996 to 2000, capital investments under the Federal Target Scientific and Technological Program were more than halved at current prices and fell more than six times at comparable prices. With a decline in the standards of all the work connected

with stimulating scientific and technical progress in high technology industries, this process has been allowed to drift. Before the “reforms” there was never anything of the kind. Such things are inconceivable in any country seeking to retain competitive positions in the world market. Thus, close attention to the development of science and to the use of various mechanisms designed to stimulate technological progress is paid in France, Japan, Germany, Sweden, Finland and other countries.

Let us recall that in the 1960s and 1970s satisfactory budget financing in this country was supplemented with such a form of innovative activity in the economy as a single fund for the development of science and technology formed at a sectorial level out of deductions from enterprise profits. Enterprises applying scientific and technological innovations in production and raising product quality in view of the introduction of the “quality mark” were entitled to price markups. Development budget crediting, an arrangement which holds much promise and meets the development interests both of the public and of the private sectors of the economy, is now being deliberately discredited. For the third year running, the Federal budget makes no provision for a development budget, although the Federal law on such a budget has not been repealed. For 2003, this law was suspended on the proposal of the government on the grounds that annual development budgets had not been approved either for 2001 or for 2002. Such are the arguments of the government, which has done its utmost to make the specially established Development Bank serve the interests of the oligarchy. Such a shift in emphasis is inadmissible in a country whose economy is in agony for lack of investment.

In my view, today it would also make sense to introduce mandatory deductions (allocated to product cost) for all enterprises producing goods and providing services in order to form sectorial funds. At the same time, the part of the profit that is generated under the impact of technological improvements should be fully exempt from tax. This would be a truly “market” instrument stimulating scientific and technological progress. Nor have we exhausted the possibilities for reducing the rate of profit tax or for using the mechanisms that would promote leasing and venture forms of investment. It would also make sense to introduce—for enterprises of all organizational forms and all forms of ownership—special deductions to regional venture funds from which money could be lent on a repayable and competitive basis for investment crediting of projects which are of essential importance for reviving the economy of the regions. Unless this is done, one can hardly expect to see an increase in the revenue base of budgets or in the absolute or relative amount or funds allocated for science.

In order to improve science funding, it is necessary to make amendments and addenda to the Federal Constitutional Law “On the Government of the Russian Federation” so as to specify the powers of the country’s highest executive body ensuing directly from the Constitution and relating to various aspects of domestic and foreign policy implemented through the budget process. For example, Article 17 of this Law says nothing about the government’s powers connected with the development of the state’s scientific and technological policy. The need for such a provision is dictated by Article 114 of the Constitution, which says that the government “shall ensure the implementation in the Russian Federation of a uniform state policy in the field of culture, science, education, health, social security and ecology.” The aforesaid constitutional law vests the government with the responsibility of providing state support for science (and culture). It is known, however, that the term “support” is highly elastic, which often results de facto

in totally inadmissible support for the process of degradation of the country's scientific and technological potential.

Much attention must be given to the problem of developing an effective form of funding science, including a well-grounded correlation between its various sectors. The experience of the Russian Foundation for Basic Research (RFBR) and the Russian Foundation for Humanities (RFH) shows that science funding should be improved through these institutions as well. The first thing to do is to optimize the structure of budget allocations for various fields of science. In the Federal budgets of the past few years, 6% of the overall expenditures on science were channeled through the RFBR (1,319.64 million rubles in 2001 and 1,763.77 million rubles in 2002), and 1% through the RFH (219.9 million and 293.97 million rubles, respectively). Despite a government decision fixing the share of the two foundations in budget spending on science at 7%, the scheduled figure for 2003 was only 5.1% (4.4% through the RFBR and 0.7% through the RFH). In accordance with the draft budget, the two foundations were to get 1,763.8 million and 294 million rubles, respectively. During the third reading of the 2003 Budget Act in parliament, these figures were somewhat increased: by 200 million and 30 million rubles, respectively. Even with due regard for allocations through the Foundation for the Promotion of Small Business in the Field of Science and Technology, which is to amount to 460 million rubles (during the third reading the figure was also increased by 20 million rubles),⁴ the total for these three science foundations will be 2,748 million rubles. The reduction in budget expenditures on science through these foundations will amount to 670 million rubles. Such is the "priority" of research financing through science foundations.

One should note that apart from the problem of inadequate financing of science foundations, another real problem is their deficient regulatory framework. Financial support for the two foundations can only be obtained through the budget accounts of IHEs and academic institutes, which limits the sphere of use of these financial resources. This procedure must be reviewed so as to enable researchers not working in budget-financed organizations to take part in competitions as well, provided that collective-use centers (on a regional or city scale) are set up under agreements with the science foundations. In this case, the overhead expenses being met from project funding could be reduced from 15%-20% to 5%-7%, with at least 0.5 billion rubles going directly to increase financial support for researchers. In the event, the RFH's share should be increased to 2%-3% of the overall amount of budget allocations for science, which would help to improve remuneration for researchers working in the field of the humanities. During the years of reform, the humanities have lagged far behind in the study of social development problems. Whereas in the early 1980s it was emphasized that we had a poor knowledge of our society, at the beginning of the third millennium the situation has become even worse: lack of knowledge on some points has been supplemented with lack of knowledge on a number of other points, such as the causes and scale of crime and of the shadow sector in the economy, the long-term consequences of privatization, the "deideologization" of society, and educational "reforms."

Scientific organizations and foundations must have a foreign exchange component as well. In the letter to the RF President quoted above, Academician V. Fortov suggests that for the purpose of developing the material basis of science several oil wells should be handed over to the Russian Academy of Sciences so that the scientists

themselves could turn them into a highly profitable source of foreign exchange earnings (he refers to the experience of the USA at the time of the Great Depression). The Academy of Sciences has also to be allowed to resort to other forms of “earning” foreign exchange for the initial financing of research projects requiring substantial material resources. In a situation where the oil business contains a very large shadow component and when revenue flows out of the country to foreign accounts, such an approach is quite in order. At any rate, science can hardly expect any substantial assistance through the National Science Foundation. Despite the importance of such support (in 2001, 100 candidates and 100 doctors of science, and also 10 outstanding researchers received grants from the Foundation worth a total of \$1 million), these resources are clearly insufficient for any tangible improvement in the current situation.

It is time to change the procedure of setting quotas for various branches of the humanities and natural sciences within the limits of the budgetary funds allocated to the RFBR and the RFH. Today’s practice of allocating funds “from the achieved level” is most deplorable, since the initial quotas were set at the time of the establishment of the two foundations virtually by the order of their management. The humanities component in the RFBR turned out to be insignificant: for some reason it is assumed that basic research in the field of economics can be carried on only within the framework of such applied sciences as economic-mathematical modeling and economic geography. For the other humanities the RFBR does not even hold any competitions.

The boards of the two foundations in charge of public funds have not been doing their utmost to ensure the interests of the state in the development of vital lines of research. As a result, the “initial” quotas for various fields of science still hold: those which started out with the highest quota are still being financed at the maximum level, while those with the lowest quota are obviously underfunded until today. In the RFH, for example, the share of historical science among all the projects entered for competition is 30.1%, and among those receiving financial support, 29.2%. It turns out that historical science represents around one-third of all researchers working in the humanities. But economic science with no fewer highly skilled specialists and just as great a need for material and information support of their research compared with history and philosophy has a share of 11.1% and 12.5%, respectively (philosophy has 11.2% and 12.6%, and philology, 21.2% and 20.4%).⁵ In other words, the existing quotas do not reflect the roles of the various branches of humanitarian learning in the reproduction of the country’s intellectual potential. There is a similar situation in the RFBR.

It has often been suggested that the system for financing science through the said foundations should be eliminated. In my view, financial support for the most active researchers has nevertheless justified itself. It amounts to funding “against results” in contrast to funding “per number of researchers.” This practice should not be abandoned.

All the talk about priority science funding will have little positive effect unless we resolve the problem of raising researchers’ pay. Average wages in the 1990s remained inadmissibly low. From 1991 to 1996, the number of personnel engaged in scientific research fell from 1,677.3 thousand to 990.7 thousand.⁶ After 1996 there was a slight increase in wages, but from 1998 onward wage rises were merely a response to inflation: in 2000, the average wage was 2,734.4 rubles per month, and in May 2002 it reached 4,719 rubles. In 2002, the number of researchers employed in the public sector of science was only 686.4 thousand. For a country with a population of around 144 million this is a

very small figure, especially considering that over the next few years it could be reduced by half.

Researchers' pay is a real priority in many countries of the world. In the USA, for example, young specialists holding a master's degree in chemistry and chemical technology are paid \$3,000-\$4,000 per month, and in the field of astronautics and aeronautics, up to \$35,000, and young doctors of science get \$4,000-\$5,000 per month. Unless we find a way for a substantial increase in payment for research work in Russia, the natural urge for work in science among talented young people will hardly be rekindled. Nor will it be possible to stop the brain drain. The number of researchers leaving the country for contractual employment abroad has been growing: 3,000 persons in 1996, 4,200 in 1998, and 4,600 in 2000. In the future this process is bound to intensify.⁷

There is a manifest interconnection between the age of researchers and remuneration policy. The results of an analysis of this interconnection are impressive: the expected reduction in the number of research personnel for reasons of low pay will be associated with their ageing; by 2010, the share of researchers over 60 years of age will exceed 30% (today it is around 22%). The influx of young people into the field of science will be very limited and could be reduced more than 2.5 times.

None of these problems can be resolved without a linkup of science and production. Their disintegration has led to the collapse of the patent business in the country and has undermined the financial base for such a linkup. The penetration of foreign capital, among other things, has served to paralyze the innovation process, since funds from abroad have been arriving along strategically charted routes and significant innovations are being patented in Russia. If advanced developments in the main fields of technology are patented by foreign firms, the latter will be the producers as well. Such apprehensions are justified: there is evidence of a patent expansion by foreign applicants.

An analysis of the state of science funding in Russia shows that this problem is the key to a revival of the country's scientific potential, and also of the innovation capabilities of the economy. Russia's future is closely connected with the future of its scientific community.

NOTES

1 Federalny spravochnik (Federal Handbook), Moscow, Rodina-PRO, No. 11, 2002, p. 338.

2 Ibid.

3 V. Fortov, "There Is a Way Out of the Crisis," Literaturnaya gazeta, 4-10 June, 2001.

4 State Duma Records, Bulletin No. 203 (651), November 22, 2002, p. 13.

5 Ye. Semyonov, "Higher School Science Seen Through the Prism of RFH Competitions," Naukovedeniye, No. 1, 1991.

6 Information Bulletin of the Science Studies and Statistics Center, No. 8, 2001, p. 6.

7 Science and High Technology in Russia at the Turn of the Millennium, Moscow, Nauka Publishers, 2001, pp. 142-148 (in Russian).