

STI OUTLOOK 2002 – COUNTRY RESPONSE TO POLICY QUESTIONNAIRE**RUSSIA****1. General framework and trends in science, technology, and industry policy**

The main guidelines of the State innovation and S&T policy effective in 2000, are as follows:

- Increase in the state funding and support to R&D in priority areas.
- Establishment of the national network of computer telecommunications for the science and the Higher School sectors.
- Initiatives to create conditions for tax stimulation of innovation.
- Initiatives to introduce returnable financing for applied research projects.
- Support to SMEs.
- Development of venture funding.
- Development of regional and local innovation systems (science cities, federal centres of high technologies, innovation technological centres, innovation industrial centres).
- Introduction of network for innovation development programmes.
- Elaboration of provisions and principles of public control over commercialisation of results of publicly funded S&T activities.
- Elaboration of mechanisms of the Higher School and science sectors integration.
- Establishment in 2000 of Ministry of Industry, Science and Technology (MinIST) on the basis of Ministry of Economy and Ministry of Science and Technology, which created preconditions for better co-ordination of innovation and S&T policies.
- Enhancement of international co-operation and consideration of a possibility of active participation of Russia in the process of globalisation of scientific and innovation activities.

RUSSIA

2. Public sector research and public research organisations

2.1. *Changes in the volume and structure of funding (various profiles)*

The overall R&D funding in 2000 as compared to 1999 increased by 26.7%, funding from the State sources – by 34% while the share of the State funding did not reduce, as was expected, but grew from 56.9% to 60.2%. The increase of funding from private sector from 15.7% to 18.7% did not improve the situation as the shares of foreign sources and internal funds of research organisations decreased.

The budget assignments for the year 2001 were established equal to 0.26% of GDP and to 1.85% of the account part of the budget. The appropriations were executed 100%. Compared to the year 2000 their growth was equal to 39%.

R&D in the Higher School was funded at a very low level. Although in 2000 its growth was equal to 20.7%, its share in overall R&D funding fell and constituted only 4.5%, while its share in the State funding was 5.3%.

In 2000 the share of basic research in the overall funding was equal to 13.4% (as against 14.2% in 1999), that of applied research – 16.4% (17.4% in 1999) and that of development activities – 70.2% (68.3% in 1999). These changes reveal an orientation toward “fast results”. The relatively high share of basic research funding (even considering a decrease in 2000) is maintained through the targeted State policy to support this part of R&D.

2.2. *Initiatives for enhancement and effective use of public research infrastructure*

The efforts aimed at establishment of a national network of computer telecommunications for science and the Higher School sectors were continued. In 2000 the number of regional Servers has reached 44 units. At present, the computer network for science and the Higher School sectors comprises more than two thousand leading organisations in these sectors including the State system of S&T information. The overall number of users of the network constitutes more than 800 000 scientists and experts.

MinIST and Russian Academy of Sciences continued their efforts to further develop the Interdepartmental Supercomputer Centre, the overall computing capacity of which reached 300 billion operations per second by the end of 2000.

Centres for shared use of expensive scientific equipment have appeared in many institutes under Russian Academy of Sciences, branch ministries and universities. Their establishment was financed from a number of sources, including grants from Russian Fund for Basic Research (RFBR) and funding from MinIST. These centres vary in sizes. Thus, they may include a huge synchrotron source of x-ray radiation or a small but unique spectrometers. The Centres of shared use may become important focus points for further institutional transformations of the science sector. However, the achieved results are but the first steps made in this important direction so far.

3. Government support for private-sector R&D and innovation

3.1. *Changes to enhance the effectiveness of policy instruments used to provide public support for private sector R&D and innovation*

3.1.1. *Tax treatment*

R&D in Russia enjoyed a very broad system of tax privileges. Its main feature (in comparison with the western one) was the fact that it did not stimulate investments in research and development, but simply supported research organisations. For example, before the new Tax Code has been introduced, R&D organisations paid no land or property taxes. They had privileges in leasing their property and some other privileges as well.

In 2000-2002 the new Tax Code of the Russian Federation entered into force. The new Code is aimed at abandoning the massive application of tax privileges. Still, some privileges for innovation activities have been preserved. In the first part of the Code there appeared a privilege for investors (in the form of tax credit): according to item 1.1 of article 67 an organisation (firm) can be given a tax credit provided that it carries out R&D or modernises its own production facilities. Such credit can reach 30% of the cost of purchased equipment (item 2.1). Besides, if an organisation (firm) carries out innovation activities, it can be given a tax credit under the profit tax, the size of which is to be defined by an agreement between the authorised agency and interested organisation (firm) (item 1.1).

Since February 2001 up to the end of the year research organisations accredited at MinIST enjoyed a tax privilege. Their taxable profit was calculated excluding direct R&D expenditures following the order and the list defined by Governmental Decree № 91 of 2 February 2001. As of 1 January 2001 there were 2 450 such organisations in Russia. The chapter 25 "Profit Tax" of the Tax Code, adopted in August 2001 and put in action since 1 January 2002, cancelled the above privilege and put into force practical tax exemption for investors in innovations. According to article 262 (item 2) taxpayer's expenditures on R&D can be included during three years in equal shares at regular intervals into "other costs" calculated in the "cost of production" whenever R&D is carried out independently or together with other organisations or by another organisation in the framework of a contract research, provided that the indicated R&D results are used for production or selling goods or rendering services. Thus, such expenditures are deducted from of the taxable profit. The same approach is applicable if R&D carried out by a taxpayer did not have positive results. They are also subject to inclusion in "other costs" at regular intervals within three years, at the rate of not more than 70% of the actually born costs. These privileges are not valid for contract research organisation. Thus, the privileges under the profit tax have been transformed into privileges for investors in innovation.

In the framework of the policy aimed at increasing the turn-over of intangible assets, including intellectual property, some privileges have been introduced as well. Previously costs of production (works, services) included depreciation of intangible assets. This provision no longer exists in the Tax Code, but other provisions aimed at stimulation of transfer of intangible assets have been introduced instead. In accordance with article 39, item 4, transfer of intangible assets to another organisation is not considered as selling goods (and hence their cost is not taxable) if such a transfer has the character of investment. Intangible assets are also subject to tax exemptions when purchased or imported to the customs territory of the Russian Federation.

In the new Tax Code the effective privilege under the value-added tax has remained. Any R&D carried out at the expense of the State budget, off-budget funds of ministries, departments and associations is subject to tax exemptions under VAT. R&D carried out by universities or research organisations under contracts

RUSSIA

are also VAT-free. Patent and licensing operations (except for intermediary ones) dealing with industrial property and copyright have been set free of VAT.

It should be noted, however, that the Tax Code is on the whole insufficiently focused on establishment of a favourable innovation climate in Russia. Participants of innovation processes are not even mentioned in such sections as "participants of relations" (article 9), "institutions, concepts and terms" (article 11), "special taxation regulations" (article 18). Therefore institutions (subjects) and processes (objects) of innovation activities remain to be outside of the tax laws. The Code does not cover specificity of taxation of innovative SMEs, Federal Centres of High Technologies, science cities and other participants of innovation activity (technopoles, technoparks, personnel training centres, certification organisations, IPR protection organisations, etc.). Neither are many of the tax privileges existing in OECD countries included in the Tax Code.

3.1.2. Direct public funding of business R&D and innovation (e.g. grants, contracts, loans, etc.)

In 2001 Russian Fund for Technological Development announced a project tender with the motto "Science – Technology – Production – Market". The tender was conducted in two stages. At the first stage it was defined whether the projects applied were generally commercialisable. At the second stage the final selection of projects meeting a wide set of criteria was made. The selected R&D projects were financed on the returnable basis. It is necessary to emphasise, that at a similar tender in 2000 only 30 projects were selected out of 206 applied, with public financing implemented in the form of subventions.

As of 2002 the budgetary resources for financing R&D in the interests of industry will be concentrated in four Special Federal Programmes: "Research and Development in Priority Sectors of Science and Technology", "Domestic Manufacturers' Competitiveness Promotion", "National Technological Base" and "Defence Industry Reform".

3.2. Changes in the balance and/or priority of public support of business R&D and innovation

3.2.1. Industrial and technological sectors priorities

Priority principle of public support of business (industrial) R&D is illustrated by the fact that the above mentioned profit tax privilege for accredited research organisations for carrying out R&D could only be applied if MinIST confirmed that the R&D involved corresponded to the following areas: basic research, information technologies and electronics, industrial technologies, materials and chemicals, technologies of animate systems, transportation, fuel and power engineering, ecology, defence and state security.

These areas (except for the last one) make the list of priority areas for distribution of the budgetary funds to R&D approved by the Government in 1996. In particular, the Special Federal Science and Technology Programme "Research and Development in Priority Areas of Civil Science and Technology". It should be noted that too long a list of priorities means inefficient use of limited budgetary funds. At present it is understood in MinIST that priorities should be defined more precisely. The work is underway in the Ministry to create a working mechanism of choosing, correcting and implementing priority areas and critical technologies.

3.2.2. Programmes to support R&D and innovation in SMEs

In 2000-2001 the Programme "Support of Small Business in the Russian Federation" was implemented. The budget of the Programme, which was as low as 330 million roubles for the period of two years, was

used as follows: about 80 million roubles were assigned for a development of promising financial technologies to support small business; 81.5 million roubles – for realisation of priority areas of small business development, while only 6.5 million roubles were spent to provide direct support to innovative firms; only 1 million roubles – to increase efficiency of infrastructure and information systems; 176.4 million roubles - for methodological and personnel support of small business, of which 160 million roubles were spent to support business initiatives of unemployed citizens; 1.3 million roubles – for international co-operation of SMEs.

This Programme provided but only very limited financing, but it has served as a starting point for a more active Programme for 2002-2004. According to the governmental decision, its budget is to be ten times as large (about 1.3 billion roubles annually). The structure of expenditures of the draft Programme is different. Certain resources are earmarked for improvement of external climate of small business (approximately 60 million roubles per year). About 550 million roubles are to be allocated annually to develop credit and financial mechanisms and financial support for SMEs. Almost 400 million roubles are to be spent annually to develop business and to increase efficiency of infrastructure for small business support. About 150 million roubles are to be spent annually for statistical and analytical support of small business. From 60 to 156 million roubles annually are to be spent for implementation of regional and special programmes for SMEs. International co-operation of SMEs is to be supported at the level of 70 million roubles in 2002 and from 11 to 13 million roubles the following years.

4. Enhancing collaboration and networking among innovating organisations

4.1. Initiatives to promote collaboration and networking among innovating organisations

Initiatives to strengthen regional/local innovation systems

Presidential Decree № 82 "On Assignment of the Status of a Science City of the Russian Federation to the City of Obninsk of the Kaluga Region" was signed on 6 May 2000. The major privilege resulting from the acquired status is a possibility for the city to use tax credit. The status also allows the city to profit by State budget resources to finance innovation projects selected on a tender basis. The city of Obninsk should become a pilot site to elaborate mechanisms of development of science cities. The significance of the problem can be illustrated by the fact that three million people in Russia live in science cities.

During the past two years the development of Innovation-Technological Centres (ITC) continued. Thus, in 2001 seven ITCs were established. The ITCs are being established and developed in the framework of the programme "Development of Innovation Activities in the S&T Sector". On the basis of the strongest ITCs Innovation-Industrial Complexes (IIC) are being set up in order to develop full-scale industrial production of competitive innovative goods previously manufactured small-lot by small technological firms, including those placed in ITCs.

Establishment of Federal Centres of Science and High Technologies (FCSHT) can become another direction of development of network integrated structures in Russia. FCSHTs are to be established on the basis of research organisations dealing with co-ordination of large-scale R&D projects and co-operation with industrial enterprises, financial and credit institutions and universities. They may include research organisations or research-and-production companies that can ensure the whole production cycle of high-tech products. In particular, FCSHTs can also serve as high-tech business incubators.

The system of State Research Centres (SRC) created in 1993 has allowed to preserve the core of Russian scientific and technological capacity (including the leading scientific schools) under the condition of transition to the market economy. Today 58 SRCs urgently need to be reformed and modernised in order to

RUSSIA

define their place and role in the innovation development of the national economy. One of the ways of reforming SRCs is to establish on their basis national/federal laboratories having a special status and public funding. Such national laboratories can unite joint-stock companies to commercialise R&D results obtained by the laboratory.

4.2. *Initiatives to promote stronger industry-science relations*

4.2.1. Changes in the policy of licensing of publicly funded R&D results

A specific feature of the Russian legislation is that intellectual property law does not include official, commercial or production secret. While intellectual property rights are regulated by article 138 of the Civil Code, the main provisions connected with official and commercial secret are determined in article 139. According to the Civil Code, information can be considered as official or commercial secret in case if it has real or potential commercial value being secret to third persons, if it cannot be freely and legally accessed, and if the owner of the information takes measures to protect its confidentiality. The absence of clarity in this question, in our opinion, is a constraining factor for utilisation of this promising form of commercialisation of intellectual activity results. It is obvious, that in practice the legal vacuum around this problem leads to considerable economic losses and reduces incentives for international integration and investments.

Beside the problem of secrecy, there are three important basic aspects to be regulated:

- Relations between the State and developers concerning property rights.
- Relations that emerge at non-commercial transfer of property rights.
- Relations between the State, authors of scientific results, industry and investors in commercial use of property rights.

Governmental Decree of 2 September 1999 № 982 "On the Use of Results of Scientific and Technological Activity" explains these relations as centralisation of property rights pertaining to publicly funded R&D results possessed by governmental departments with subsequent transfer of non-exclusive rights to third persons for their utilisation for federal needs. For the purposes not connected with federal needs, intellectual property rights pertaining to publicly funded R&D results and confidential information about such results can be transferred to third persons under the license agreements according to the legislation of the Russian Federation. The rights of developers are not regulated by this Decree and lack of additional legislative acts (concerning, for example, sharing of the profit from commercialised R&D results) does not stimulate innovative ambitions of new knowledge creators. The inventions which were made in the Soviet time under budget funding are still fixed in the State property and in most cases turn into dead intellectual capital. In the opinion of Head of "Rospatent" Alexandre Korchaghin, this situation can be changed if the State transfers the property rights pertaining to these inventions to their developers.

The Government is aware of the inadequacy of the available legal framework. In its decree of 30 November 2001 №1607-p drafted by MinIST, the Government approves "Main Guidelines of the State Policy on Involvement of R&D Results in Economic Circulation". Prior to the end of the year 2002 the Government also intends to develop a common legal and organisational mechanism of involvement of publicly funded R&D results obtained in civil and defence sectors in economic circulation. Within the framework of this mechanism, intellectual property rights concerning publicly funded R&D results directly connected with the State defence and security purposes will be fixed in the State property, as well as R&D results that are to be continued to the stage of industrial production by the publicly-owned enterprises.

In accordance with the "Main Guidelines", while an efficient market of intellectual property in the country is yet to be formed, the State should reserve the right to control the use of publicly funded R&D results through a system of identification of such results, monitoring and regulating their turnover. At the same time publicly owned IPR to R&D results should enter economic circulation, either through their transfer to the developer organisation, or to the investor, or to any other efficient manager.

Among general conditions regulating the creation of transfer mechanism is a precise regulation of legal protection of publicly funded R&D results kept as commercial secrets as well as those pertaining to publicly owned R&D results and IPR to be transferred abroad. Once elaborated, this legal framework will provide a balance in the interests of investors (including the State), developers' teams and organisations and will speed up the development of new technologies.

Still, it should be noted that to provide efficient operation of the created legal base a number of other problems need to be resolved. In Russia these are, first of all, imperfection of the law-enforcement system and low feeling for law and order among the citizens of the country.

4.2.2. Establishment and development of venture capital funds

At present there exist about 40 companies managing approximately 3 billion dollars of venture capital in Russia. These are mainly American and European companies. It is to be noted however, that because of general deficiency of financial resources under condition of surplus of project proposals these companies finance not venture but rather profitable projects.

The key element of domestic venture capital market is "Venture Investment Fund" (VIF) established in 2000. On the part of the State it is financed by material assets of the Russian Fund for Technological Development (RFTD). VIF acts as a founder and participant of regional and branch venture funds. The capital controlled by regional and branch funds constitutes not less than 3 millions US dollars in rouble equivalent. The decision to participate in regional or branch venture funds is taken by the Board of Directors of VIF following the recommendations of the Competitive Commission.

Two venture fairs were held in December 2000 and in October 2001 in Russia. 28 companies participated in the first fair and 47 companies from 13 regions of Russia – in the second one. At the fairs the establishment of another three regional venture funds was announced by VIF. The main condition was that VIF participates with 10% of its capital while regions provide the rest 90%.

There is a dispute whether specific legislation on venture financing is required. In the opinion of representatives of Russian venture business no special law is needed. It will be enough to complete the existing legislation and then control its enforcement.

5. S&T human resources

Changes in curricula of training of scientists and engineers

Special Presidential Programme "State Support to Integration of the Higher School and Fundamental Science for 1997-2000" was prolonged and completed in 2001. The state of higher education in Russia is generally unfavourable. According to some assessments, only 25% of post-graduates and 8% of students participate in research and development activities in universities. Only 7% of graduates join post-graduate courses. The Programme can improve this situation significantly. Selective surveys of students revealed that all students who had visited training-research centres, established under the Programme, decided to

RUSSIA

continue research activities; 80.5% of them responded that this decision was induced by their work in the mentioned centres.

A new Programme “Integration of Science and the Higher School of Russia for 2002-2006” was adopted by Governmental Decree № 660 on 5 September 2001. Its purpose is to continue and develop successful initiatives in the field.

Another programme – “Technological Management” – is currently operative. The following goals have been set in the Programme:

- Annual retraining of 5000 top managers (in Russia and abroad).
- Creation (at the federal level) personnel reserve of top managers for the real sector of the national economy.
- Creation of a common information database on all the participants of the Programme in order to provide their further co-operation.

The Programme has been assessed and found successful. It will supposedly be prolonged till the year 2005.

6. International co-operation and globalisation

In 2000-2001 the international S&T co-operation of the Russian Federation followed the “Concept of the State Policy of the Russian Federation in the Field of International Scientific and Technological Co-operation”. The long-term strategic goals determined in the Concept are as follows:

- Assistance to transition of Russia to an innovative way of development and shaping of the Russian innovation and technological component in the multipolar world.
- Full-fledged and economically efficient participation of Russia in global integration processes in science, technology and high-tech production.
- Increase of the level of competitiveness of domestic science and technology, joining the world markets of intellectual products, high-tech goods and services.
- Development of new forms of international co-operation, enhancing the role of innovation and technological component in Russia’s international S&T co-operation.
- Harmonisation and adaptation of Russia’s international S&T co-operation infrastructure to the internationally accepted practices.
- Ensuring of scientific and technological security in Russia.

Work has been underway to shape an appropriate legal framework in the context of the goals set in the Concept. In particular, the following acts were adopted:

- *The Federal Law "On Ratification of the Agreement Between the Government of the Russian Federation and Amalgamated Institute of Nuclear Research on the Location and Conditions of Activities of Amalgamated Institute of Nuclear Research in the Russian Federation";*
- *Decrees and orders of the Government of the Russian Federation:*
 - “On Approval of the Agreement on Free Access to and Sharing of Open Scientific and Technological Information by the member states”.

- “On the State Support of International Patenting of Results of S&T Activities of Organisations and Agencies under Russian Academy of Sciences”.
- “On Approval of the Agreement on Establishment and Status of International Innovation Programmes and Projects in S&T Sector”.
- “On Approval of the Draft Intergovernmental Programme of the Russian Federation and Republic of Belarus «Provision of a Common Scientific and Technological Space» for the years 2000-2005”.
- “On Signature of the Long-term Programme of S&T Co-operation Between the Russian Federation and Republic of India”.

On 22 June 2001, with the end to stimulate international scientific, technological and innovation co-operation between the member states, the Economic Council of the Commonwealth of Independent States approved the Concept of the intergovernmental innovation policy of CIS countries up to the year 2005. The basic goal of the intergovernmental CIS innovation policy is declared as: promotion of the engineering performance standards and competitiveness of production; launch of innovative products on the internal and the external markets of CIS countries; replacement of imported products on the internal market and, on this basis, transition of industrial production to the stage of stable economic growth.

In order to provide state support to the Russian participants of international S&T projects, Ministry of Industry, Science and Technology allocates resources to finance participation of Russian research organisations in international projects in priority areas of civil science and technology development. Even given insufficiency of the available resources, such a support remains one of the major conditions that allow to fulfil country’s obligations within the intergovernmental and interdepartmental agreements and to implement scientific exchanges with foreign countries.

One of essential components of the state support of international S&T co-operation is allocation of financial resources for holding in Russia annually up to 100 international scientific conferences, symposia and other international events. The common database on scientific and technological events in Russia, CIS countries and abroad is maintained. The utilisation of the information contained in it increases efficiency of the international S&T activities conducted and allows to avoid duplication.

Related to the inadequacy of the state funding is a problem of non-parity financing of international programmes and projects. Lower financial contribution of Russian participants affects distribution of the IPR to results of joint R&D and hampers the development of co-operation in areas that represent scientific and practical interest for the country.

At the same time, international scientific and technological co-operation became an important source of additional financial and material resources for supporting R&D in Russia. In 2000 the share of foreign investments in Russian S&T sector has constituted more than 10% of the overall civil research and development funding. In many State Research Centres the share of foreign funding from international S&T co-operation projects constitutes up to 15-20%.

During the last eight years international organisations and companies accredited at MinIST have invested about 2 billion dollars in high-tech sectors of the Russian economy.

In the 90s the multilateral co-operation in the framework of international organisations and programmes made it possible to attract about USD 100 million in the form of grants and funding for implementation of basic and applied science projects. Participation of Russia in the Framework research programmes, technological development and demonstration activities of the EU allowed the country to receive up to USD 70 million. About USD 20 million were received from International Association for Co-operation

RUSSIA

with Scientists of the Independent States of the Former Soviet Union (INTAS). The UN Economic Commission for Europe has assisted Russia in receiving USD 3 million under the project “Energy Efficiency 2000”. This was done through mechanisms of the UN technical assistance. The project includes creation of demonstration zones of high power efficiency in 15 regions of the country. Diffusion of such energy-efficient technologies can provide an essential reduction of power consumption in the Russian economy.

At present, Russian legislation does not directly provide for measures to stimulate foreign direct investment in high-tech sectors. Still, it should be noted that the new rates of income tax on individuals (13%) and profit tax on legal entities (20%) introduced in 2000 by the new Tax Code of the Russian Federation, can be regarded as stimulating for FDI attraction.