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cc: Registry
Mrs Puff

TECHNICAL REPORT

On the preparation of the Moscow Oblast Strategy and Program
of using the scientific and technological potential disposed
on its territory for industrial development

Objectives:

The main objective of the undertaken activity was to provide the Government of the Moscow oblast and major stakeholders with clear vision and strategy for knowledge based industrial development.

Expected outputs:

As it was stated in the Terms of Reference the main expected outputs of the undertaken activity were:

- A. To carry out the diagnostic analysis of the Moscow Oblast;
- B. To draft the Strategy and the Program of the Moscow Oblast for using the scientific and technological potential disposed on its territory for industrial development
- C. To propose the partnership and fund mobilisation activities for implementation of the Program.

In the course of the undertaken activity the following work has been accomplished:

1. *Diagnostic analysis*, including analysis and assessment of:

- Basic economic and geographical data;
- Labour resources;
- Industrial capacities;
- Small and medium size business;
- Assessments of scientific and technological complex;
- Assessments of strategies and policies of the federal and regional levels aimed at overcoming existing problems;
- Assessments of needs and requirements of industrial enterprises for scientific and technical services (information, technologies, consulting etc.);
- Assessments of existing partnership relations of science cities;
- Review of the technical assistance provided to science cities aimed at commercialisation of R&D results;
- Review of successful cases of commercialisation of R&D results;
- International experience of science intensive development, which could

be used by the Moscow Oblast;

- SWOT-analysis.

2. *Round table* aimed elaboration of the Strategy and Program guidelines has been held on December 14, 2000. (See the first report, issued on December, 2000).
3. The Strategy and the Program papers of the Moscow Oblast for using the scientific and technological potential disposed on its territory for industrial development have been drafted.
- 4 The draft Strategy and the Program papers have been discussed at the Round table, held by the Government of the Moscow Oblast on March 12, 2001 with participation of the Moscow Oblast Government representatives, major stakeholders, science cities representatives and other interested institutions' representatives and experts (list of participants is given in the Annex 1). Comments and recommendations of the Round table have been taken into consideration and the Strategy and the Program papers have been amended accordingly (see attached materials).



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FOUNDATION FOR COMPLEX APPLIED RESEARCH

Kolpachny per. 7, Building 2, 101000, Moscow, RUSSIA Phone/fax (7-095) 247-22-93

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**STRATEGY
of the Moscow Oblast
of using the scientific and technological potential disposed
on its territory for industrial development**

**MOSCOW
2001**

Strategic challenges and priorities

Globalisation of economic activities and trends towards the knowledge based economy put Russia and its regions in a position to carry out most active policy of adaptation to the modern world processes and tendencies to be integrated, as the worthy partner, in the global economic system.

As it is shown by the foreign experience and modern trends of the world economy innovation becomes the basic source of stable economic growth, the foundation of competitiveness in the internal and global markets and the basis for solution of many social problems.

In the Russian climatic conditions (i.e. at objectively higher, in comparison with the West, production costs) and with available physical infrastructure it would be possible to reach long-term competitive advantages only under the condition of permanent production of innovative goods and services.

For providing innovative growth on its territory the Moscow Oblast has such key advantages, as powerful scientific and technological potential and advanced enough industrial base. Realisation of these competitive advantages along with intensive development of small and medium size innovative business can be considered as one of the major tasks for the Government of the Moscow Oblast.

At the same time, innovative economic growth is connected to overcoming many barriers inherent both Western countries, and Russia.

In the developed countries barriers in organising innovation activities are mainly connected with the lack of venture capital and qualified personnel, as well as with high risks compared to expected results.

Situation in Russia is in many respects different. On the foreground there are problems connected with transition of Russia to the market economy. The most significant are the following: incompleteness of the market legislation; instability of fiscal regulation; weakness and sometimes absence of the necessary market infrastructure institutions; consequences of industrial production recession; financial crisis of 1998; lack of resources for wide public support of innovative development; insufficiency of business culture.

At the level of Russian regions, and in particular at that of the Moscow Oblast, there are additional barriers on the way of innovative development:

- Insufficient level of innovation support infrastructure;
- Weak interaction between federal, regional and municipal government bodies aimed at co-ordinated use of scientific and technological potential of the region;
- Underdeveloped partnership relations between industrial enterprises and research organisations.

In the present circumstances the key role of the Government of the Moscow Oblast in using the scientific and technological potential available in region is to overcome the indicated barriers and to create conditions for economic institutions oriented towards innovative development.

The conducted analysis (see Appendix 2), as well as priorities that were stated by representatives of the Government of the Moscow Oblast and mayors of municipal entities, applying for the status of science cities, at the Round table meetings in 1999 and 2001, have allowed to formulate the following four priority areas, in which the Strategy could be implemented:

Assistance to the development of small and medium size innovation business.

Creation of mechanisms and incentives for involving scientific and technological potential into economic activity on the territory of the region.

Development of partnership between federal, regional and municipal government bodies and stimulation of partnership relations between industrial enterprises and research organisations of the region.

Creating conditions for attracting direct investments to the Moscow Oblast.

Concrete fields of actions of the Government of the Moscow Oblast in solving strategic problems of using scientific and technological potential for industrial development.

Assistance to the development of small and medium size innovation business.

Under modern conditions the rate of economic growth is mainly defined not by the volumes of produced goods and services but by the value added in the process of production. The faster new scientific knowledge is introduced into production and services, i.e. embodied in goods, the faster is the turn-over of the capital in sphere of science intensive production. Thus the main role in development of science intensive manufactures, especially those based on essentially new technologies and processes, belongs to small and medium size enterprises (SMEs), as the most mobile economic actors.

The developed countries' experience shows, that the most efficient are innovation SMEs established with participation of research teams or organisations with purpose to commercialise their own research results. Besides direct contribution to production and dissemination of new goods and services such enterprises help to introduce new innovation culture, to increase the general level of labour force, to improve investment image of the region.

Potentially the Moscow Oblast has main conditions and resources (powerful scientific and technological potential, availability of industrial facilities and territories, development basic infrastructure, qualified labour force) necessary to develop small and medium size manufactures on its territory. The task for the Government of the Moscow Oblast is to provide the use of available resources through mutually advantageous co-operation of their proprietors.

This task can be implemented through activities in four directions.

Improvement of framework conditions for establishment of small and medium size innovation enterprises in manufacture and services.

Assistance to development of financial mechanisms of supporting small and medium size innovative business.

Assistance to development of support infrastructure for small and medium size innovation enterprises.

Improvement of business culture of the top managers of enterprises and organisations.

Creation of mechanisms and incentives for involving scientific and technological potential into economic activity on the territory of the region.

The economic growth rates of the Moscow Oblast in many respects will depend on economic efficiency of using the scientific and technological potential disposed on its territory. Commercialisation of R&D results - economically is the most justified way of involving scientific and technological potential into economic activities through the sale of licenses, carrying out R&D on contracts or jointly within production co-operation, engineering, establishment of joint ventures, investment and other kinds of agreements.

The most important area of activities which has a large scale multiplication effect is transfer of technologies implemented either at large enterprises, or through establishment of small innovation enterprises. However this area of activities will be successful under the condition of simultaneous combination of many factors. Among them the following ones should be mentioned:

- Timeliness - availability of real current market demand;
- Technological feasibility - availability R&D results and appropriate technological developments;
- Availability of the trained staff – necessary amount and appropriate quality of personnel;
- Availability of appropriate leaders capable to develop creative programs of co-operation of researchers, developers and potential consumers;
- Availability of professional support infrastructure;
- Availability of financial resources;
- Support on the part of federal government bodies and administration of the region;

In the framework of the second priority area it is proposed to carry out measures within the following concrete directions of actions:

Assisting research organisations of the Moscow Oblast in reaching stable positions on the markets of scientific and technological services.

Creating an institutional technology transfer network on the territory of the Moscow Oblast.

Development of partnership between federal, regional and municipal government bodies and stimulation of partnership relations between industrial enterprises and research organisations of the region.

Under modern conditions efficiency of economic activities on the territory of the Moscow Oblast will depend not only on quality of work of separate actors, but also on their interaction (partnership) at regional, interregional, national and international levels. The key factor for adjusting successful interaction is co-ordination of interests. However the complete realisation of competitive advantages of the Moscow Oblast would be possible if the balance of interests of federal, regional and municipal government bodies is taken into account along with the balance of interests of industrial enterprises and research organisations.

The current world trends show that there is a gradual transition from the simple subcontracting relations, that are inherent to any industrial activity, to relations of partnership. Those actors of economic activity who realised advantages of these relations and created new structural entities (network and clusters) have appeared to be more competitive and to develop more dynamically. Such entities do not make a redistribution of financial assets between participants of the business – process but carry out co-ordinated management of financial flows. The working capital of the participants is also used in a co-ordinated way. So to say, it is decided on a corporate basis who and how should use the working capital with the purpose of minimisation of cumulative costs. Mutual relations in networks and clusters are arranged not between two participants of the process but within the whole group at once.

The basic task for the Government of the Moscow Oblast in implementing this approach is stimulation of partnership relations between enterprises, research organisations, support infrastructure and consumers aimed at joint development, production and supply of competitive products and creation of networks and clusters with inherent properties.

Within the framework of the third priority area it is supposed to carry out measures in the following concrete directions of actions:

Defining the balance of interests of the Moscow Oblast and the Federal centre in development and use of the results of activity of federal organisations of science and technology available on the territory of the Moscow Oblast (economic, social).

Modification of the management system of federal and regional executive power bodies in relation to municipal entities with high concentration of scientific and technological potential.

Development of partnership between industrial enterprises, research organisations and support infrastructure aimed at creation of regional networks and clusters.

Creating conditions for attracting direct investments to the Moscow Oblast.

One of the major conditions of successful economic development is engagement of direct investments. The Moscow Oblast in particular can expect the following results from direct investments:

- Inflow of capital for re-structuring of inefficient and creation of new manufactures;
- Creation of new jobs;
- Providing access to new markets;
- Stimulation of investments into infrastructure;
- New management experience (transfer of know-how);
- Improvement of professional skill of personnel;
- Transition to new production technologies;
- Growth of export and improvement of balance of payments;
- Growth of competitiveness;
- Growth of tax payments at regional and federal levels;
- Acceleration of development of suppliers and accessory manufacturers.

The basic opportunities for the Government of the Moscow Oblast in attracting direct investments are defined by its ability to influence the key factors that create investment attractiveness of the region. Among those factors the following ones should be mentioned:

- Political stability and clear formalisation of licensing and controlling functions of executive power bodies (transparency of applied procedures);
- Availability of a clear plan of strategic development of the territory;
- Availability of examples of successful development of enterprises created by reputed companies at the expense of direct investments;
- Quality of life, attractiveness of local conditions;
- Quality of the transport infrastructure and telecommunications;
- Availability professional consulting companies to render services to investors;
- Financial factors: cost of labour, cost of the lease of premises and land, etc.;
- Availability of highly qualified, rather mobile labour forces and/or appropriate educational organisations.

Within the framework of the fourth priority area it is supposed to carry out measures in the following concrete directions of actions:

Organisational, legal and financial stimulation of inflow of direct investments to the territory of the Moscow Oblast .

Establishment of an infrastructure on attracting and promoting direct investments.

The detailed description of the above offered concrete fields of actions is given in the Program of the Moscow Oblast of using scientific and technological potential, disposed on its territory, for industrial development (Appendix 1).

Basic recommendations:

A number of prime measures of the Government of the Moscow Oblast are planned to

implement the Strategy of using scientific and technological potential, disposed on its territory, for industrial development.

Short-term measures:

1. With participation of all interested departments of the Government of the Moscow Oblast to finalise and to adopt the Strategy and the Program of using scientific and technological potential, disposed on its territory, for industrial development. To establish a Directorate for implementation of the Program.
2. To elaborate provisions and set of documents of the regional fund for supporting innovation development. To establish the Moscow Oblast Fund for Supporting Innovation Development.
3. To establish the Development Agency of the Moscow Oblast.
4. To create Association of Consulting Organisations of the Moscow Oblast.
5. Together with the Higher School of Economics, Moscow University, Financial Academy, Academy of National Economy and other higher education establishments to arrange and carry out a competition among students and post graduates for the project of creating a high technology oriented company. To offer five awards to the winners of competition.

Medium-term measures:

1. To elaborate priorities of scientific and technological development of the Moscow Oblast.
2. To elaborate Main Provisions of the industrial policy of the Moscow Oblast based on the idea of innovative development.



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Kolpachny per. 7, Building 2, 101000, Moscow, RUSSIA Phone/fax (7-095) 247-22-93

Appendix 1

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PROGRAM
of the Moscow Oblast
of using the scientific and technological potential disposed
on its territory for industrial development

MOSCOW
2001

The present Program has been elaborated prepared in the framework of the Sub-Program for the Moscow Oblast of the UNIDO Integrated Program for the Russian Federation in order to justify main provisions and guidelines of implementation of the Strategy of the Moscow Oblast of using the scientific and technological potential disposed on its territory for industrial development. The program includes descriptions of concrete fields of actions and their objectives, measures to be undertaken for their implementation, expected results and possible sources of funding in the framework of the selected priority areas.

Priority area 1: Assistance to the development of small and medium size innovation business.

Field of actions 1.1. Improvement of framework conditions for establishment of small and medium size innovation enterprises in manufacture and services.

Description

The main conditions for creation and development of small and medium size innovation enterprises on the territory of the Moscow Oblast are defined, first of all, by acting federal and regional legislation regulating small business as a whole and innovation activities as well.

The very important point is availability of the regional legislation providing very clear and transparent rules, that regulate: organisation of manufacture; interactions with authority and controlling bodies of the region; access to resources, needed to solve such problems of small innovation business as high prices and difficulties of leasing industrial premises, communication facilities, equipment, financial resources, etc.

An important factor of development is the introduction of a mechanism of participation of small and medium size innovation business in implementation of the regional programs and receiving the regional contracts.

Well developed legislative acts having mechanisms of execution and control of their fulfilment can help small enterprises in such question, as participation in competitions for implementation of the projects financed by different funds. As the latter often establish mechanisms of examination of innovation projects opaque and confused.

And at last the key importance for small and medium size innovation enterprises development is availability of the regional target-oriented programme of support of small innovation business.

Objective:

Providing conditions and incentives for growth of the number of small and medium size innovation enterprises in the Moscow Oblast.

Measures:

The following measures are to be implemented:

In short-term perspective:

- To establish a fund of uninhabited premises for accommodation of small business and development of its infrastructure¹.

¹ Support infrastructure for small and medium size innovative business is the complex of public, private, educational and commercial organisations that provide regulatory, training, consulting and other services

- To elaborate and to submit addenda to the regional legislation defining the priority role and place of small innovation business in the economy of the Moscow Oblast, as well as privileges and incentives for small innovation enterprises acting on the territory of the region;
- To prepare the Decree of the Governor of the Moscow Oblast on priority support to small and medium size innovation enterprises (establishment of the regional system of integrated financial and property support to small innovation business including business incubators, technoparks, innovation centres, innovation and industrial complexes, including those on the basis of unprofitable enterprises under restructuring).
- To arrange and to hold together with the Higher School of Economics, Moscow State University, Financial Academy, Academy of National Economy and other higher education establishments a competition of students and post graduates' projects for establishment of firms oriented on high technologies.

In medium-term perspective:

- To develop and to adopt the Program of the Moscow Oblast on development of small innovation business;
- On the basis of the Law "On scientific activity and scientific and technological policy" to elaborate Provisions of "The territories of scientific and technological development of the Moscow Oblast" and mechanisms of introduction and support of its fulfilment;
- To conduct a study and to prepare proposals to create on the territory of the region clusters with nuclei of two types:
 - a) A research organisation and small innovation enterprise around it;
 - b) An industrial enterprise, a research organisation and small enterprises, as suppliers and accessory manufacturers;

Main results:

Increase of the number of innovation enterprises and tax payments from their activity.

Sources of funding:

The funding is possible from the following sources:

The budgetary funds of the Moscow Oblast and municipal entities;

Field of actions 1.2. Assistance to development of financial mechanisms of supporting small and medium size innovative business.

Description

Under the conditions when existing level of effective demand is low, possibilities on engaging credit resources are limited, production expenses (rent, municipal payments etc.) are growing, an exit from the current situation for small innovation of business could be in providing privileges, preferences or public contracts from the Government, or any help from various agencies of small business support, investment funds, leasing companies, technoparks or business incubators that work under the aegis of federal and regional authorities.

needed for the development of innovative business and that form a favourable climate and conditions for high tech products and services production.

The investment support to small innovation business includes:

- Establishment of small innovation business support funds and venture funds, providing credit resources to small innovation enterprises through these funds;
- Providing equipment to small enterprises through the mechanism of leasing, leasing premises "on a turn-key basis", implementation of sectoral leasing programs, development of leasing of the equipment of the secondary market;
- Financial support of small enterprises projects through the mechanism of franchising;
- Providing guarantees to small innovation enterprises, development and introduction of the mechanism of the mutual guarantees, development and introduction of the simplified mechanism of guaranteeing short-term credits for the enterprises, creation of mechanisms of financial risks indemnification;
- Establishment of a specialised bank and a cash centre;
- Establishment of a specialised mechanism of insurance; establishment of a system of indemnification to creditors that fund programs and projects of small innovation business development;
- Establishment of a system of indemnification of small innovation enterprises expenditures for participation in exhibitions and fairs.

Assistance to small and medium size innovation enterprises in receiving investment resources is one of the tasks for the Government of the Moscow Oblast.

Objective:

Rendering financial support to small and medium size innovation enterprises of the Moscow Oblast.

Measures:

The following measures are to be implemented:

In short-term perspective:

- To introduce a special budget line "Development Budget of the Moscow Oblast" in the Budget of the Moscow Oblast resources of which (soft credits and guarantees of the Oblast) on a competitive and returnable basis would be directed to support exclusively projects of high technology production in the interests of the region.
- To elaborate a set of documents regulating the order and condition of using the resources of the "Development Budget of the Moscow Oblast", including granting the guarantees.
- To elaborate Provisions and a set of documents for establishment of the Regional Innovation Development Support Fund.

In medium-term perspective:

- To establish the Moscow Oblast Government contracts for realisation of a number of large-scale production projects of competitive high technology products on the basis of results of research organisations and at production facilities of the Moscow Oblast.
- To elaborate a set of documents to ensure protection and indemnification to investors who provide funding of programs and projects of small and medium size innovation business development.

Main results:

Creation of a system of measures and mechanisms on financial support to small and medium size innovation enterprises of the Moscow Oblast.

Sources of funding:

The funding is possible from the following sources:
The budgetary funds of the Moscow Oblast and municipal entities;

Field of actions 1.3. Assistance to development of support infrastructure for small and medium size innovation enterprises.

Description

The intermediary support infrastructure is one of key elements which promotes overcoming of regressive changes of technological structure of industry and growth of competitiveness of production and services. It includes: development agencies; chambers of commerce and industry; innovation and information centres; scientific and technological parks; business incubators; organisations that provide assistance in consulting and technology transfer, re-structuring, strategic planning, engineering, management, environment protection and power consumption, quality control, standardisation, certification and metrology; organisations that grant financial and legal services, as well as insurance and advertising services; etc.

Unfortunately, along with the fact that there are many industrial development support organisations established in the Moscow Oblast they did not manage to start operating as an integrated system, and did not won a necessary place in the market of services. In many respects it is defined by lack of co-ordination between existing organisations which does not allow them to use an active marketing strategy due to financial limitations.

Besides, the infrastructure which is been created is not always based on the analysis of effective demand on its services. Yet the support on the part of regional and municipal administrations is insufficient either. The administration could have had carried out selection of professional organisations to promote them in the market. The existing infrastructure is not able yet to provide the whole spectrum of perspective services. There are no organisations granting services in attracting investments; in developing subcontract relations and partnership, etc.

Objective:

Increase of quality and development of the market of consulting services in the Moscow Oblast

Measures:

The following measures are to be implemented:

In short-term perspective:

- To conduct a study of the existing consulting infrastructure of the Moscow Oblast with the purpose to find out the most professional organisations;
- To establish the Moscow Oblast Development Agency, subordinated to the

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- *In medium-term perspective:*
- Obtaining and systematising information about all personnel retraining and additional training programs being carried out at the federal level, by various funds, international organisations and active participation in them (Interdepartmental program of promoting innovation activities, Morozov's project, Presidential program, TACIS Program, Foundation EURASIA, etc.)
- Attracting personnel training organisations to the territory of the Moscow Oblast for establishing their affiliations.

Main results:

Increase of business culture of top managers of enterprises and organisations of the Moscow Oblast.

Sources of funding:

The funding is possible from the following sources:
 The budgetary funds of the Moscow Oblast and municipal entities;
 Resources of the Interdepartmental program of promoting innovation activities; of the Ministry of Education, of the Foundation of Assistance to the Development of Small Innovative Enterprises;
 International sponsor resources.

Priority area 2: Creation of mechanisms and incentives for involving scientific and technological potential into economic activity on the territory of the region.

Field of actions 2.1. Assisting research organisations of the Moscow Oblast in reaching stable positions on the markets of scientific and technological services.

Description

In the current situation, characterised by sharp reduction of the State contract, the personnel, technical and production capacities of research organisations of the Moscow Oblast remain largely underused. At the same time these research organisations have potential possibility to fulfil R&D contracts, first of all international ones, which they can execute at world level. It is rather difficult and expensive for research institutes to enter this market and to win a place there. It is difficult because they lack the qualified experts. It is expensive because each institute separately can offer only small list of possible works. Therefore the marketing expenses calculated to each separate work will be relatively high. The professional infrastructure that could solve this problem is practically absent. On the other hand scientific and technological services contracting leads to growth of income of those engaged in the sector and thus to the growth of purchasing power and income tax.

Under these conditions co-ordination of efforts of the Government of the Moscow Oblast and Federal ministries and departments in rendering assistance to research organisations in their advance to the markets of scientific and technological services is needed.

Objective:

Incorporation of the research potential of the Moscow Oblast into international labour system division at the world market of scientific and technological services.

Measures:

The following measures are to be implemented:

In short-term perspective:

- To study partnership experience between Russian research organisations and foreign organisations and companies with the objective of revealing problems hampering its development.
- To create an Internet site on research projects and programs carried out in research organisations of the Moscow Oblast and to contact international foundations with the proposal of an international project on integration of the created network into appropriate international networks.

In medium-term perspective:

- Together with the Russian Academy of Sciences and Ministry of Industry, Science and Technology of Russia to conduct negotiations with international organisations concerning arranging and holding in Russia a round table "Problems and possibilities of developing partnership with the Russian research organisations"
- To hold a round table with the representatives of international business to discuss the problems of supporting development of international scientific and technology co-operation in the Moscow Oblast.

Main results:

Creation of a system of R&D contracting for research institutes and other science and technology organisations of the Moscow Oblast.

Sources of funding:

The funding is possible from the following sources:

The budgetary funds of the Moscow Oblast and municipal entities;
Resources of the Ministry of industry, science and technologies, of the Russian Academy of Sciences, of the Ministry of atomic industry, of other ministries and departments;
International sponsor resources.

Field of actions 2.2. Creating an institutional technology transfer network on the territory of the Moscow Oblast.

Activities of the research institutes of the Moscow Oblast, as however in other regions, is more focused on production of new knowledge, than on promotion of the achieved results to market. Top managers of a number of institutes still underestimate the role and significance of technological development promotion activities to enter markets. Therefore, many institutes do not have departments responsible for technology

commercialisation². Whenever they are available their funding has the lowest priority.

A contingency, unsystematic character of sales of R&D results brings to reduction of prices for Russian technologies in the market. Besides most of researchers have weak understanding and knowledge of markets, very low market operation skills. They do not have contacts with potential buyers of technologies.

The major factor hindering technology transfer is the lack of specialised institutions and qualified staff to provide promotion of technologies to the market. Absence of a system of commercialisation of R&D results and advancing them to the market makes the innovation sector not attractive for investment. Even those researchers who manage to sell a technology, not always invest money into new research as they are not sure that they would be able to sell new results.

Objective:

Organisation of a support system to promote technological developments of research organisations of the Moscow Oblast to innovation markets of goods and services.

Measures:

The following measures are to be implemented:

In short-term perspective:

- To conduct technological audit of scientific and technical potential of research organisations of the Moscow Oblast;
- To hold a seminar on creation of a science and technology information exchange network of the Moscow Oblast with participation of representatives innovation organisations of the Oblast, leading Russian and foreign companies dealing with the technology transfer.

In medium-term perspective:

- To establish technological brokers, engineering services and technology transfer units on the bases of the established Business centre;
- To promote dissemination of international experience on establishment of research organisations' specialised units dealing with licensing and transfer of technologies, aimed at record-keeping, control and revealing possibilities of technology commercialisation;
- To address the EU TACIS Program, as well as other international programs and funds with a proposal to arrange an international project on creating in the Moscow Oblast a technology transfer information network and its further integration into international technological networks.

Main results:

Increase of efficiency of promoting technologies of the Moscow Oblast to innovation markets of goods and services.

² Commercialisation of R&D results is the process through which results of research activities are timely (in good time!) transformed in products and services for the market and consumers repay to researchers in the agreed form and way.

Sources of funding:

The funding is possible from the following sources:

The budgetary funds of the Moscow Oblast and municipal entities;

Resources of the Ministry of industry, science and technologies, of the Russian Academy of Sciences, of the Ministry of atomic industry, of other ministries and departments;

International sponsor resources.

Priority area 3: **Development of partnership between government bodies of all levels and stimulation of partnership relations between industrial enterprises and research organisations of the region.**

Field of actions 3.1. Defining the balance of interests of the Moscow Oblast and the Federal centre in development and use of the results of activity of federal organisations of science and technology available on the territory of the Moscow Oblast (economic, social).

Description

The Constitution of the Russian Federation declares that the science sector is the sector of mutual responsibility of the Federal centre and members of the Federation. At present more than 70 % of research organisations are in the public property. A special feature of scientific and technological potential of the Moscow Oblast is that it is concentrated in small cities of the Oblast – so called science cities. The cities' problems have considerably aggravated under the present systemic economic crisis and after the transfer of municipal services and social sector from responsibility of enterprises and research organisations to responsibility of local government bodies.

As preliminary estimations show 5 billion roubles of additional investment would be necessary to provide a development impact to the science and technology complex of the Moscow Oblast. For the own economy of the region its scientific potential is excessive and the territory uses it only partially. However, the Moscow Oblast has not defined its interests (economic, social) which could be satisfied due to presence of the federal enterprises, scientific and educational institutions on its territory. Estimation of the local budgets' losses due to tax privileges existing for research organisations (land, property, profit, VAT etc.) is not conducted neither.

Because of sharp reduction of public contract to research organisations and decentralisation of management, the Federal centre is not effective proprietor of such institutions any more. On the other hand, the regional and municipal administrations have no the reasonable and effective levers of management and can not influence to change the current situation for taking in to account their interests. Historically science cities were created for the solution of concrete State problems. However, the Federal centre, keeping the property right and power has not taken decision yet concerning the destiny of each of these cities, their status and scientific and technological orientation.

The existing practice of signing Agreements on differentiation of authorities and terms of reference between the Federation and the Moscow Oblast neither obligations, nor concrete possibilities, nor functions of each of the parties are fixed. There are no appropriate decisions at the level of the Government of the Russian Federation, including issues of budget funding. The problem of engaging resources can be effectively solved

only if the balance of interests in relations between management bodies of the region, municipalities and the Federal centre is established. Finally this will allow to evaluate the scale of program measures.

Objective:

Increase of the efficiency of using research organisations of the Federal property for the solution of Federal and regional problems.

Measures:

The following measures are to be implemented:

In short-term perspective:

- Establishment of a working group for detailed preparation of Government hearings on "Prospects of development of science cities of the Moscow Oblast" jointly by administrations of the Moscow Oblast, municipal entities applying for the status of a science city, Ministry of Industry, science and technology of the Russian Federation and other interested ministries and departments of the federal level;

In medium-term perspective:

- To formulate proposals concerning the process of elaboration and co-ordination of the budgets of Federation and those of regions in issues of funding public research institutions of "science cities" (including subsidies transfer from the federal budget the way it is done for supporting education, public health services, culture, etc.);
- To elaborate a set of documents or a draft decree of the Government of the Russian Federation fixing the rights, responsibilities, functions and possibilities of each of interested parties.

Main results:

The Decree of the Government of Russian Federation on development of scientific and technological complex of the Moscow Oblast.

The agreement between the Government of the Russian Federation and the Government of the Moscow Oblast.

More complete use of available scientific and technological potential in the interests of the region.

Sources of funding:

The funding is possible from the following sources:

The budgetary funds of the Moscow Oblast and municipal entities;

Resources of the Ministry of industry, science and technology of the Russian Federation.

Field of actions 3.2. Modification of the management system of federal and regional executive power bodies in relation to municipal entities with high concentration of scientific and technological potential.

Description

Under conditions, when research organisations of the Moscow Oblast are subordinated to several ministries and departments management bodies of the Federal centre, the region and municipal entities cannot provide necessary co-ordination in developing city plans and in realisation of programs of actions,

In many respects it is complicated by the fact that formation of public sector of science is not completed yet. The sector is not structured neither by subordination of research organisations based on the priority level of their work (federal, sectoral, regional), nor by territorial distribution (conformity of scientific potential to the needs of regional economy), nor by legal ownership criteria. As a consequence there is no clear determination authoritative, financial and economic responsibilities of the Federal centre and regions in relation to scientific organisations. The procedure of defining priorities and the State needs for research and development are not fixed in legislation. The federal and regional government bodies still attempt to formulate the orders using not economic language.

Objective:

To create an effective system of interrelations between management bodies of the Government of the Moscow Oblast and the Federal centre in solving problems of the Moscow Oblast science cities development.

Measures:

The following measures are to be implemented:

In short-term perspective:

- To conduct inventory of research organisations of the region. To create the regional register of research organisations, having reflected their departmental subordination, territorial location and basic directions of activity.
- To elaborate the regulation "About formation and realisation of the order of the Moscow Oblast Government for development and production of high technology products"

In medium-term perspective:

- Together with the interested ministries and departments to define priority directions of development of scientific and technological complex adequate to priorities of social and economic development of the Moscow Oblast.
- To introduce respective alterations to the tasks and management functions of the Moscow Oblast Government departments responsible for innovation activities in the region.

Main results:

Determination of "borders" of the public science sector of the region. Creation of the "Register of research organisations of the Moscow Oblast".

Establishment of priorities and regulations for formulating the order of the Moscow Oblast in R&D.

Incorporation of administrative resource of the region in the process of creating favourable conditions for development of innovation activities.

Sources of funding:

The funding is possible from the following sources:

The budgetary funds of the Moscow Oblast and municipal entities;

Resources of the Ministry of industry, science and technology of the Russian Federation in the framework of regional projects support.

Field of actions 3.3. Development of partnership between industrial enterprises, research organisations and support infrastructure aimed at creation of regional networks and clusters³.

Description

During transition to a different pattern of economic development the existing mechanisms of interaction and corresponding infrastructure of the planned economy (GosPlan, GosSnab, GKNT, etc.) were abolished as not adequate to new realities. Disintegration of the USSR has led to even lower level of interaction, both between the industrial enterprises, and between science and industry. The subsequent economic recession has aggravated the situation. The new economy, basically defined by a new infrastructure, has not created it yet in the volume necessary for its own development. Besides the top managers of industrial enterprises and research organisations have not understood the need for and possibilities of the market infrastructure (information technologies, consulting, organisational and financial technologies, advertising etc.).

Implementation of cluster approach allows enterprises make part of a network or a cluster, to receive stable partners with whom they establish principles of pricing. The seller's markets become predictable. This in turn allows to plan production, leads to financial stability of a group of enterprises and organisations focused on a certain market segment. Each of these enterprises becomes clear for the investor, i.e. meets conditions of investment attractiveness. Under such conditions administration can expect stability and growth of tax receipts, solution of a problem of employment and creation of new jobs.

A special interest of the regional authorities is a group of enterprises situated on the territory of the region. In this case the effect may be multiplying. If enterprises are located in different regions (often relations of enterprises within the framework of regional associations are supported), then it may be possible to attract resources for supporting enterprises from the neighbouring regions.

Objective:

Assistance in arranging networks and clusters of industrial enterprises and research organisations of the region.

Measures:

The following measures are to be implemented:

In short-term perspective:

- Creation of regional Agency of the subcontract relations and partnership development;
- Development of rules of carrying out tenders for fulfilment of regional contracts, in

³ Network is a group of enterprises and organisations connected by partnership relations. Cluster is a network which includes suppliers, producers, consumers, research institutes and infrastructure elements interconnected in the process of the added value creation. In fact cluster is a network of different enterprises and organisations that are connected by partnership relations along the technological chain from raw material suppliers to consumers. The industrial policy of Netherlands determines cluster as a network of suppliers to an enterprise which makes the nucleus of the cluster.

which priority, with other conditions being equal, is given to applicants representing organisations which are using co-operation within the framework of chains "supplier - manufacturer - infrastructure elements - research institute - distributor - customer" and are interconnected in the process of added value creation. To elaborate the appropriate scheme of their financing;

- Based on the information network to create an Internet site on research projects and programs undergoing in the region. To create the service of the technological brokers;
- To elaborate the regional program on holding seminars and round tables on network and cluster policy for top managers of enterprises and organisations;
- To promote establishment of Association of small innovation enterprises of the Moscow Oblast
- To prepare appropriate documents and to join programs of development and support to business incubators, technoparks, ITC, IPC (Interdepartmental program of innovation activity, Programs of the Ministry of atomic industry, Programs of the Ministry of education);

In medium-term perspective:

- To carry out research with the purpose to understand why efficient enterprises use suppliers and accessory manufacturers located outside the Moscow Oblast;
- On the territories applying for receiving the status of the "Territory of scientific and technological development" (TSTD) to promote establishment of clusters of two types: research organisation and small innovation enterprise around it; industrial enterprise and small and medium size enterprises, research organisations.
- To elaborate the regional program of supporting professional associations (granting premise for assemblies, organisation of clubs, etc.) and chambers of commerce and industry;

Main results:

- Development of subcontract and partnership relations between enterprises and research organisations of the region.
- Providing understanding of network and cluster approach among top managers of enterprises and research organisations.
- Creation of a cluster on territories applying for receiving the status of the "Territory of scientific and technological development".
- Creation of an integrated information network and corresponding institutions rendering information services to enterprises and organisations.
- Co-ordination of the regional Government activities with the activities of the federal executive authority bodies through participation in the federal programs.

Sources of funding:

The funding is possible from the following sources:

The budgetary funds of the Moscow Oblast and municipal entities;

Resources of the Ministry of industry, science and technologies, of the Ministry of education, of other ministries and departments;

International sponsor resources.

Resources of enterprises.

Priority area 4: Creating conditions for attracting direct investments⁴ to the Moscow Oblast.

Field of actions 4.1. Organisational, legal and financial stimulation of inflow of direct investments to the territory of the Moscow Oblast .

Description

Attracting direct investments is a complex problem, solution of which means establishment of favourable conditions for providing practically all aspects for economic actors' operation on the territory. The measures should correspond to the level of competence of the Government of the Moscow Oblast and to be directed to the prompt elimination of barriers for the activities of strategic investors. Among the most important barriers there are such, as absence of the systematised information about the strategic plan and development priorities of the territory, about conditions for production and life in the region, about the warranties and privileges granted to investors.

Objective:

Formation the investments attractive climate in the Moscow Oblast.

Measures:

The following measures are to be implemented:

In short-term perspective:

- Preparation of a register of free industrial and office premises and free construction sites for arranging production and their monitoring with the objective of revealing the inefficient leasers, elaboration of a set of documents for arranging leasing tenders.
- Preparation of a set of documents introducing the order, rules and terms for arranging production in the Oblast. Publishing these materials for instructions;

In medium-term perspective:

- Arranging annual publications of a book about the regional economy state of the art, its development priorities and living conditions with simultaneous creation of an Internet site.
- Further development and adoption of documents on granting (on a competitive basis) tax privileges, warranties and subsidies, in particular, in the field of innovation.
- Arranging special presentations and exhibitions to present the Moscow Oblast abroad.

Main results:

- Creation of new jobs;
- Increase of capital investments to the territory;
- Increase of the number of competitive science intensive enterprises;
- Increase of tax payments to the regional and municipal budgets.

Sources of funding:

⁴ Direct investments – are the investments into equity of a company that give the investor the right to influence the process of management.

The funding is possible from the following sources:

The budgetary funds of the Moscow Oblast and municipal entities;

Resources of the Ministry of industry, science and technologies, of other ministries and departments;

International sponsor resources.

Resources of enterprises.

Field of actions 4.2. Establishment of an infrastructure on attracting and promoting direct investments.

Description

One of the tools for attracting direct investments (including those to innovation business), which is used practically in all countries, are the Agencies for attracting direct investments. The agencies are been established under the initiative of regional administration and/or of federal government bodies. They are financed partly from the regional and/or from the federal budgets. Such agencies may be established on the initiative of a big city. Depending on the volume of their funds, they may have representative offices abroad. The basic tasks for such an Agency include: realisation of the target marketing of the territory, i.e. demonstrating its advantages to investors; monitoring of available free production and office premises, as well as free sites for construction; rendering assistance to investors in arranging their business.

Objective:

To conduct activities for attracting direct investments in accordance with strategic plans and selected priorities of territorial development.

Measures:

The following measures are to be implemented:

In short-term perspective:

- To prepare the business plan for establishing the Agency for attracting direct investments (the non-commercial partnership organisational and legal form is preferable). Along with the Government of the Moscow Oblast founders of the Agency can be: Registration chamber, Tax inspection, branch of the Pension fund and other control and licensing institutions, as well as the Chamber of commerce and industry. The Agency should provide the following services: preparation and holding presentation activities to introduce competitive advantages of the territory, including the advertising materials⁵; assistance to investors in finding free sites and premises; assistance to investors in finding local suppliers and partners for joint ventures; assistance to investors in organising living conditions for their employees (search for housing accommodation, school, etc.); assistance to investors in passing bureaucratic stages for organisation of production and life; organisation of parties and support in arranging negotiations; providing consultation on the local legislation; consulting and processing applications for investment preveleges.
- To prepare the Regional Duma discussion of the issue on financing the Agency from the regional budget.

⁵ It is considered that the main components of a concrete proposal are: property, infrastructure, labour force, business and living conditions, communications, flexibility, prompt execution of the process.

In medium-term perspective:

- To elaborate and to apply a project proposal for training the staff of the Agency to the program TACIS-BISTRO or other international organisations and programs.

Main results:

Creation of an infrastructure for attracting large Russian and foreign strategic investors to the territory of the Moscow Oblast;

Creation of new jobs; increase of the tax levies at the regional and federal levels.

Sources of funding:

The funding is possible from the following sources:

The budgetary funds of the Moscow Oblast and municipal entities;

Resources of the Chamber of commerce and industry;

Resources of enterprises.

Appendix 2

**Diagnostics of the current state
of scientific and industrial complex
of the Moscow Oblast**

**MOSCOW
2001**

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Introduction

The present material is prepared within the framework of the Sub-Programme for the Moscow Oblast of the UNIDO Integrated program for the Russian Federation with the purpose of the substantiation of the basic provisions and directions of implementation of the Strategy of industrial development of the Moscow Oblast based on its scientific and technological potential. Diagnostics of the current state of scientific, technological and industrial sectors of the Moscow Oblast is structured and executed in a way to make recommendations for the use of scientific and technological potential of the Moscow Oblast, concentrated mainly in "science cities" through commercialisation of R&D results with for the purpose of economic development of the region.

The term "science city" refers to urban type entities emerged in various regions of the Russian Federation around one or several research institutes or research and production amalgamations that were under management of federal government bodies. Under centralised management the basic task for science cities was to find solutions of the nation wide scientific and industrial problems. These cities usually had weak economic relations with their regions, as they were financed from the State budget and the employment was concentrated around of scientific organisations.

During transition to the market economy, because of drastic reduction of the budget financing and correspondingly the State contracting, following revision of national priorities in the field of science, technology and industry, the national scientific sector found itself in a very embarrassed position. Scientific potential of science cities, mainly, appeared to be not demanded. The situation was aggravated by that fact that S&T sector organisations were not skilful enough to interact with competitive industries.

Most of science cities of the Russian Federation (28 of almost 60) are situated in the Moscow Oblast. Their total population is 1.3 million, which constitutes 20 percent of the population of the region. Such concentration of scientific and technological potential on the territory of the Moscow Oblast, on the one hand, creates additional problems but on the other hand, is indisputable competitive advantage of the region, i.e. it can serve as a basis for modern science intensive goods and services production development.

1. Basic economic and geographical data

The Moscow Oblast is situated in the centre of the European part of the Russian Federation. It is historically connected culturally and economically with all regions of Russia. The territory of the region constitutes 47.0 thousand square kilometers (including the city of Moscow). The Moscow Oblast has significant industrial, scientific and labour potential.. The region has in its structure - 39 districts, 74 cities, 112 urban type settlements, 474 communes.

The Moscow Oblast is a powerful transport unit. There are 4 Federal airports (including 3 international ones), several airports of interregional and local levels on the territory of the region. The Moscow region is a cross point of 11 main railways and 8 main highways. Waterways - "Moscow - Volga" channel and the navigable rivers Moskva and Oka - connect the Moscow Oblast to ports of the White, Barents, Baltic, Black and Caspian seas.

Basic economic development indicators of the regional, given in the Table 1, show the leading role of industrial production and service sectors.

Table 1. Basic economic development indicators of the Moscow Oblast
(prices of corresponding years)

Indicator	Unit of measurement	Report		Estimation
		1998	1999	2000
Gross regional product	Million roubles	100612,00	156955,00	206634,00
Including:				
Industry		21312,00	40874,00	62574,00
Agriculture and forestry	Million roubles	5025,00	9388,00	12392,00
Construction	Million roubles	8372,00	11820,00	15390,00
Transport	Million roubles	11413,00	12928,00	14608,00
Communications	Million roubles	1269,00	1658,00	2029,00
Trade and catering	Million roubles	11011,00	21361,00	25547,00
Other sectors	Million roubles	22389,00	33583,00	45459,00
*				
Production structure of the gross regional product (% of the total volume)				
* Production of goods	%	34,90	36,40	36,80
* Production of services	%	45,40	47,50	48,40
* Net taxes to products, etc.	%	19,70	16,10	14,80

2. Labour resources

The population of the Moscow Oblast (end of the year 2000) makes more than 6,5 million persons, including 3,3 millions persons of able-bodied population. The employment structure of able-bodied population of the region is given in the Table 2.

Table 2. Labour resources of the Moscow Oblast

Indicator	Unit of measurement	Report		Estimation
		1998	1999	2000
Labour resources	Thousand persons	3295,80	3316,00	3330,00
Number of employed in the regional economy (annual average)-total	Thousand persons	2331,50	2312,00	2352,00
Including:				
Material production	Thousand persons	1382,60	1332,00	1365,00
Including:				
industry	Thousand persons	561,70	550,00	570,00
agriculture and forestry	Thousand persons	143,10	140,00	135,00
construction	Thousand persons	165,20	150,00	150,00
transport	Thousand persons	107,60	110,00	110,00
communications	Thousand persons	26,70	27,00	27,00
trade and catering	Thousand persons	342,60	320,00	336,00
Other sectors	Thousand persons	35,70	35,00	37,00
non-material sectors	Thousand persons	948,90	980,00	987,00
Including:				
education	Thousand persons	204,95	205,00	205,00
Science and science service	Thousand persons	142,80	140,00	141,00
Unemployed (calculated following ILO methodology)	Thousand persons	319,05	374,16	380,00
Including number of registered unemployed	Thousand persons	70,70	62,50	45,00

The analysis of the data shows, that the Moscow Oblast has high-quality labour resources. About 27 % of the able-bodied population work in industry, education and science sectors of the region. However, it should be noted, that about 30 % (almost 1 million persons) work at enterprises and in organisations of Moscow.

3. Assessments of industrial capacities

The Moscow Oblast is a highly developed industrial region. Industry plays the leading role in the regional economy. The Moscow Oblast takes the 9-th position in the Russian Federation by the volume of industrial production. Industry takes almost 45 % in the structure of manufactured regional product, while enterprises of chemical and petrochemical industry take the greatest part of the regional export deliveries.

The sectoral structure (see. Table 3) of industrial production of the Moscow Oblast is characterised by large shares of mechanical engineering and metal working (36 %), light industry (12 %), chemical industry (8 %). The share of food-processing industry makes only 10 % of the total volume of industrial production.

Table 3. Structure of industrial production (including services) of the Moscow Oblast (calculated by wholesale prices of enterprises, excluding VAT and excise), %

Sector of industry	Report		Estimation
	1998	1999	2000
Electric power industry	11,33	9	7,9
Fuel industry	0,14	0,16	0,17
Ferrous metal industry	7,12	6,58	6,29
Non-ferrous metal industry	3,14	5,38	6,83
Chemical and petrochemical industry	7,27	7,56	7,21
Machine building and metal working	30,13	32,08	33,47
Construction materials industry	7,5	7,45	7,45
Forestry, wood-processing and pulp industry	4,44	4,48	4,09
Light industry	6,5	6,62	6,34
Food-processing industry, including flour-grinding	16,92	15,03	14,63
Microbiological industry	0,05	0,06	0,05
Medical industry	3,85	4,12	4,12
Other branches	1,61	1,5	1,43

Often enterprises of the Moscow Oblast are the largest in the Russian Federation, and in a number of cases, they are the only manufacturers of diesel locomotives, metro cars, electric trains, buses and other products. The main machine-building enterprises include: the Kolomna plants of diesel locomotives and heavy machine-tool construction, the Mytishchi "Metrovagonmach", the Podolsk machine-building and electromechanical factories, the Liubertsy factory of agricultural machines, the Likino-Dulevo bus factory, etc.

The Podolsk machine-building factory not only have resisted under weight of taxes and conversion, but expanded its production. Among its main products are boilers and equipment for power stations, but simultaneously production of electrodes, metal tile, equipment for saunas and boiler for individual houses able to use 5 different kinds of fuel have been started. The factory has European and American certificates and it is ready to accept contracts from any country.

The chemical industry constitutes an important share in the structure of industrial production of the Moscow Oblast (8 %). The leading enterprises are: the Voskresensk Production Association "Minudobrenia" ("Fertiliser") (uses exported mineral raw materials), the Klin and Mytishchi industrial associations "Chimvolokno" (Chemical Fiber"), the Zagorsk paint factory, as well as enterprises in Shchelkovo and Orekhovo-Zuevo. Some chemical industry enterprises of the Moscow Oblast have managed to find their niche in the market economy. Therefore production of synthetic pitches and plastics from January till August 1997 compared to the same period of the previous year has increased by 24,4 %, and the increase in JSC "Stroyplastmass" ("Construction Plastics", Mytishchi) was equal to 65,1 %. The JSC "Agrochim" (city of Shchelkovo) has increased production of chemicals plants protection by three times.

Despite of unfavourable economic situation (all products have been shipped but not paid) some enterprises have managed to save the industrial specificity and to receive profit, including the Kriukovo Fan Producing factory, the Chekhov "Energomash", the Mytishchi "Metrovagonmach", etc. Some enterprises have mastered production of new goods and have found their niche in the consumer market.

The basic condition for stable a economic development is the inter-branch co-operation in the region. It allows to create additional jobs and to contract regional enterprises which keeps money in the region and provides tax payments to the regional budget

4. Small and medium size business.

In 1997 there were 31081 small enterprises registered in the Moscow Oblast. Compared to the year 1996 the number of small enterprises has increased by more than 5 %. The SMEs' industrial output in 1997 (in the prices of 1998) was equal to 12.08 billion roubles and in 1998 it reached 13.3 billion roubles. Payments to budgets of all levels were about 1.9 billion roubles. SMEs in trade and catering take the leading position in small business sector of the Moscow Oblast (38.7 % of the total number of SMEs). Industrial sector SMEs take 20.5 % of the total number and those in construction – 16.7 %. The share of small enterprises of construction sector in the Moscow Oblast corresponds to the average level of those in Russia. Compared to the sectoral structure of small business in the Russian Federation as a whole (data of 01.07.97), the Moscow Oblast has the higher share of industrial SMEs (5 %) and SMEs in science and scientific services sector (3 %). The share of small enterprises in trade and public catering is lower than in other regions (on 4.8 %). The total number of the staff SMEs of the Moscow Oblast in 1997 was about 204157 persons, including 163800 full time employed persons, which makes 10,2 % of the total number of persons employed in the in the region (1,9 % growth compared to the previous year). In 1998 the increase of the number employed in small business was about 4-5 %.

The sectoral structure of employment in the SMEs of industry and construction of the Oblast in general corresponds to that of the Russian Federation as a whole. The share of employed at small enterprises of trade and public catering, science and scientific service in the Moscow Oblast has exceeded that of the Russian Federation (by 3 and 2 percents correspondingly).

More than one third of the total production volume of all small enterprises of the Moscow Oblast was provided by small enterprises of trade and public catering sector. The shares of main material production sectors, industry and construction, were equal to 22,7 % and 25,3 % correspondingly. In 1997 the share of SMEs production volume in the total commercial production volume of all enterprises was 7,9 %, which shows 1,1 % growth compared to the figure of 1996.

Table 4. Small business in the Moscow area

Indicator	Unit of measurement	Report		Estimation
		1998	1999	2000
Total number of SMEs by 31 December	Pcs.	31250,00	34200,00	36430,00
Including by sectors:				
Industry	Pcs.	6656,00	6780,00	7300,00
Construction	Pcs.	4960,00	4930,00	5200,00
Trade and public catering	Pcs.	12544,00	14040,00	14300,00
Average total number of employed (excluding part time workers)	Thousand persons	196,80	217,90	235,50
Including by sectors:				
Industry	Thousand persons	52,60	62,20	71,60
Construction	Thousand persons	46,10	41,10	46,10
Trade and public catering	Thousand persons	59,00	63,00	65,40
Average number of part time employed persons	Thousand persons	19,20	18,50	19,50
Including by sectors:				
Industry	Thousand persons	5,27	5,30	5,40
Construction	Thousand persons	4,10	3,30	3,60
Trade and public catering	Thousand persons	4,50	4,30	4,60
Production of goods and services in all sectors (excluding VAT and excise), prices of corresponding years	Million roubles.	14300,00	29800,00	35200,00
Including by sectors:				
Industry	Million roubles.	3755,00	8900,00	10400,00
Construction	Million roubles.	3320,00	7400,00	8500,00
Trade and public catering	Million roubles.	3898,00	5470,00	6400,00
Volume of SMEs investments - total	Million roubles.	685,00	1476,00	1700,00
Including by sectors:				
Industry	Million roubles.	238,00	680,00	760,00
Construction	Million roubles.	256,00	528,00	670,00
Trade and public catering	Million roubles.	34,00	56,00	90,00

However, it is necessary to note, that the number of small enterprises per 1000 inhabitants in the Moscow Oblast (in 1997 it was 4,3) below the average figure of Russia and Central Region and is much lower, than in Moscow and St.-Petersburg. In the Central Region Moscow is the leader in the number of small enterprises (about 60 % of the total number of SMEs of the Central Region), and the Moscow Oblast has only 14,4 % of the total number of SMEs of the Central Region.

The basic problems of small enterprises in the Moscow Oblast generally are the same as in Russia as a whole:

- Absence of start up capital and knowledge for successful start of business;
- Large and unstable taxes;
- Lack of working capital;
- Lack of development resources;
- Difficulties in receiving industrial premises and equipment;
- Legislative and administrative barriers, including regulatory acts that do not ensure normal conditions for economic activities;
- Absence of business information;
- Criminal pressure;
- Absence of reliable legal warranties on the part of State Agencies.

These problems were mentioned by more than 50 percents of interviewed businessmen.

During 1999 - 2000 the Moscow Oblast Administration was carrying out "The State program of the Moscow Oblast of small business support and development". The main purpose of the Program was the creation of favourable conditions for developing existing and creating new SMEs. The Program tasks included:

- Bringing the number of small enterprises in trade and public catering up to the average level in the Russian Federation;
- Increasing the number of small enterprises in production of construction materials and in construction up by 3 % compared to the level of 1997;
- Increasing the number of employed in SME sector by 4-5 %;
- Increasing small business tax payments to the budgets of all levels by 50-70 million roubles per year.

5. Assessments of scientific and technological complex

There is a powerful scientific and technological complex on the territory of the Moscow Oblast. Its nucleus is mainly concentrated in cities and settlements with high concentration of research, design and research-and-production organisations. The number of such municipal entities (science cities) on the territory of the Moscow Oblast is 28 which makes almost the half all science cities of the country.

Economic crisis in the Russian Federation has considerably aggravated situation in science cities. General reduction of the science sector budget funding has caused reduction research in priority areas in scientific organisations of science cities. This in its turn has entailed reduction of the staff of researchers, reduction of living standards, growth of unemployment and brain drain abroad. As a result the role of science cities as centres of excellence is being lost and unique potential is being destroyed. All this has brought to worse conditions of investment and innovation policy implementation both at federal and regional levels.

At the same time, many science cities still save significant scientific and technological capacities accumulated in previous years. The most strong feature of science cities of the Moscow Oblast is availability of highly professional both of researchers and technical personnel: the engineers, technicians, workers. Practically all science cities of the Moscow Oblast has valid results for innovation, technological solutions and technologies. Most of scientific organisations have stable relationships with foreign partners.

Many of them have quite good basic infrastructure (transport, telecommunications, municipal services). Practically in every science city there is understanding and readiness of administration to increase efforts for stronger co-operation with domestic industry to insure high tech development. Such municipal property resources as buildings and other facilities are available in most of science cities.

There are some weak features of science cities, that include:

- Low level of mutual understanding and interaction between main actors (administration, scientific organisations, industrial enterprises of various types of property);
- Low level of business culture among top managers of scientific and industrial organisations;
- Low level of support infrastructure development (marketing, consulting, training, information support, advertising services, etc.), lack of professional staff in these areas;
- Inaccessibility of financial sources to fund investment projects.

Besides this, science cities of the Moscow Oblast have many internal and external problems.

Among internal problems of the most of science cities the following should be mentioned:

- Absence of the strategic plans of socio-economic development of science cities, based on real resources;
- Weakness of financial resources for implementation of city development projects (for example, those for infrastructure development);
- Shortage of professional staff;
- Insufficient information supply for decision making.

Among main external problems there are the following ones:

- Insufficient and sometimes contradictory legislation (those of federal and regional levels);
- High risks in Russia for direct foreign investments.

There is rather limited number of analytical materials and studies on the Moscow Oblast science cities' problems. Among available ones, first of all, survey materials of the project carried out in 1999 in the framework of the Moscow Oblast component of the UNIDO Integrated Program for the Russian Federation industrial sector development support (cities of Dubna, Korolev, Pushchino, Protvino, Troizk, Serpukhov) should be mentioned. Besides, there are materials on cities of Troizk and Reutov of the project TACIS FINRUS 9804, which is being implemented under the aegis of the Ministry of Industry, Science and Technology of the Russian Federation.

5.1. Assessments of strategies and policies of the federal and regional levels aimed at overcoming existing problems

At present preservation and development of science cities is considered as an important component of the State science and technology policy, which has the following main provisions:

- science cities should turn into centres of creating new knowledge and new technologies, they should become to become a kind of transfer centres to insure use of new technologies in all sectors of national economy;

- The mechanism insuring sustainable development of science cities should be developed and introduced;
- Science cities development plans should be elaborated on individual approach based on the program of social and economic development.

The Moscow Oblast policy concerning S&T potential is formulated in the Law of the Moscow Oblast "About research activities and scientific and technological policy of the Moscow Oblast", adopted on May 28, 1999. It should be noted, that this law has not been elaborated well enough. It is mainly of declarative character and it is difficult to use it for concrete management and stimulation of research activities in organisations situated on the territory of the region in the interests of the Moscow Oblast.

Another important step in the direction of settling relations concerning science and technology sector in the framework of federal scientific, technological and industrial policy is the Agreement between the Ministry of Industry, Science and Technology of the Russian Federation and the Government of the Moscow Oblast on co-operation in industrial, scientific, technological and innovation sectors, which was signed on November 11, 2000. The Agreement establishes basic guidelines and areas of interaction of federal and regional bodies for regulating, developing and carrying out structural transformations in scientific and technological sector of the Moscow Oblast.

The industrially developed countries' experience shows, that the most effective directions of industrial development insuring utilisation of scientific achievements is active support of high technology small and medium size innovative firms. A special role in these efforts belongs to the regional programs of supporting small innovative and high tech businesses providing solution of the following problems:

- Attraction of investments to innovation projects in the most perspective areas;
- Establishment of efficient investment mechanisms, including guarantees for investors;
- Ensuring entry to external markets with competitive high tech products;
- Development of innovation infrastructure, including: creation of databases, systems of examination and certification of high tech products, training of personnel for science intensive business, development of telecommunication networks, assistance in international co-operation, legislative support to small innovation business.

There is some experience in this direction in the Russian Federation, for example, in the city of Moscow:

- 1) The Law "About the guidelines of small business in Moscow " has been adopted. In this low high tech production and information services have been included in priority areas;
- 2) Appropriations for SMEs development (0.5 % of the city budget) is established;
- 3) A leasing company which provides equipment for SMEs active in priority areas is established. This company is leasing equipment on the basis 3-4 years credit which is supported by the budget donations.
- 4) The City Fund for SMEs support has been granted uninhabited premises, including those not used by large enterprises, to be leased to SMEs on favourable terms;
- 5) The compulsory certification of SMEs' products and a special scheme of SMEs registration were introduced;
- 6) A mortgage Fund to guarantee credits to SMEs is being established;
- 7) It is foreseeing to use the same rules of registration for SMEs with foreign investments as for domestic ones (including the analogous set of documents);
- 8) Agencies of information and consultation services has been established with participation of international organisations, funds and banks (including the UNIDO assistance in establishing the Agency of Subcontracting and Partnership).

5.2. Assessments of needs and requirements of industrial enterprises for scientific and technical services (information, technologies, consulting etc.)

Experience shows, that now in Russia all industrial enterprises (both small, and large) have approximately identical needs for scientific and technological services. The most required are information and marketing services, first of all searching for customers and subcontractors. According to the results of a study carried out by the Russian Institute of Economics, Policy and Law in science and technology in the city of Obninsk, 50 % of questioned small enterprises agree to pay for such a service. On the second place is assistance in certification and standardisation of products and services - 44,4 %. On the third place is information supply concerning market, competitors and potential customers - 42,8 %.

More than 25 % of respondents were ready to pay for such services, as: computer networks and INTERNET; publishing and advertising; supplying information about new technologies; consulting on economic and tax legislation; preparation of patent and trade-marks certificate applications; organising exhibitions, presentations, business meetings; assistance in receiving licenses; search for personnel; search for patents; training; accounting..

Taking into consideration the above stated, the Moscow Oblast needs to create a support infrastructure for science intensive industrial development, the services of which could be used both research and industrial enterprises of the region. Part of such infrastructure is already available in separate cities (ECOBIO-TECHNOPARK in Pushchino, Science and technology park "Dubna", Business information agency "Podmoskovie", International university "Dubna", Technopark in Protvino, etc.).

At the same time, the analysis shows that simple association of existing elements will not be sufficient. Professional level of available personnel is rather low for decision making on many practical problems. Therefore, at the initial stage the main attention should be given to preparation of highly professional personnel for consulting and management of innovation projects and programs.

5.3. Assessments of existing partnership relations of science cities

Historically main partners of scientific organisations of science cities were and to certain extent still are federal ministries and departments, i.e. the Government, funding basic research and partially applied research and development. During recent years the volume of the State contract tends to reduction. For this reason many research organisations are losing the qualified personnel, become less attractive for young people and cannot develop main assets. Thus the level of research is decreasing and position of these organisations on "the market of knowledge " becomes weaker. This process is partly limited by international projects and programs, which are not always positive for Russia.

At present Russian industry has not become yet the strategic partner for science cities for the following reasons:

- Despite of industrial production growth, which started after August 1998 and understanding of the need to increase products' competitiveness at domestic market, most of enterprises do not have capitals to finance scientific research and technological development;
- Earlier research organisations were developing new technologies without concrete binding to a sector, territory or enterprise and now they do not have close relations connections with industry;
- Industrial enterprises, in their turn, very often have no information about technological developments of Russian research organisations.

For similar reasons either enterprises, nor science cities have stable relationships with organisations and associations of support infrastructure that provide services in the field of marketing, consulting, advertising, etc.

Since science intensive industrial development has not been declared as strategic priority of the Moscow Oblast economic development, one cannot say that there are stable partnership relations between science cities and municipalities.

Taking into account the above stated, the following organisations should become basic partners of science cities research organisations for the near future:

- Small and medium size firms that use their technological developments and personnel;
- Joint ventures with participation of foreign investors aimed at high tech production in Russia.

With such an approach the main counterparts of the Moscow Oblast Government in realisation of science intensive industrial development policy could become: Ministry of Industry, Science and Technologies of the Russian Federation; Ministry of Economic Development and Trade of the Russian Federation; the Russian Fund of Support Small Innovative Enterprises; UNIDO (with its experience of arranging subcontract relations); European Bank for Reconstruction and Development (with its venture funds for Russia); the UN Development Program (with its experience of work in science cities); Eurasia fund (with its program of support innovative infrastructure); other foreign funds; foreign firms interested in using Russian technologies and in coming to the Russian market.

5.4. Review of the technical assistance, provided to science cities, aimed at commercialisation of R&D results

The technical assistance received by science cities can be divided into three components. Firstly, it is assistance from federal and regional government bodies, secondly, assistance from international organisations, and thirdly, assistance from support infrastructure institutions (technoparks, consulting firms, etc.).

Assistance from federal and regional government bodies includes mainly establishment of legislative frameworks and adoption of various support programs. Legislative frameworks of federal and regional levels include laws of the Russian Federation (for example, the Law on a science city status, the Law on science and scientific and technological policy, etc.), laws of the Moscow Oblast (for example, the Law on research activities and scientific and technological policy of the Moscow Oblast), public budget and non-budget funds, programs of federal ministries and departments (Ministry of Industry, Science and Technology, Ministry of Education, others), programs of the Moscow Oblast ("The Program of small business support", the Program "Science and industry – for public health of the Moscow Oblast", etc.), as well as target activities aimed at supporting research organisations of the Moscow Oblast in commercialising results of scientific research (exhibition "Science cities of Russia – breakthrough to the third millennium").

5.5. Review of successful cases of commercialisation of R&D results

Despite of significant economic difficulties many research results of science cities' researchers of the

Moscow Oblast were successfully realised in concrete products that have received appraisal not only in the country but also abroad. However it should be mentioned that more often these are only working models or industrial samples in a single or small-scale variant. Cases of complex commercialisation of research results, that is large scale high tech production on their basis, for national or international markets are not numerous. Nevertheless, one can note many developments of the Moscow Oblast scientists successfully introduced in production.

Within the framework of conversion research in the area of ecology on the basis of earlier created nitrogen and carbon oxides neutraliser, a unique system of decomposition toxic materials, including any military poisonous substances is created in the Research Institute of Machine Building (city of Korolev). This installation has been granted the first award at an international competition of similar systems.

An original artificial knee joint which was awarded gold medal at an International exhibition "Eurika" in Bruxelles was created in the Research-and-Production Amalgamation "Composite" (city of Korolev).

The research-and-production centre "Aspect" was created in Dubna in 1991. In 1992 "Aspect" (at that time it was employing 12 persons and today only in Dubna it employs 600 persons) has entered the Russian market with a typical for science oriented sector product - spectrometers. Already in 1995 the Centre has won the tender of the State Customs Committee of Russia for elaboration of a control system to be used in the custom-houses and airports of the country and to prevent non-authorised transportation of radioactive materials across borders. As a result a stationary customs control system "Amber" was elaborated. The highest quality of this installation has been confirmed by the certificate issued by the Los Alamos National Nuclear Centre of USA: the Russian equipment has appeared to be better than the American analogues. Today such systems are being installed in all Russian international airports and seaports, at railway and automobile border crosses, in temporary customs terminals of Russia.

One can find many examples of commercialisation of the research results of scientists working in science cities of the Moscow Oblast. But it should be noted, that more often those results are used in small scale production in the framework of contracts for public enterprises and organisations, and not aimed at large consumer markets. There are many reasons for such a situation. Mainly, they are the following:

- Absence of investment resources and mechanisms of transfer of research results to production;
- Difficulties (basically financial) of patenting;
- Lack of legislation allowing scientist to establish SMEs for implementation of their results without leaving the research organisation.
- Lack of small innovative business support programs (both federal and regional ones);
- Backwardness of support infrastructure.

5.6. Some international experience of science intensive development, which could be used in the Moscow Oblast

It should be noted that there is no world experience, which could be transferred to Russia and used for social and economic development of science cities under conditions of the market economy. Nevertheless, the world practice knows examples and experience of successful transfer of scientific research results into production, there is experience of legislative stimulation of high tech production, there is experience of development of support infrastructure and regional programs for small innovative business.

In particular, the UNIDO experience in establishing the International Network of Subcontracting and Partnership Agencies, which create the interface of interaction between industrial enterprises and research organisations should be mentioned.

Within the framework of the above mentioned project TACIS FINRUS-9804 some pilot sub - projects for commercialisation of research results in two science cities of the Moscow Oblast (Reutov and Troizk) are to be carried out.

Certain experience of foreign countries (Germany, Great Britain, France) in elaboration and realisation of regional small innovative business support programs deserves attention and consideration.

6. SWOT analysis

The following four areas were selected for SWOT analysis:

1. Basic infrastructure, industry and development of business
2. Science and technology capacity.
3. Labour resources.
4. Support infrastructure.

6.1. Basic infrastructure, industry and development of business

Strengths	Weaknesses
<ul style="list-style-type: none"> • Highly developed (most advanced in country) transport infrastructure; • Good transport communication with all regions and foreign countries; • Direct affinity of the largest megapolis; • Availability of free territories for development; • Availability of water resources; • Strong industrial traditions; • Strong export orientation of the regional enterprises; • Wide experience of foreign investments; • Availability of industrial facilities; • Attractive natural conditions and cultural monuments; 	<ul style="list-style-type: none"> • Prevailing of a large megapolis; • Prevailing of production with low added value; • Shortage of investment resources and starting capital; • Insufficient number of SMEs, especially in the area of high technologies; • Poor situation at many large enterprises;; • Weak industrial services sector; • Weak sector of tourism; • Low level of telecommunication services; • Image of the region, suffering from the neighbouring megapolis;
Opportunities	Threats
<ul style="list-style-type: none"> • Small innovative business development; • Development of services sector on the basis of advanced transport infrastructure; • Engaging technical assistance of international organisations; • Engaging foreign investors; • Development of the tourism sector; • Raising prestige and image of the region; 	<ul style="list-style-type: none"> • Stagnation of inflow of the foreign capital; • Decrease of the level of industrial production; • Environment pollution with the waste materials of the megapolis; • Ruin of major enterprises; • Removal of the industry management structures from the region to megapolis;

6.2. Science and technology capacity.

Strengths	Weaknesses
<ul style="list-style-type: none"> powerful science and technology capacity; 	<ul style="list-style-type: none"> Orientation of many research organisations towards basic research; Low level of innovation activity; Absence of regional programs of innovative and science intensive development; Orientation of science cities to federal level; Lack of partnership relations between industry and research;
Opportunities	Threats
<ul style="list-style-type: none"> To focus science and technology potential to the needs of the region; Elaboration and realisation of regional programs of support of small innovative business; Engaging the qualified personnel to the innovative sector of the region; 	<ul style="list-style-type: none"> Reduction of technological level of the industrial base of the region; Stagnation of production with the high added value; Stagnation of the taxable base;

6.3. Labour resources

Strengths	Weaknesses
<ul style="list-style-type: none"> High educational level; Available labour resources; Good training conditions; 	<ul style="list-style-type: none"> Influence of megapolis on the cost of labour resources; Low mobility of labour resources within the region; Rather high level of unemployment; Low recreational opportunities;
Opportunities	Threats
<ul style="list-style-type: none"> Creation of new jobs; Creation of training and advanced training system adapted for the needs of the region; Engagement of qualified personnel from the megapolis; 	<ul style="list-style-type: none"> Outflow of qualified personnel to megapolis; Increase of unemployment; Business passivity of population;

6.4. Support infrastructure

Strengths	Weaknesses
<ul style="list-style-type: none"> Well developed advanced transport system, including the public transport; Availability of power and water resources; Availability of labour resources of high qualification; Availability of international airports; 	<ul style="list-style-type: none"> Low level of telecommunication services within the limits of region; Lack of financial resources; Shortages of regional policy aimed at high tech development; Low level of sector of services for small and medium business; Water pollution with the waste materials of megapolis; Land pollution with the waste materials of megapolis;

Opportunities	Threats
<ul style="list-style-type: none">• Development of telecommunication facilities through all territory of the region;• To solve the question of participation of megapolis in reclamation of land and water resources;• Providing regional incentives for investments in support infrastructure;• Establishment and development of the regional information system for support of innovative industrial development;	<ul style="list-style-type: none">• Lagging in technological development;• Growth of ecological problems;• Loss the regional market of innovation services;

Conclusions

Diagnostics of situation in science and technology and industrial complexes of the Moscow Oblast, in the sector of small business, the state of the basic and innovative business support infrastructures reveal not only certain difficulties on the way of high tech development of industrial production on the territory of the Moscow Oblast but also on perspective opportunities and serious advantages of the Moscow Oblast in comparison with other regions.

Presumably solutions of many problems connected with the use of scientific and technological potential of the Moscow Oblast for the purposes of developing high tech industrial sectors as well as for development of modern high added value productions on its territory could be found through implementation of complex measures in the following directions:

- Use of the federal property (organisations of science and technology complex concentrated in science cities) for the purposes of insuring science intensive industrial development of the Moscow Oblast;
- Providing co-ordination between federal, regional and municipal government bodies on interacting with the science and technology potential of the Moscow Oblast;
- Creating conditions for development of partnership relations between industrial enterprises and research organisations of the Moscow Oblast;
- Engaging available science and technology potential in economic activities of the Moscow Oblast, especially in the sector of small innovative business;
- Development of business culture and training managers of all levels;
- Creation favourable conditions for attracting direct investments to the Moscow Oblast.