

Information Exchange in Science and Technology between the
European Research Area and Eastern
European/ Central Asian Countries



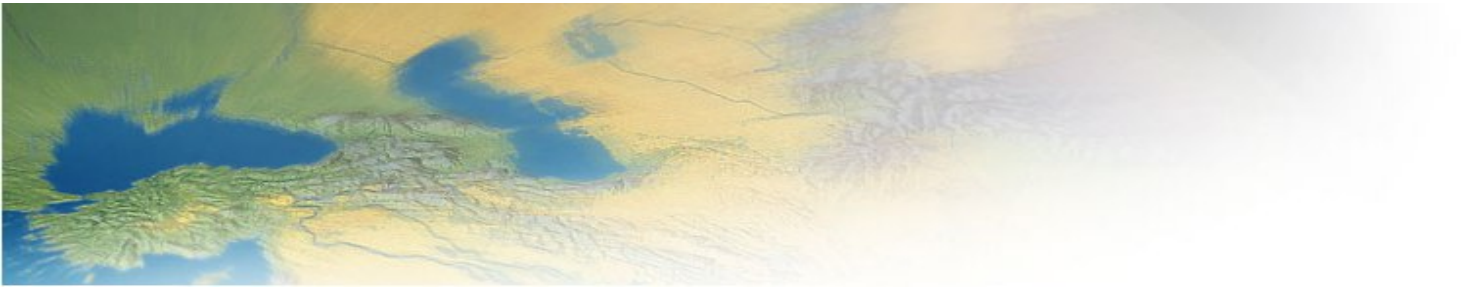
BELARUS

Country Report

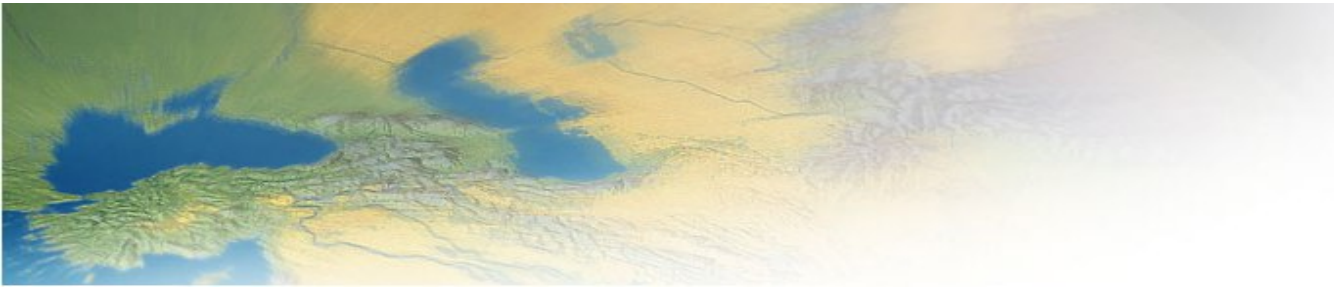
(last updated 20 July 2010, source: BellISA)

IncoNet EECA



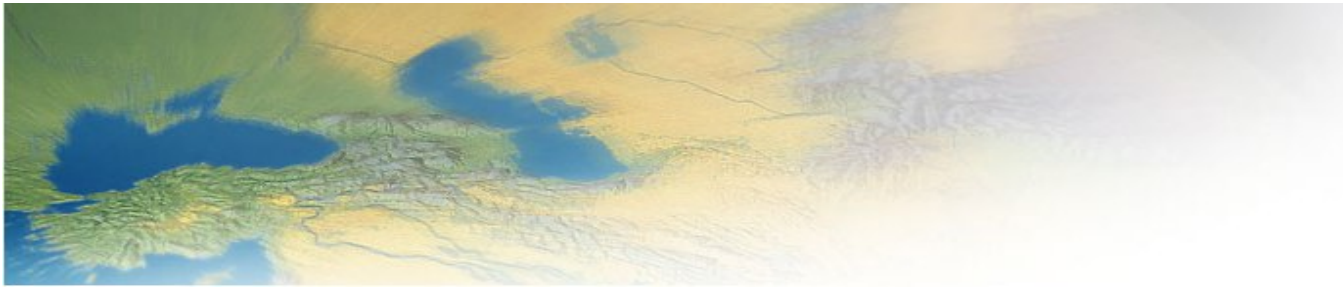


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General information about Belarus:

Official name of the country	Republic of Belarus (Belarus)
Population	9.689 mln. As of January 2009 (5 th in the EECA region)
Area	207.6 thous. sq. km (13 th in Europe and 6 th among the EECA countries)
Capital	Minsk
System of Government	Presidential republic. President of the Republic of Belarus is the head of the state and guarantor of the Constitution.
Head of Government	Sergey Sydorsky, Prime-Minister
Minister for Science & Technology:	Prof. Igor Voytov (Chairman of the State Committee for Science and Technology)
Parliament	Belarusian Parliament - the National Assembly - is the representative and legislative body consisting of two Chambers, the Chamber of Representatives and the Council of the Republic
Administrative structure	Belarus consists of 6 regions which include 118 administrative districts and the City of Minsk. The regions are named after their capital cities - Brest, Vitebsk, Gomel, Grodno, Minsk and Mogilev.
Geography	Belarus is located in Eastern Europe. In the West it shares borders with Poland, in the North-west - Lithuania, in the North - Latvia, in the North-East and East - Russia, in the South - Ukraine. The territory of Belarus is crossed by several European transport corridors providing the shortest communication routes from central and eastern districts of Russia to Western European countries, as well as between the Baltic and Black seas.



Research structure

Research indicators

Domestic expenditures on R&D	962,4 bln rubles (307 mln EUR)
Domestic expenditures on R&D as % of GDP	0.75
Number of R&D personnel, thousand	31.5
Number of R&D personnel/10 thousand population	32
Number of R&D personnel/10 thousand manpower	69
Number of researchers, thousand	18.5
Number of highly qualified workers as % of the number of researchers	21

Source: SCIENCE, INNOVATION AND TECHNOLOGY IN THE REPUBLIC OF BELARUS – 2008. Statistical book, State Committee on Science and Technology, Ministry of Statistics and Analysis of Belarus, 2009

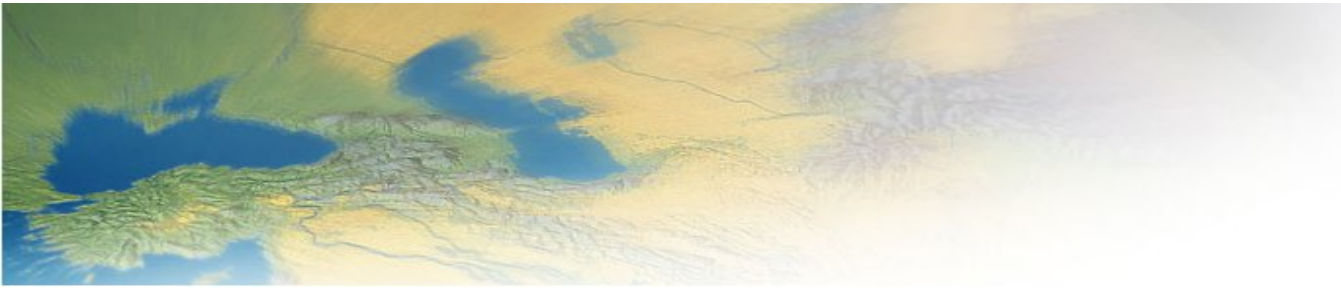
The total number of R&D personnel is 31.5 thousand (69/10 thous. of employed in the economy and 32/10 thous. of population) including 18.5 thous. researchers of which 8,1 thous. (or 44%) women (2008). The share of the researchers with academic degrees - candidates of sciences (equivalent to PhD in the qualification system used in the USSR), and also doctors of science - in the total number of researchers is 21 % (2008).

Distribution of researchers by the areas of economy looks as follows (2006):

- industry - 7.03 researchers/1 thousand manpower;
- agriculture - 0.79;
- construction - 1.86;
- transport - 1.96;
- communication - 3.68;
- public health and social services - 4.6.

In 2008, the highest quantity of research staff of higher qualification is engaged in natural sciences and also in engineering and technology, while the largest share of highly qualified researchers is typical for humanities (56%), medicine (42%), natural and agricultural sciences (38% in each).

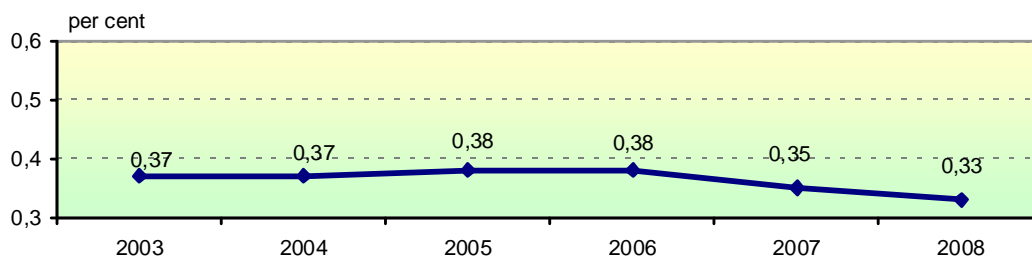
Distribution of R&D staff within the country is irregular: the highest concentration is in Minsk City - 131 persons engaged in R&D/1 thous. population, followed by Gomel region – 21 and Minsk region - 13 (2008).



In 2008, research was carried out in 329 organizations of which 88% were state owned and 12% - private. Since 2003, the number of private R&D organizations has increased from 28 to 38.

In Belarus, expenditures on R&D are at the level of 0.75% GDP. The state budget bears the basic burden of R&D financing. Thus, in 2008, its share made 53.1% (0.33% of GDP). In Minsk City and Minsk region it's even higher – 64.5% and 70.3% accordingly.

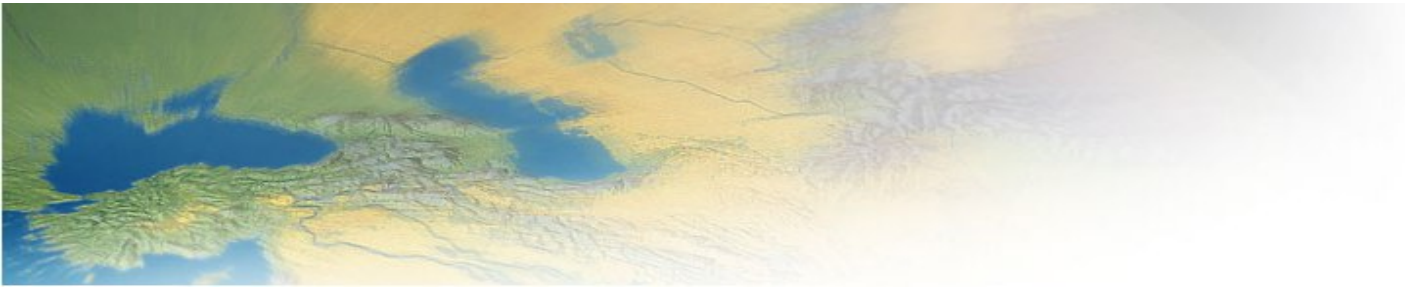
SHARE OF REPUBLICAN BUDGET APPROPRIATIONS FOR SCIENCE IN GROSS DOMESTIC PRODUCT



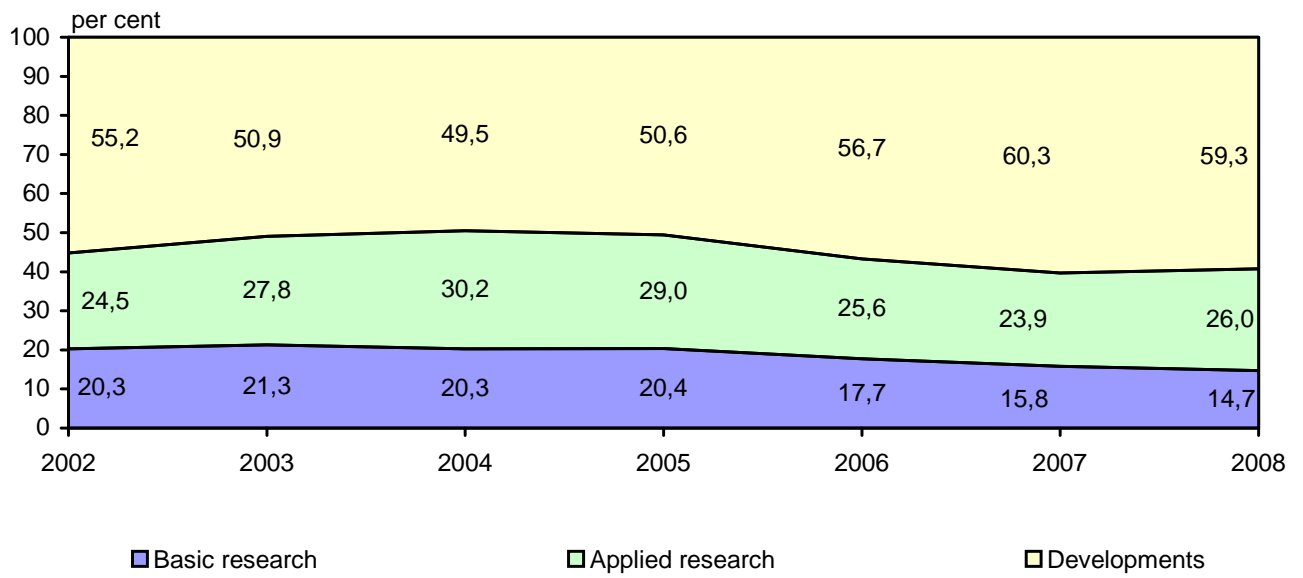
Source: SCIENCE, INNOVATION AND TECHNOLOGY IN THE REPUBLIC OF BELARUS – 2008. Statistical book, State Committee on Science and Technology, Ministry of Statistics and Analysis of Belarus, 2009

Among the other sources of financing the following key ones could be mentioned: own funds of research organizations – 27.4%, business enterprise sector - 12.8%, foreign sources - 5.5%, and also non-budget funds – 1.1%.

Comparing to 2007, an increase of 0.2% has been demonstrated by the share of budget expenditures for R&D in the total budget expenditures though, in general, over the last decade this index has decreased from 2.8 to 2.2%.

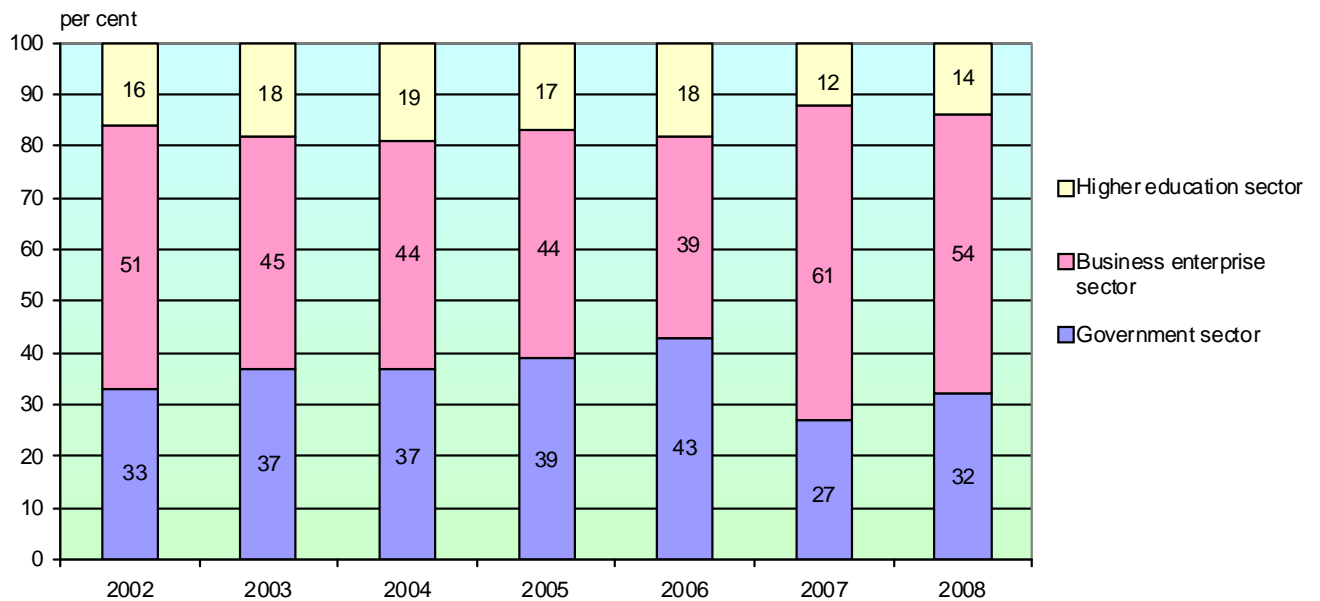


STRUCTURE OF CURRENT DOMESTIC EXPENDITURE ON RESEARCH AND DEVELOPMENT, BY TYPE OF ACTIVITY

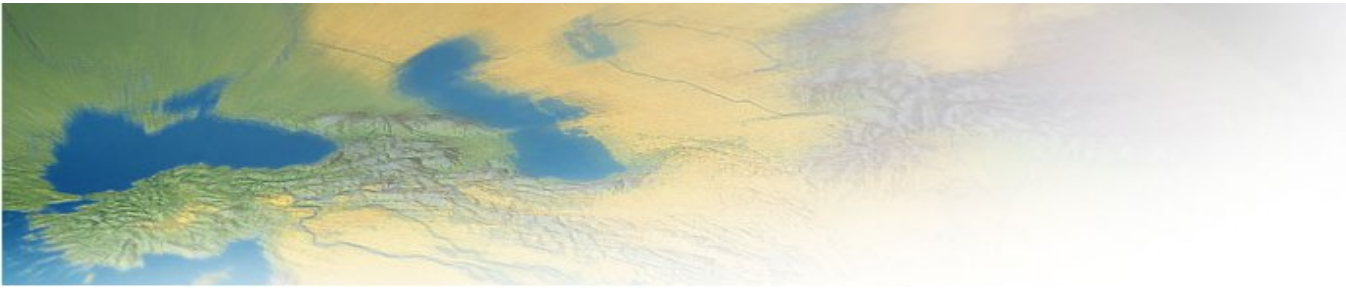


Source: SCIENCE, INNOVATION AND TECHNOLOGY IN THE REPUBLIC OF BELARUS – 2008. Statistical book, State Committee on Science and Technology, Ministry of Statistics and Analysis of Belarus, 2009

DOMESTIC EXPENDITURE ON RESEARCH AND DEVELOPMENT, BY SECTOR OF PERFORMANCE



Source: SCIENCE, INNOVATION AND TECHNOLOGY IN THE REPUBLIC OF BELARUS – 2008. Statistical book, State Committee on Science and Technology, Ministry of Statistics and Analysis of Belarus, 2009



Research performers

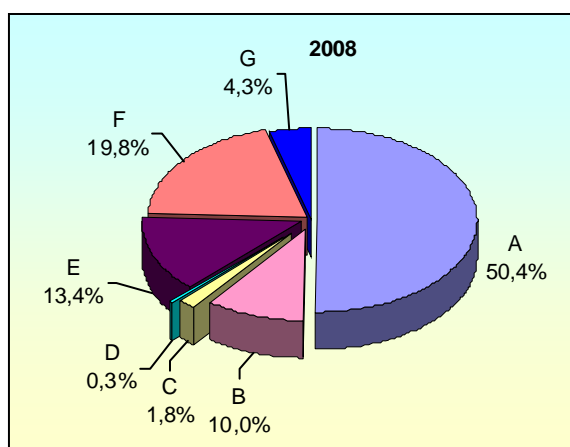
ORGANIZATIONS ENGAGED IN RESEARCH AND DEVELOPMENT, BY SECTOR OF PERFORMANCE

	Number of organizations					
	2003	2004	2005	2006	2007	2008
Total	295	295	322	338	340	329
of which						
government sector	122	120	122	139	131	127
business enterprise sector	122	121	144	142	146	140
higher education sector	51	54	56	57	63	62

Source: SCIENCE, INNOVATION AND TECHNOLOGY IN THE REPUBLIC OF BELARUS – 2008. Statistical book, State Committee on Science and Technology, Ministry of Statistics and Analysis of Belarus, 2009

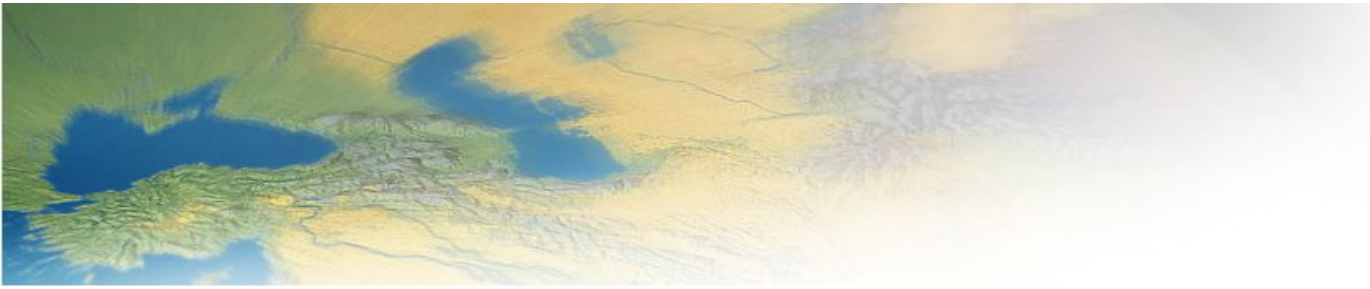
In 2008, the R&D was carried out by 329 organizations and companies. Since 2003, there is a tendency towards decrease of the share of research organizations in the total number of organizations engaged in R&D. On the contrary, the share of industrial enterprises carrying out R&D has been doubled.

STRUCTURE OF ORGANIZATIONS ENGAGED IN SCIENTIFIC RESEARCH AND DEVELOPMENT, BY TYPE



- A - research organizations
- B - design offices
- C - design and survey organizations
- D - pilot plants
- E - higher education institutions
- F - industrial organizations
- G - other

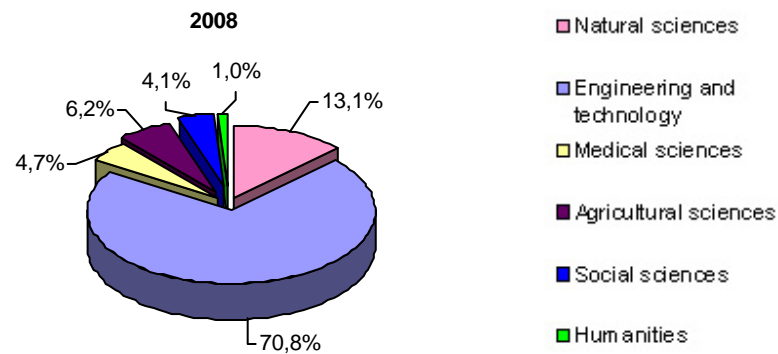
Source: SCIENCE, INNOVATION AND TECHNOLOGY IN THE REPUBLIC OF BELARUS – 2008. Short statistical book, State Committee on Science and Technology, Ministry of Statistics and Analysis of Belarus, 2009



Research funding system

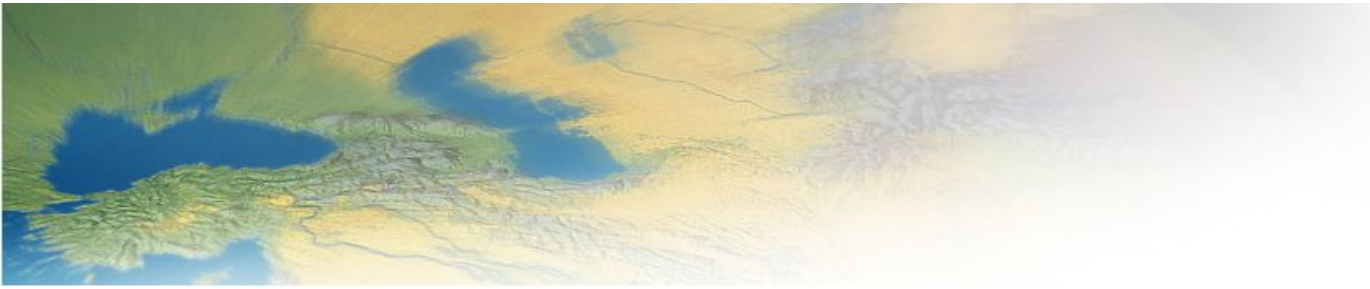
The budget for scientific and innovation activities within the state budget, including the budget for international S&T cooperation is formed by the State Committee for Science and Technology (SCS&T) in close cooperation with the National Academy of Sciences and approved by the President. The SCS&T monitors and controls the end use of budget funds.

STRUCTURE OF DOMESTIC EXPENDITURE ON RESEARCH AND DEVELOPMENT, BY FIELD OF SCIENCE



Source: SCIENCE, INNOVATION AND TECHNOLOGY IN THE REPUBLIC OF BELARUS – 2008. Short statistical book, State Committee on Science and Technology, Ministry of Statistics and Analysis of Belarus, 2009

More statistics on RTI activities in Belarus are available in the annual Statistics Book published by the State Committee on Science and Technology and Ministry of Statistics and Analysis of Belarus. Starting from the year of 2003, it is available on <http://asmid.nlb.by/nbb/index.php?sec=152&pg=7&map=%C8%ED%F4%EE%F0%EC%E0%F6%E8%EE%ED%ED%FB%E5+%F0%E5%F1%F3%F0%F1%FB+%C3%CA%CD%D2+%2F+%D1%F2%E0%F2%E8%F1%F2%E8%EA%E0+%ED%E0%F3%EA%E8> (in Russian).



Research policy

Context of research policy

Context of the national policy in research and technology, as far as its objectives and priorities are defined by the state line of development approved by the Government of Belarus - **transition to the innovative economy, the economy of knowledge**. Conceptual provisions providing for setting the strategic innovative development targets and realization thereof are set forth in the State Program for Innovative Development of the Republic of Belarus for 2007-2010.

Research policy: objectives and priorities

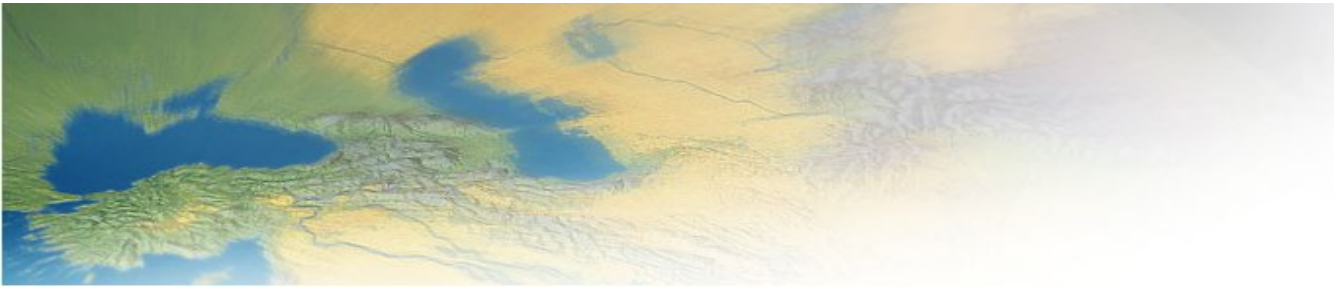
The science is considered the main resource and the powerful **driving force for the national economy**. Therefore the main objective of the state research policy is to create the favourable conditions for realization of this ambitious mission.

The following tasks of the state policy in R&D should be named among priority ones:

- ensuring innovative development of the national economy;
- efficient governmental support to the scientific sector, including its technological potential and human resources;
- assistance in integrating science, education and manufacturing;
- further improvement of the system of the S&T and innovation activities management;
- development of the intellectual property protection institutions;
- stimulation of science intensive export and expansion of international S&T cooperation;
- assistance in engineering and technological re-equipment of production facilities, output of science intensive products.

The state S&T policy in Belarus is formed on the base of **priority areas** of S&T activities. For the period of up to 2010, the following priorities are determined:

- resource-saving and energy effective technologies of competitive production;
- new materials and new energy sources;
- medicine and pharmacy;
- information and telecommunication technologies;



- technologies of production, processing and storage of agricultural production;
- industrial biotechnologies;
- ecology and rational wildlife management.

Based on the priority areas of S&T activities, different types of S&T programs (applied research & developments) are developed for 5-year period (2007-2010), including

- State S&T programs,
- Branch S&T programs,
- Regional S&T programs,

as well as scientific support for presidential programs and governmental economic and social programs.

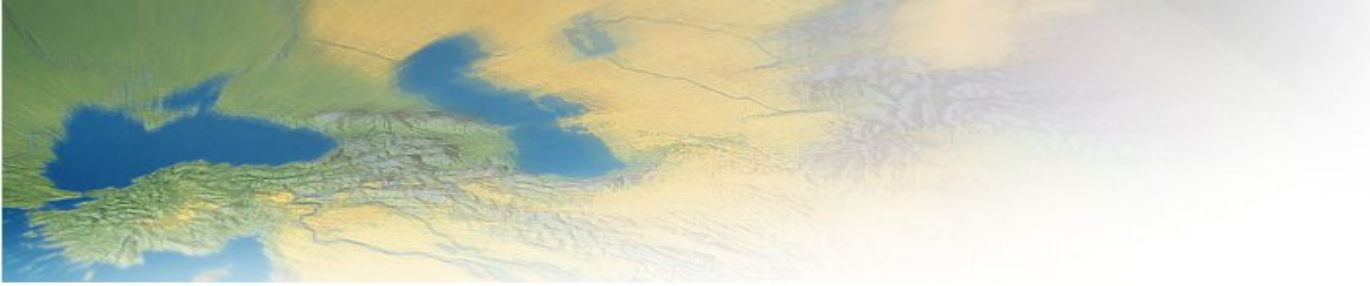
Besides them, innovation activities are being supported through the ***State Program of Innovative Activities in the Republic of Belarus for 2007-2010***.

Also, priority areas of basic and applied research in the Republic of Belarus are defined in the country for 5-year period which serve as a ground for the programs of basic and applied research.

The year of 2010 is a transitional one because the previously developed programs for 2007-2010 will be finalized and the new ones have to be formed. It also means the necessity to define the new priorities for 2011-2015 – both social & economic, science & technology, basic and applied research, etc.

The work on definition of the new priorities has been started already. As a first step, the ***List of priority areas of basic and applied research in the Republic of Belarus for 2011-2015*** has been approved by the Resolution of the Council of Ministers of 19 April 2010 No. 585. It includes 13 areas, such as:

1. Energy supply, energy saving, energy efficiency and energy effective technologies;
2. Supramolecular chemistry, chemical synthesis of new substances and materials with the preliminary defined structure, functional and chemical-physical properties. New chemical products and technologies;
3. Physical-chemical basics for biology. Biotechnologies, bio-energy and bio-fuel;
4. Medicinal, diagnostic, prophylactic and rehabilitation technologies, cell and molecular biological technologies in medicine, technique and devices for medicine;
5. Information and communication, aviation and space technologies;
6. Laser, optic, opto-, micro- and radio technologies and systems;



7. Mechanical engineering. Systems and complexes for agricultural technique. Control and diagnostics in mechanical engineering;
8. New material for industry, medicine and construction. Science-based technologies of their production. Metallurgy and founding processes;
9. Production, storage and processing of agricultural products;
10. Ecology, natural resources, resource saving, rational use of resources and emergency protection;
11. Social, economic, spiritual and cultural development of the Republic of Belarus;
12. Interdisciplinary research. Prospective and emerging technologies;
13. Scientific basics for strengthening the defensive capacity and increasing the national security.

It's for the first time in the national S&T policy that the interdisciplinary research, as well as new and emerging high risky research are included in the priority list and emphasized in the separate line.

Each of these broad areas is further specified in 5-12 sub-areas. The full List of priority areas of basic and applied research in the Republic of Belarus for 2011-2015 in Russian is available at <http://www.pravo.by/webnpa/text.asp?RN=C21000585>.

Based on the List of priority areas of basic and applied research the **List of state research programs for 2011-2015** is approved by the Regulation of the Council of Ministers of 9 June 2010 № 886, <http://pravo.by/webnpa/text.asp?RN=C21000886> (in Russian). It includes 16 programs, their state customers and main executers, as well as programs' goals, preliminary budget and its distribution per year.

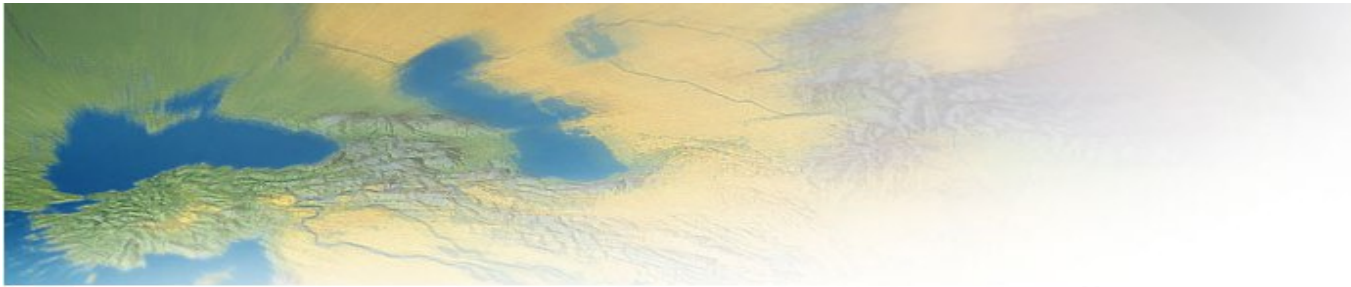
The definition of the priority areas of S&T activities for 2011-2015 is next in turn.

In parallel, the Concept of the State Program of Innovative Activities in the Republic of Belarus for 2011-2015 was developed, it's available in Russian <http://belisa.org.by/ru/news/stnews/innovative/conception.html>.

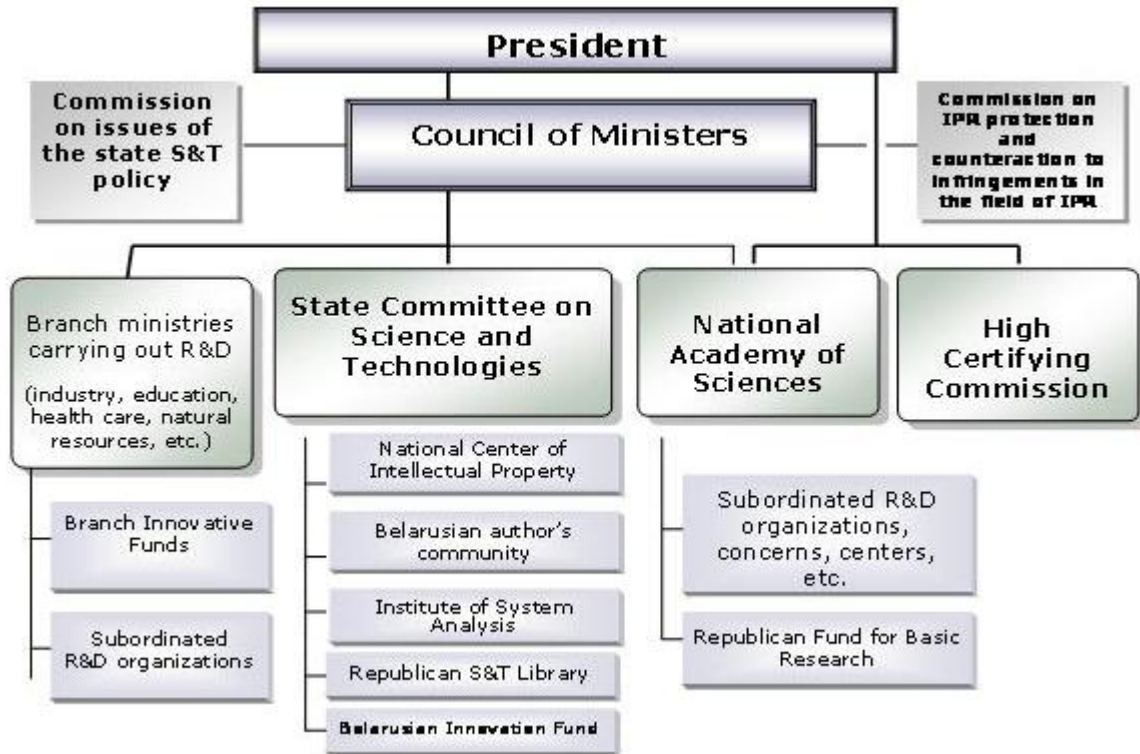
The State Program of Innovative Activities is under development.

Policy making and coordination

Policy-making and coordination in the field of science, technology and innovation are carried out by a triangle composed of the State Committee on Science and Technology (ranked as a ministry for S&T), National Academy of Sciences and High Certifying Commission:



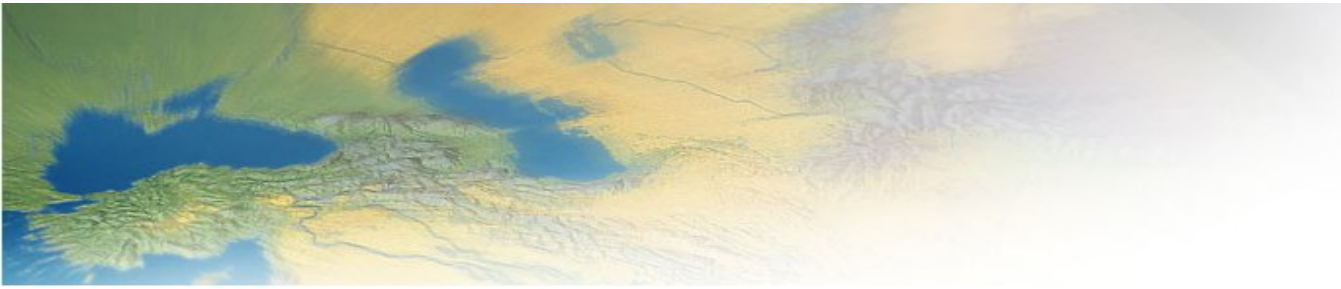
Belarus National System of State Bodies in the Sphere of S&T



They share responsibilities on public administration in the field of science, technology and innovation in the following way:

- the State Committee on Science and Technology takes the issues of the S&T and innovation policy and coordinates it with a focus on the stages of developments, demonstration and, more general, on innovation activities; legislation in the field of science, technology and innovation activities; budget for STI and monitoring its end use; intellectual property rights protection; international S&T cooperation; scheduling the training of the scientific personnel of higher qualification on the national level and by the field of science;
- National Academy of Sciences organizes, conducts and coordinates basic and applied research, being the leading research organization with the highest concentration of highly qualified researchers (63% in 2008);

High Certifying Commission certifies scientific personnel of higher qualification and carries out the state regulation in this field.



National research programmes

In Belarus, traditionally the programme method is used for financing R&D.

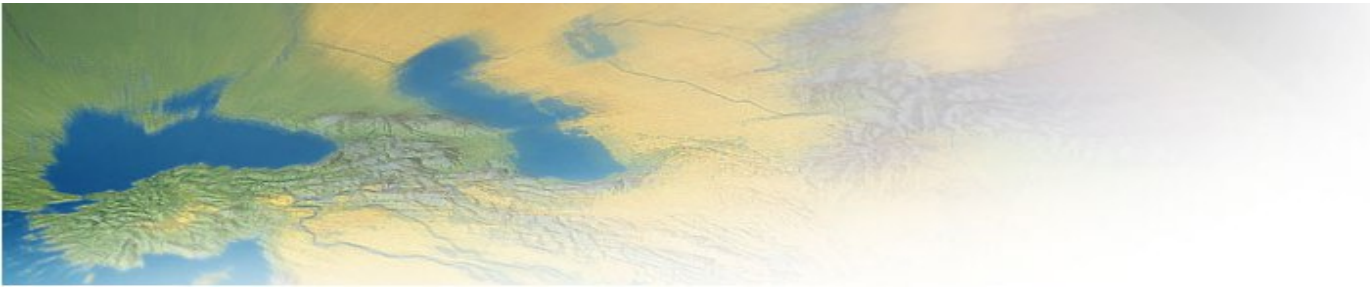
In 2008, over 90 national programs of different types focused on or partly included R&D were supported. Among them there are the programs which

- cover definite stages of research, e.g. programs of basic research, oriented basic or applied research. The other programs have got a complex character combining all the stages of the research process. In total, there are 38 programs of the mentioned types. For 35 of them the National Academy of Sciences plays the role of the state customer;
- support research, developments and demonstration activities, including the state S&T programs (27), branch (9) and regional S&T programs (6);
- include some research as a scientific support for the program implementation – presidential programs (1) and social & economic programs (15).

The lists of the ongoing programs mentioned and scheduled amounts of financing in 2006-2010 have been approved by the Resolution of the Council of Ministers of the Republic of Belarus No. [01339](#) of 28 November 2005 and Resolution of the Council of Ministers of the Republic of Belarus No. [05](#) of 4 January 2006 (in Russian).

The programmes are formed on the base of priority directions of S&T activities. Selection of projects is carried out based on the results of expert examination.

The results of the programs' implementation are analyzed by the State Committee for Science and Technology, National Academy of Sciences, their state customers and included in the annual **Analytical Report on the Science State and Development Prospects in the Republic of Belarus** presented by the SCS&T and NAS to the Government and President of the country. The reports for 2003-2008 are available on <http://asmid.nlb.by/nbb/index.php?sec=152&pg=6> (in Russian).



International co-operation in research, science and technology

Scope and objectives

Being an essential dimension of the S&T policy, international cooperation is actively involved in realization of the policy tasks mentioned above. In particular, it aimed at supporting

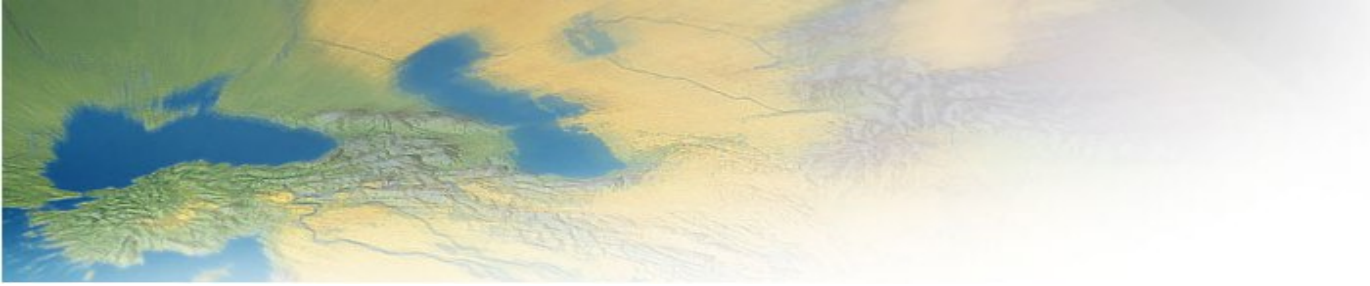
- the realization of priority projects of public importance;
- active progress on the global market of domestic S&T production;
- training personnel and development of the national S&T potential;
- attraction of foreign financial sources to the national S&T sphere (foreign investments, grants, credits), etc.

Belarus has got over 45 bi- and multilateral agreements on the governmental level with the countries of Europe, Asia, Africa and Latin America on cooperation in S&T or, more widely, on economic cooperation, which science and technologies are integral parts thereof. It also cooperates with numerous international organizations. Up to 450 international R&D projects are carried out annually.

Co-operation with EECA-countries

From the times of the USSR, EECA countries have inherited rather strong economic interdependence and plenty of partnerships that could be a very good basis for networking within the region. In mid 90ies, an attempt was undertaken to boost cooperation in R&D in the framework of the Agreement on Creation of the Common Science and Technology Area of CIS member-states. At the moment, the idea of mutually beneficial partnerships in S&T area is developing within another community - European-Asian Economic Cooperation. Unfortunately, neither CIS nor EurAsEC have elaborated mechanisms and instruments to support the initiatives in R&D sphere so far.

Therefore during the last 10 years Belarus moved its cooperation activities towards bi-lateral level. From among 6 governmental agreements with the countries of the region (Armenia, Kazakhstan, Moldova, Russia, Tajikistan and Ukraine), the ones with Russia and Ukraine are most effective. Being financed from the budget of the Union State of Belarus and Russia, several S&T programs have been realized in such areas as supercomputers, biotechnology, space, laser technologies, machinery building, etc. Belarus also co-finances joint S&T programmes with Ukraine and Kazakhstan, while the same program with Moldova and Armenia is being prepared now. Emphasizing the role of Russia and Ukraine as the main economic and scientific partners, Belarus undertakes definite steps to regenerate cooperation with such countries as Azerbaijan and Uzbekistan.



International S&T cooperation is supported by the Government of Belarus: annually, 3-4% of the total expenditures for R&D go to these purposes. In 2010, the expenditures for international S&T cooperation are planned at the level of appr. 6 mln EUR.

Co-operation with EU-member states and associated countries

By 2009, Belarus has got bi-lateral governmental agreements on cooperation in S&T with almost half of the EU-27 member states (Bulgaria, Cyprus, Czech Republic, Denmark, Germany, Hungary, Latvia, Lithuania, Poland, Slovakia, Romania, and also UK) and several associated countries (Israel, Macedonia, Turkey, Serbia). Though actually, signing such an agreement doesn't always mean the presence of an effective cooperation.

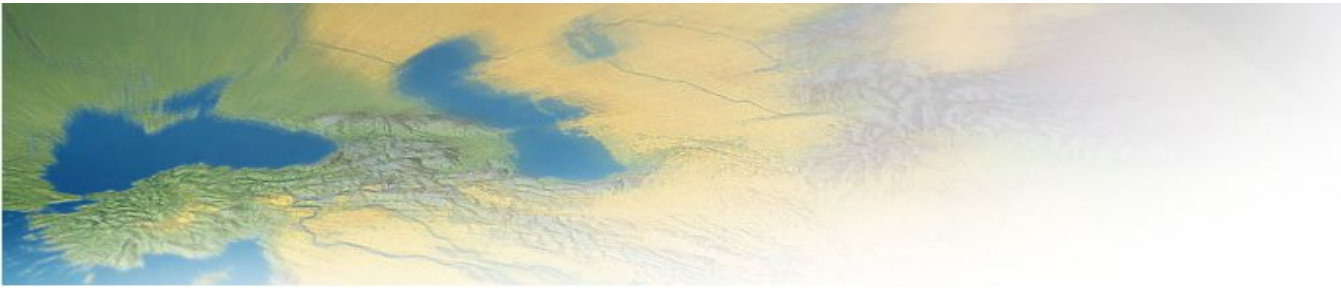
Germany, France and UK are among the top partners in S&T area, followed by Austria, Italy, the Netherlands, Poland, Switzerland, etc. During the last years, a legal basis for cooperation with the nearest neighbors, Latvia and Lithuania, has been improved.

The foreign sources give 5-7% of total R&D funding in the country.

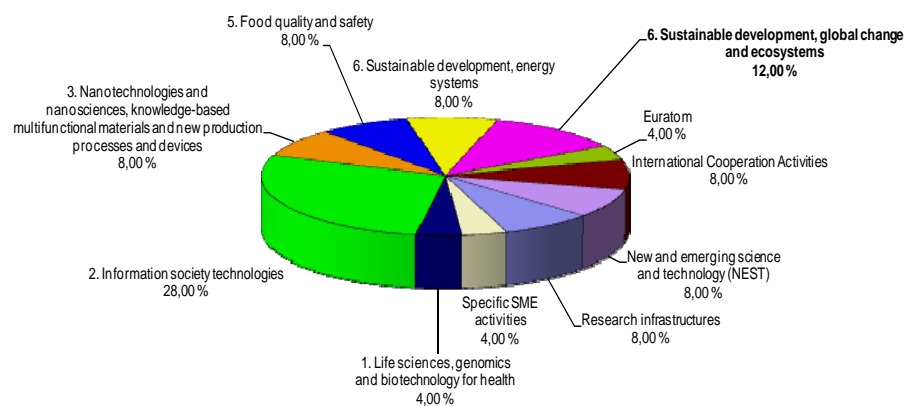
EU-funded co-operation/ projects

In 1992-2006 the most effective INCO programmes working in Belarus were those financed by the ISTC and INTAS, the former - by the amount of money received, the latter - by number of projects. Pursuing different objectives, both organizations played visible role in supporting national researchers after the collapse of the SU and integrating them in European research area. Of 3 299 projects and nearly 9.5 thousand research teams from EECA financed by INTAS during this period, 4.5% belong to Belarus. Within 88 Belarusian projects of 2 450 supported by ISTC in 1994-2006 over 1 thousand national research teams received 33.2 mln.USD. Both INTAS and ISTC projects were characterized by successful partnerships with Russian teams.

Since the beginning of the FP6, a transition from the programmes of support to the programmes providing mechanisms of equal cooperation has started. In FP6, Belarusian partners were involved in 22 projects with EC financial contribution 1.25 mln. EUR in information technologies, nanosciences and materials, environment, energy, and also in INCO. Besides, 4 individual researchers received International Incoming Fellowships under the framework of Marie Curie Program. The average success rate was 16%. Most of Belarusian research teams which participated in the FP6 represented the National Academy of Sciences.



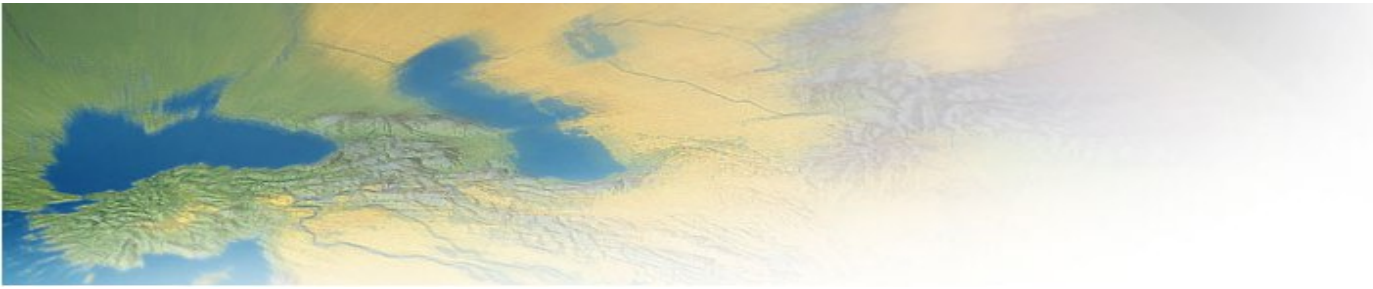
Participants repartition in FP6 projects in thematic priorities for Belarus



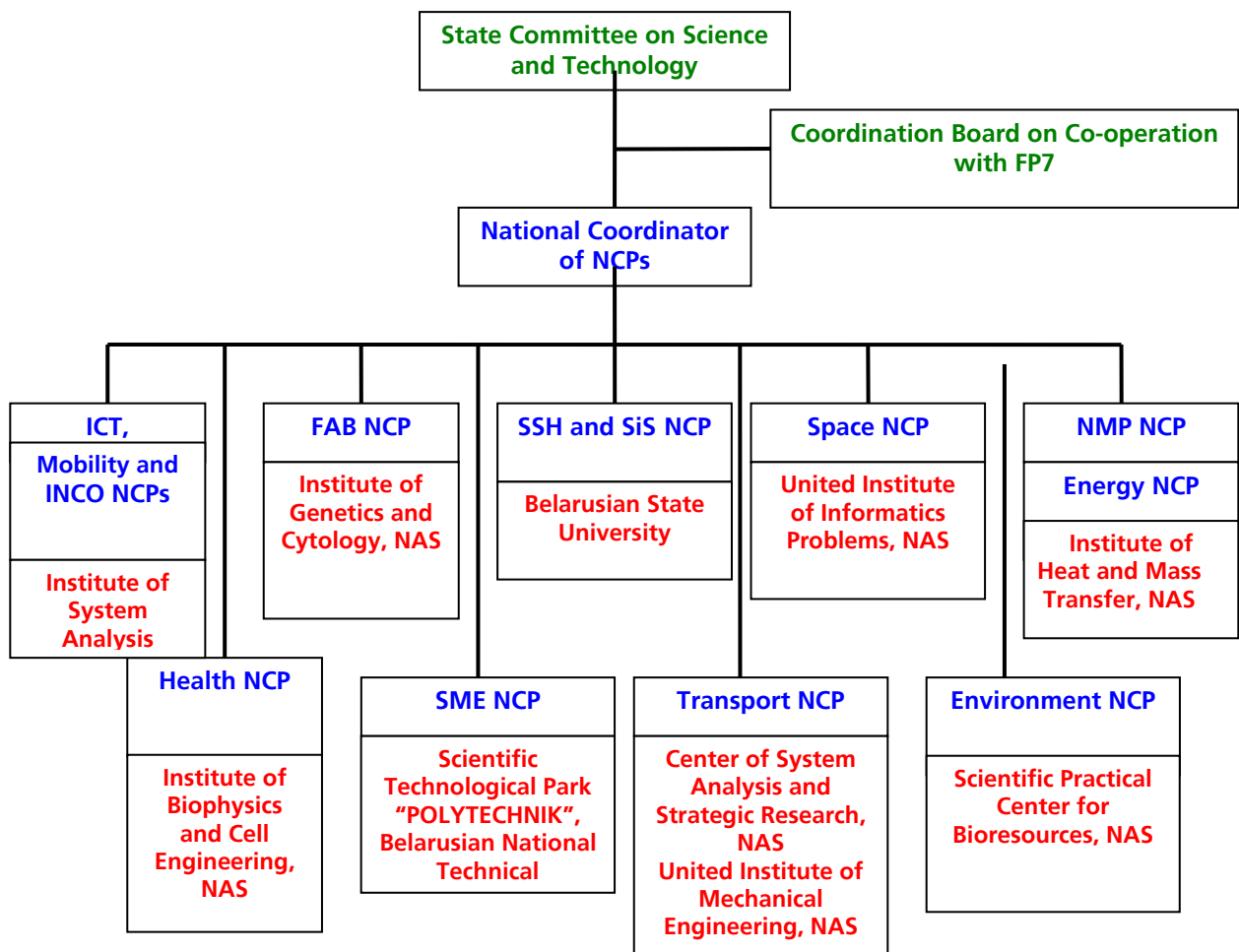
The interest of the national scientific community towards the Framework Programmes is growing. By September 2009, Belarusian teams have participated in 106 applications to the FP7 calls which resulted in 15 participations in 12 projects in ICT, NMP, Health, SSH, Research Infrastructures, INCO, and also in "People" Programme. On the contrary to the FP6, in the FP7 universities dominate in the list of contractors.

In general, Belarus S&T potential has not been approached yet. The key obstacle for increasing participation in the FPs is lack of the legal basis for EU-Belarus cooperation, e.g. Partnership and Cooperation Agreement and/or S&T Agreement. This results in lack of specific EC actions focused on Belarus. Another problem is caused by absence of the national programs to support international mobility of researchers and, therefore, the lack of a "critical mass of mobility" in Belarusian scientific community.

In order to support the national participants of the FP7 and increase Belarus involvement in the EU Framework Programmes the national network of contact points have been created by the State Committee on Science and Technology:



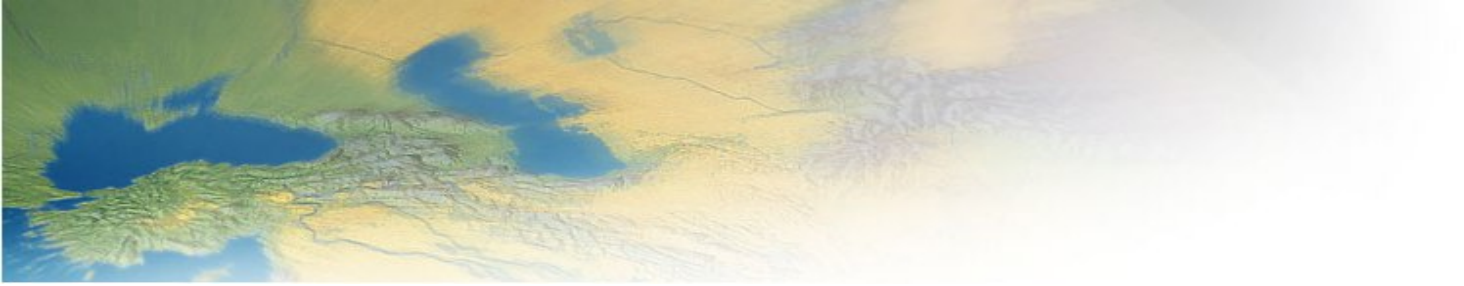
BELARUS NATIONAL NETWORK OF FP7 CONTACTS



Belarusian Institute of System Analysis and Information Support of Scientific and Technical Sphere is entrusted with general coordination of the activities of the national network of FP7 contacts. Since 2004, it hosts the National Information Point for FPs.

Further co-operations

Besides EECA and EU, Belarus has got strong cooperation in S&T with China, South Korea and India. It also develops S&T relations with Mediterranean region (Egypt, Israel, Syria, etc) and Latin America (Argentina, Venezuela).



Source: *Olga Meerovskaya*
FP7 National Coordinator,
Mobility & INCO NCP
EU FP7 NIP Belarus
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Imprint

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