

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



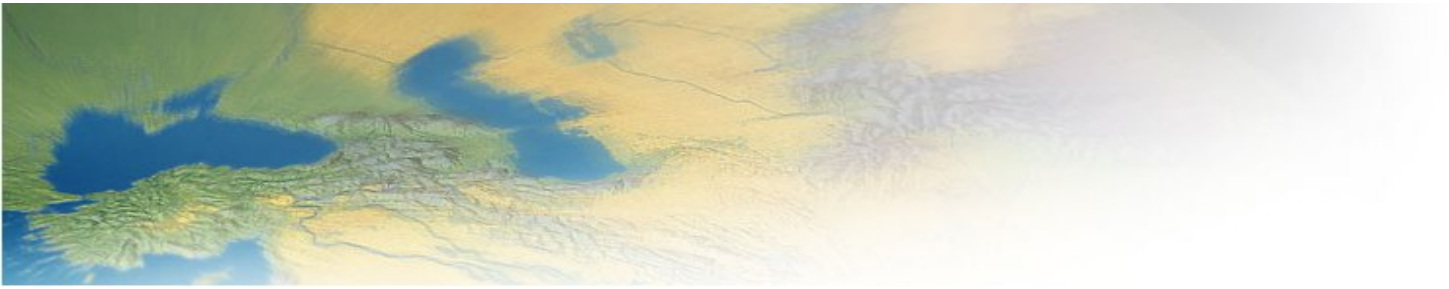
Kazakhstan

Country Report

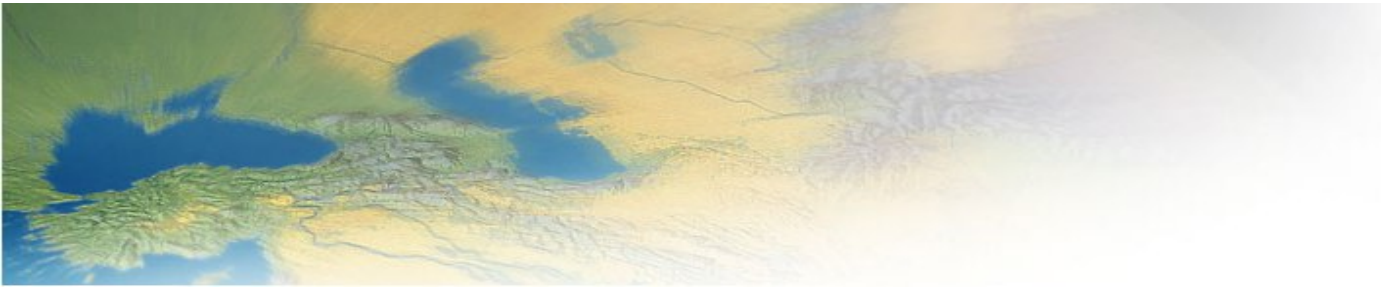
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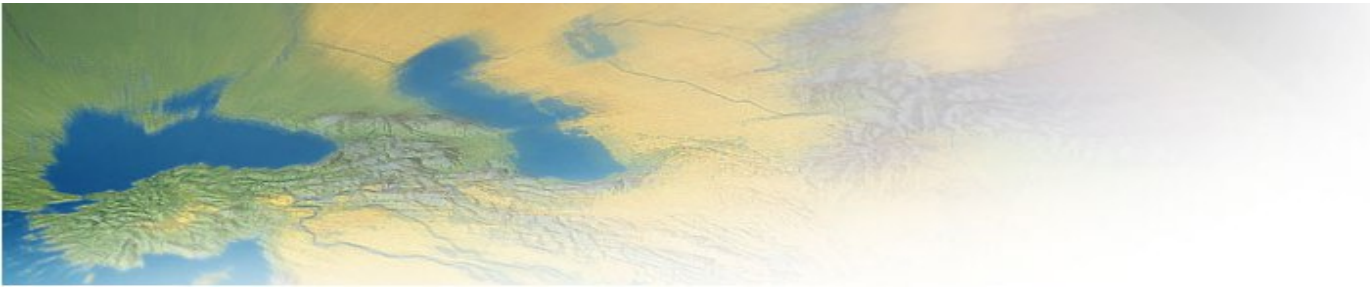


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General information about Kazakhstan:

Official name of the country	The Republic of Kazakhstan
Population	Population: 15,81 mln. persons (01.01.2009). Population density is 5,8 persons/km ² . The urban population is 57%, hence 43% is rural.
Area	<p>The territory of Kazakhstan is as large as 2,724,900 sq km (i.e. 1,049,150 sq miles). In terms of the area it is the second largest among the CIS states. It occupies the ninth place in the world according to its square after Russia, China, USA, Argentina, Brazil, Canada, India and Australia. In fact the territory of Kazakhstan exceeds that occupied by twelve countries of the European Union.</p> <p>Kazakhstan borders upon the following states: China- 1,460 km - long border; Kyrgyzstan - 980 km; Turkmenistan - 380 km; Uzbekistan – 2,300 km; the Russian Federation – 6,467 km. Total length of borders amounts to 12,187 km</p>
Capital	Astana
System of Government	<p>Kazakhstan is a unitary state with a presidential system of government. President is elected by direct, privy, universal suffrage for 7 years. The first and current President of the Republic of Kazakhstan – Nursultan Nazarbayev.</p> <p>The head of the executive power in Kazakhstan is the Government, and the head of the Government is the Prime Minister of the Republic of Kazakhstan. Government is responsible to the President in its activity and is accountable to the Parliament in connection with approval or alteration of the government programmes.</p> <p>The judicial branch consists of the Supreme Court (44 members) and the Constitutional Council (7 members).</p> <p>Important political decisions in the state must be approved by the President (Nursultan Nazarbayev), the</p>



Government (Prime Minister Karim Masimov), and the Parliament. The Parliament consists of two Chambers: Senate (Speaker Kasym-Jomart Tokayev) and Majilis (Assembly, Speaker Ural Mukhamedzhanov) acting on a constant basis.

Head of Government

The President of the Republic of Kazakhstan is Nursultan Nazarbayev.

Education & Science Minister

The Minister of Education and Science of the Republic of Kazakhstan is Prof. Dr. Bakhytzhan Zhumagulov.

Parliament

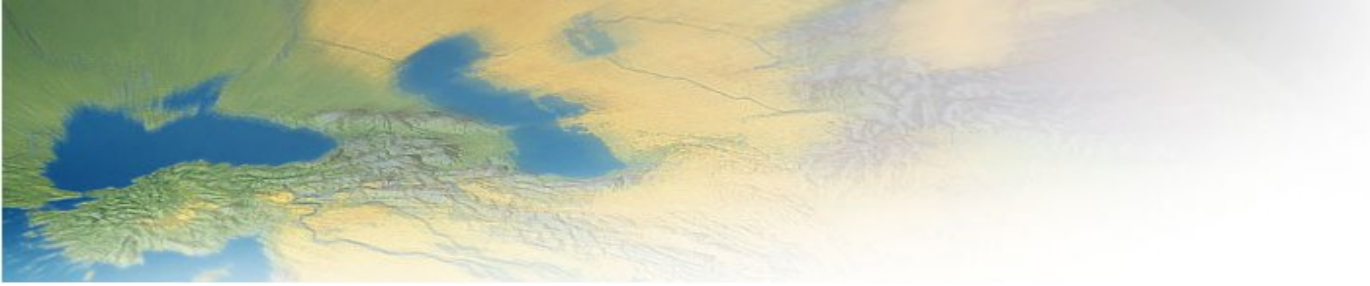
The Parliament is the supreme representative legislative body. Bicameral Parliament consists of the Senate (39 seats) and Majilis (77 seats). Seven senators are appointed by the president; other members are popularly elected, two from each of the 14 oblasts, the capital of Astana, and the city of Almaty. Ten members of the Majilis are elected from the winning party's lists.

Administrative structure

The capital of Kazakhstan is Astana city (since December 10, 1997). Population – 687,7 thsd. persons. The Republic are divided to 14 regions, 86 cities including 2 cities of the republican subjection (Astana and Almaty), 168 regions (8 regions in the cities), and 174 villages.

Geography

Kazakhstan is located on the border of two continents, Europe and Asia. With the total area of 2,724,900 square kilometers, it stretches from the Caspian Sea and Volga plains in the west to the mountainous Altai in the east, and from the foothills of Tien Shan in the south and south-east to the West-Siberian lowland in the north. The extent of the territory from east to west is more than 3,000 kilometers and from North to South – 1,700 kilometers. This makes Kazakhstan ninth largest country in the world and second largest in the CIS. Kazakhstan borders on Russia in the east, north and northwest, Uzbekistan, Kyrgyzstan and Turkmenistan in the south, and China in the south-east.



Research structure

Characterisation of the research system

The state scientific and technical policy of the Republic of Kazakhstan on the long-term and intermediate term perspective is oriented on solving major national problems: providing the country with the foodstuffs, materials, energy, guarantee of national safety, increase of the quality of public health services, preservation of environment, stimulation of the employment of the population, development of transport and communication, increase of the competitiveness of the economy on the basis of the development and application of advanced technologies to the leading branches of science.

On 20.06.2007 the Government has adapted new State Program on Science Development in Kazakhstan for 2007-2012. The aim of Program is to achieve the competitive and balanced system of science provided high level of knowledge relevant for sustainable social economy development of the country. Main goals of the research system included into the Program are as the following:

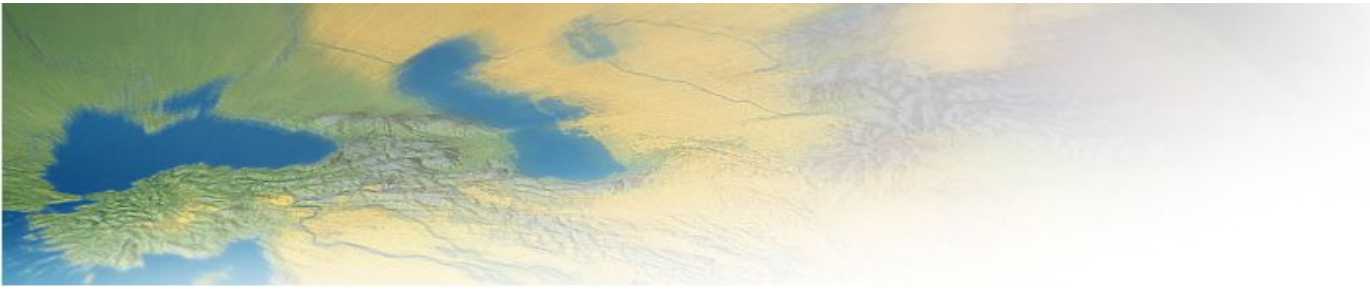
- Modernization of the RTD management system;
- Modernization of the RTD infrastructure;
- Training of high qualified science and engineering staff and encouraging them to research activity;
- Increasing funding of scientific-research and experimental-design activity, including different tools to involve private investments;
- Modernization of legal normative base of scientific technology activity;

Forming of information environment favorable for the science development.

Research performers

In accordance to data of the Kazakh Statistic Agency at the present time 416 (01.09.2010) public and private research and technology development institutions, SMEs and universities are registered in the Republic. This number is decreased for 17 institutions in comparing with data of 2008. There are more than 15.7 thousand workers with high education degrees (it is decreased for about 2000 people), from which 10 thousands are scientists, including more than one thousand of doctors of sciences and more than three thousands of candidates of sciences (equal to PhD).

The system of the Ministry of Education and Science of Kazakhstan consists of 41 (data of 2006) research entities. There are also 151 (data of 2006) research institutions of different Ministries of Kazakhstan such as: Ministry of Health (20), Ministry of Agriculture (81), Ministry of Industry and New Technology (15), Ministry of Oil and Gas(7), Ministry of



Environment (4), and other ministries. However now they cannot play significant role on the scientific market of Kazakhstan as it could be done by large centers, which are now managed by large and rich holdings recently created in Kazakhstan (mostly during 2006-2007) created in order to execute the orders of the government and the President to bring Kazakhstan in line with most competitive countries of the world.

JSC Kazakh State Resources Management Holding Samruk, JSC Sustainable Development Foundation Kazyna, JSC National Holding KazAgro, and JSC National Scientific and Technological Holding Samghau are joined to newly created National Welfare Fund Samruk-Kazyna.

Eventually, all of these holdings perform all kinds of innovative research and use the results results. They are responsible for the way the results will be used for the economy of the country. However, there are only applied researches, and only matters related to the researches that can be further used for getting commercial profit is short run.

Regarding the basic research, it is still under responsibility of the Ministry of Education and Science. Any kind of applied research and innovation programs are realized by organizations involved into structure of the Ministry of Industry and Trade. Share of private research organizations in Kazakhstan is 37%.

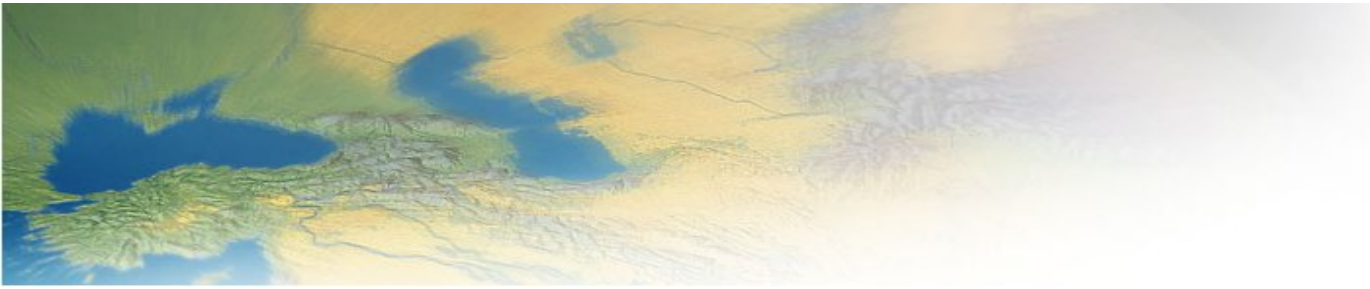
S&T system in Kazakhstan is managed by the High S&T Commission headed by Prime Minister of the Republic of Kazakhstan. This Commission consists of the board of experts (leading specialists from Kazakhstan and abroad) and consulting group of people from key financial and budget planning ministries and agencies.

Research funding system

Mainly research funding in Kazakhstan (71%) goes to applied researches, whereas only 8% of it spent for experimental works. Basic research is financed within the limits of 20%, and that corresponds to the world average level. 45% of research bodies are research institutes, while research and development bodies keep only 6.4% share. During the last 5-7 years the Ministry of Education and Science, which is supposed to be a main research performer, lost its key role in fund distributing and became just a policymaker in this field. Actually, the Ministry manages about 21% of the state budget for science. Usually this money distributed among research institutions through calls for proposals and tenders.

Distribution of the budgetary means for the research is the following: 71% are given to the applied research, 21% for basic research, and 8% - for experimental works.

By data of Republican Statistic Agency for 01.01.2009 there are 49,9% of R&D funding by the governmental budget; funding by customers funds – 29,3%; funds of enterprises – 18%; local budget – 1,1%; foreign investments – 1,7%; development institutions – 0,1%.



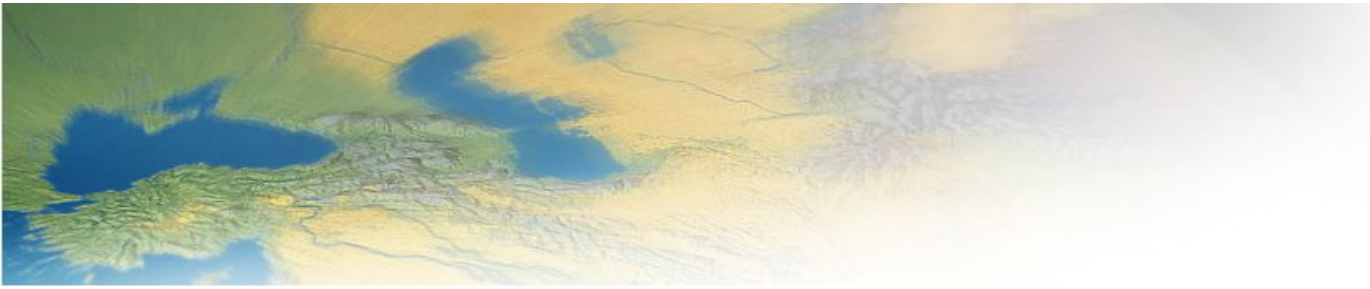
Research policy

Context of research policy

Context of the research policy in Kazakhstan for the period 2007-2012 is divided on two steps as follows: 1st stage – stage of the institutional modernization: 2007-2009, and 2nd stage – stage of sustainable development – 2010-2012.

Stage-by-stage realization of the governmental program of the science development in the country will provide the country on the first stage with the following positive achievements:

1. Unified coordination and management of the scientific-research program;
2. re-orientation of research to scientific priorities approved by High Scientific Technology Committee under Government of the RK (hereinafter HSTC);
3. balanced funding of research by public and private sectors through the calls for proposals and tenders;
4. re-orientation of research to product competitive products on scientific markets;
5. making transparency on selecting RTD projects and programs during the calls for proposals and tenders;
6. creation of necessary legal base to attract private investment and coordination to RTD;
7. making necessary structural changes to produce high technological and science intensive production with high added value;
8. creation of five national scientific laboratories of open types based on advanced scientific centers;
9. creation of fifteen scientific laboratories of engineering profile based on advanced high schools;
10. increasing of activity of high schools to realize 50% of funding of RTD programs of the republican and branch levels;
11. involving into active scientific research work not less than 10% of students of the high schools as assistants to researchers and teachers;
12. creation of conditions for promising students to research activity;
13. development of instruments to protect intellectual property rights of scientists to escape plagiarism and stealing of scientific idea;
14. creation of system of material stimulation and encouragement;
15. additions and changes in normative legal documents regulating training and attestation of scientific staff
16. transition to train of scientific and scientific and pedagogical staff in accordance to master and doctoral programs;
17. increasing number of students in PhD and doctoral programs;



18. development of grant system of funding of research involving private sector as co-funding mechanism;
19. commercialization of the scientific results of the research;
20. implementation of Good Scientific Practice and Good Laboratory Practice;
21. making of scientific-research report standards equal to international research and management standards;
22. transparency of scientific technology information for international community.

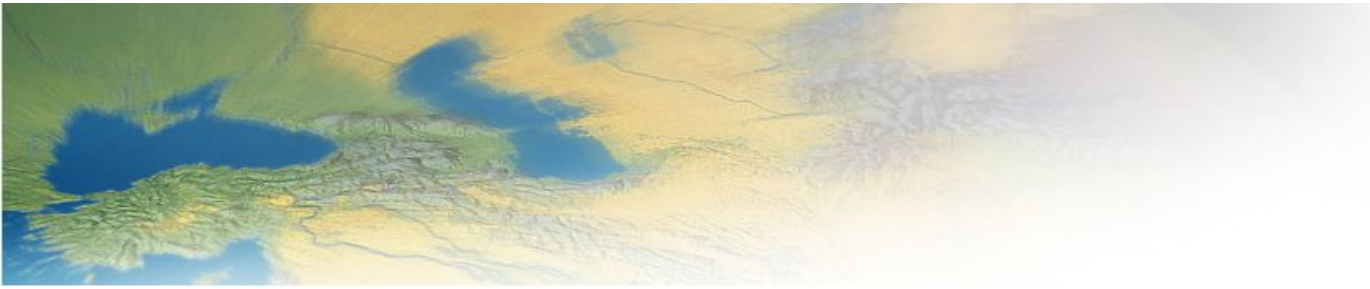
The second stage will be indicated by the following:

1. Joining of Kazakhstan to the 50 competitive countries of the world by the index of knowledge using in economy;
2. implementation of international standards of management research activity in usual practice of national scientific centers and using it as compulsory condition for accreditation of non-governmental scientific organizations;
3. creation of scientific centers with participation of foreign investors;
4. functioning of open laboratories at the national research centers, where any scientists can work, and can show full process of the research procedure;
5. increasing of domestic technology development realized by the domestic companies up to 50%;
6. increasing of trainings for scientists of the republic in advanced countries abroad up to 20%;
7. increasing and strengthening of scientific infrastructure, improvement of research staff; providing domestic RTD system with high skilled scientific personnel;
8. achievement of increasing of GDP up to 50% by ratio of RTD and up to 1,5-2% by increasing scientific products and scientific innovation activity in structure of GDP to 2012.

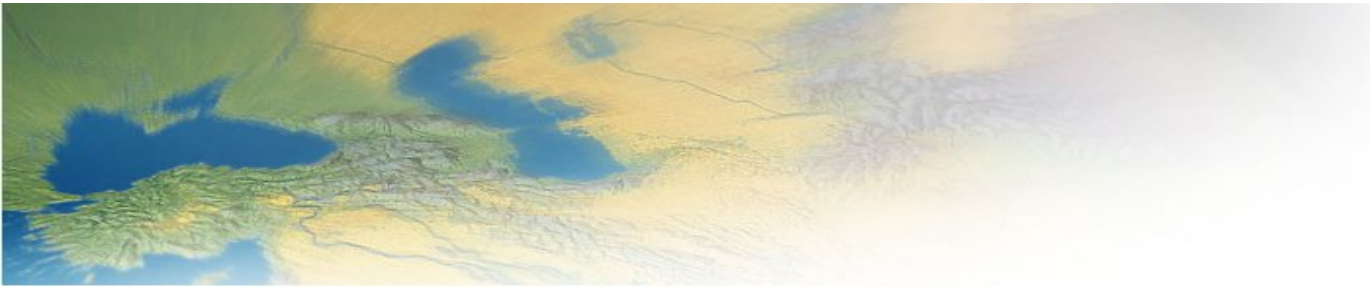
Research policy: objectives and priorities

Main branches of the Kazakh economy are oil and gas, metals and mining, and agriculture. Therefore scientific and technology programs should first develop these branches, including the programs on petrochemistry, oil and gas and mining-metallurgical engineering.

In 2002 the government of Kazakhstan, taking into account needs of socio-economic development of the country and tendencies of the development of global science, has adapted five priorities of researches, which are still actual, and will not be changed until 2012:



1. Information technologies:
 - a. Creation of fundamental bases of space monitoring and geo-information technologies for the decision of problems of management, search ecology and rational use of natural resources
 - b. Development of safe and effective information systems
2. New perspective materials:
 - a. Creation of materials with the set properties methods of chemical technology from hydrocarbonic and mineral raw material
 - b. Creation of materials on the basis of nanotechnologies
 - c. Reception of pure materials and alloys with the set structure
3. Mineral resources:
 - a. Fundamental bases of opening, development and deep complex processing of mineral raw material in conditions of an exhaustion of a mineral-source of raw materials with reception of competitive production of the raised marketability on the basis of metals
 - b. Development of scientific bases of rational water supply and water use of natural economic systems of Kazakhstan
4. Development of theoretical bases of molecular biology, genetics and bioengineering to solve actual problems of medicine and agrarian sector:
 - a. Fundamental bases of structure and genome function and the major biopolymers of a cell, genetics and physiology of organisms for development of highly effective methods of diagnostics and treatment of especially dangerous diseases, bioengineering methods of creation of sustainable productive grades of agricultural plants and breeds of animals.
5. Theory and practice of national idea as bases of sustainable development of modern Kazakhstan:
 - a. National idea as a spiritual basis of rallying and integration of peoples of Kazakhstan, harmonious development of the individual
 - b. Development of national system of continuous education in conditions of the changing world
 - c. Model of sustainable social and economic development of republic on the basis of national idea
 - d. System of national interests of the state, its basic geopolitic priorities and orientations, major factors and measures of maintenance of national safety of Kazakhstan
 - e. Principles and the concept of political stability and consolidation of the Kazakhstan society



The State long-term and medium term Scientific and Technical programs oriented in the following directions:

- Food maintenance for the country;
- Material providing;
- Energy;
- National security;
- Quality of Health care system;
- Employment of population;
- Transport and communications development;
- Competitiveness of economic system

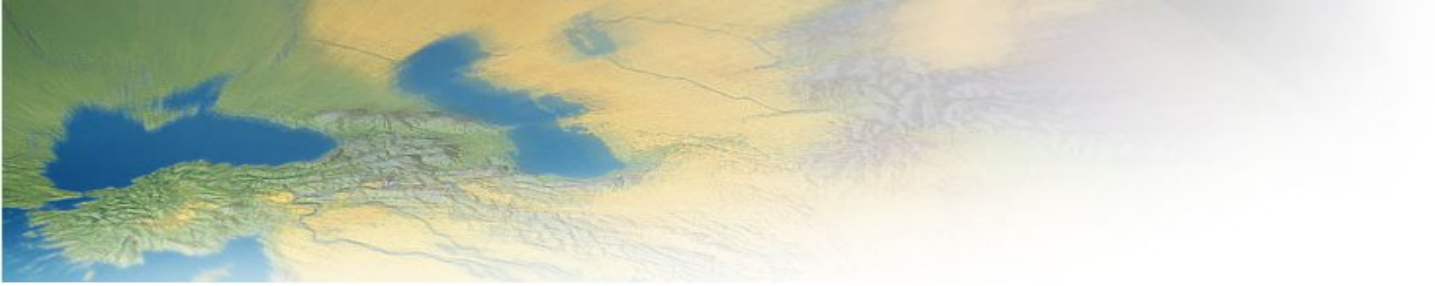
Policy making and coordination

Main policymaker in the field of research in Kazakhstan is High Scientific Technology Committee (HSTC) headed by Prime Minister of Kazakhstan, which includes all ministries of Kazakhstan. The Ministry of Education and Science is Secretary to the Committee. After the HSTC political decisions can be done by one of chambers of the Parliament. Main law on science is adapted by joint discussion of both chambers. The law is prepared by the Ministry of Education and Science. Then the law is agreed by all relevant ministries, by the HSTC, and only after approval of Majilis (Assembly or lower chamber of the Parliament) it is send to be signed be the President. Then it is managed and coordinated by Minister. Some agreements, for example the Partnership and Cooperation Agreement between the EU and RK, are coordinated by the Ministry of Foreign Affairs.

For the last time Ministry of Industry and New Technology became more responsible for innovation and new technology policy in Kazakhstan. It plays more and more significant role in innovation and new technologies sectors. The Ministry coordinates realization of main national program of Kazakhstan "Strategy of industrial and innovative development of Kazakhstan", which was adopted by the Government for 2003-2015. The Action Plan of the Program includes creation in Kazakhstan number of technology platforms and clusters to realize innovation programs and involve into Kazakhstan economy the foreign investments, and bring Kazakhstan into line of most competitive countries.

New structure of the S&T management in Kazakhstan proposes that HSTC will coordinate overall S&T development policy in Kazakhstan, Ministry of Education and Science will be responsible to carry out an audit of the science development, and will responsible for R&T development and evaluation of S&T capacity of Kazakhstan.

This coordination structure also will involve the key S&T stakeholders in Kazakhstan, such as National Innovation Fund and Fund of Science.

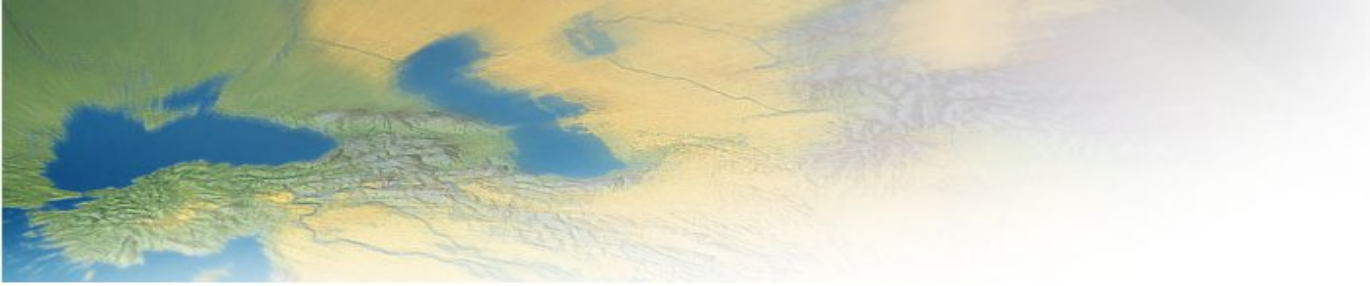


National research programmes

Basic program of the science development in Kazakhstan is 'Science development program in Kazakhstan for 2007-2012' adapted by the Government of Kazakhstan on 20th June 2007. It is the main document managed by government, which foresees all matters concerned to the science development in Kazakhstan for the mentioned period. Its main content is shown above.

The Program includes development of 15 specific S&T programs, which will be mainly funded by the government to realize the following main tasks:

1. Establishment of 5 national laboratories, working out full technology processes from basic research up to creation of new competitive products
2. Support for S&T infrastructure
3. Support for S&T staff
4. Protection of intellectual property rights
5. International S&T cooperation



International co-operation in research, science and technology

Scope and objectives

International cooperation in research, science and technology are regulated by legislation system of Kazakhstan. The cooperation is being realised on the basis of international agreements and contracts. There are more than 140 agreements and contracts with different countries for research cooperation. It is necessary to note that any international grant agreements in Kazakhstan are free from any local taxes and duties, excepting, of course, individual incomes.

Co-operation with EECA-countries

This cooperation is traditionally high, Kazakhstan has very close cooperation with Russia, taking into account that one third population of Kazakhstan are ethnical Russians, and Kazakhstan and Russia have many common sectors of economy. There are number of agreements in different fields of activity from social-humanitarian up to high novel technology projects. There are special agreements between the Russian and Kazakh universities, scientific-research institutions and centres, high schools, and academies.

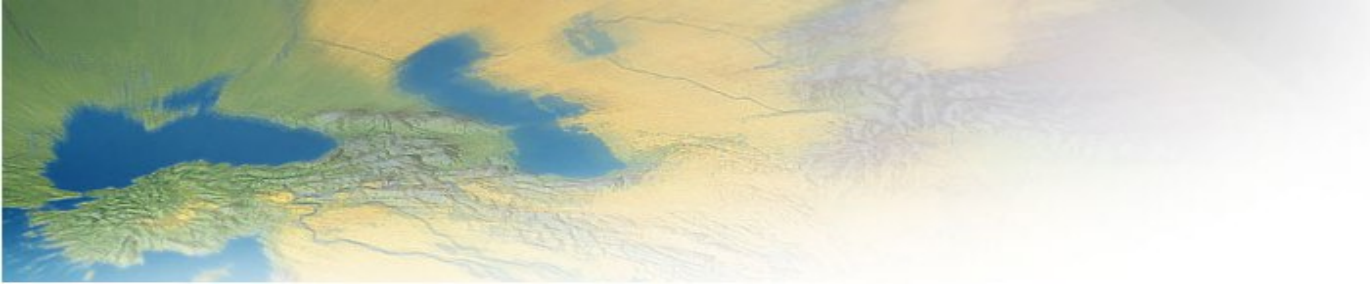
Number of bilateral cooperation agreements is concluded between Kazakhstan and Belarus, Ukraine, Kyrgyzstan, Uzbekistan, Azerbaijan, and Turkmenistan in different fields of education and science: seismology, metallurgy, oil, gas, economy, linguistic, exchange of students and teachers, recognition of high school diploma between the countries etc.

Co-operation with EU-member states and associated countries

In this group of countries Kazakhstan traditionally has close cooperation with Germany, still 0,9% of population of Kazakhstan are Germans. There are number of bilateral agreements and activities of GTZ, BBZ, DAAD. In 1999 Kazakhstan and Germany together have opened in Almaty Kazakh-German University.

Since its independency Kazakhstan has established close cooperation with the United Kingdom, especially in the field of RTD, about 45% of projects funded under the EU FP traditionally with participation of the UK coordinators.

Kazakhstan has bilateral agreements on cooperation in the field of culture, education and science with Bulgaria, Spain, Greece, France, Turkey, and Poland. All of these agreements foresee joint research, exchange of students and teachers, joint participation at the EU programs such as TACIS/TEMPUS and FP, creation of equal conditions for students and tutors, and many other things included into the agreements.



EU-funded co-operation/ projects

Kazakhstan has entered into the cooperation with the EU in 1994 with the first pilot action of INTAS. Kazakhstan participated in the first INTAS call 1993. And first INTAS InfoDesk was created in Kazakhstan in December 1994 also as INTAS pilot action.

Kazakhstan was very active in 1995-1999 up to early 2000 to participate in different EU calls, not only Framework Program. Up to 2002 Kazakhstan was very successful in 212 projects funded under FP4 and FP5. Kazakh institutions were very active in Euroatom, TACIS/TEMPUS and other calls for proposals. Within FP6 this activity decreased for while. Our observation shows that for the period of 2003-2007 the economy of Kazakhstan grew very fast, and the local institutions suddenly received unexpected amount of money. Moreover, suddenly many institutions changed their structure and belonged to another ministries or agencies, and many others were forced to change their scientific interests because of order of government. Thus, the priorities of the EU calls and priorities launched by the Kazakh government for the short period was not in accord with each other.

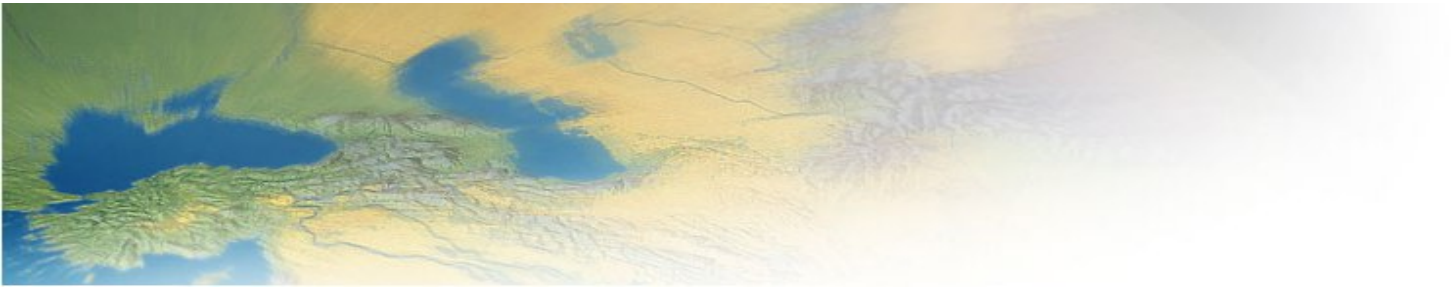
In June 2010 the Ministry of Education and Science of Kazakhstan established the National Coordination Council for Cooperation with the Framework Programme for Research and Technological Development and Innovation.

Kazakhstan is an active participant of ISTC projects. There is the Agreement for collaboration in fusion energy research between Euratom and the Republic of Kazakhstan. Recently Kazakhstan got into number of projects under ERASMUS MUNDUS.

It is necessary to note that now, for the time being, there are 10 running projects with Kazakh participants funded under FP7: 2 – in the field of Food and Biotechnology, 2 – Environment, 1 – INCO, 2 – Energy, 1 – Health, 1 – ResInfra, and 1 – ICT.

Further co-operations

Kazakhstan is open for cooperation with the EU in the field of S&T. Now number of Kazakh ministries has created working groups to develop the EU-Kazakhstan S&T cooperation agreement. This issue also will be considered by the High S&T Committee under the government of Kazakhstan headed by Prime Minister of Kazakhstan. However, the primary task of the Ministry of Education and Science, Committee of Science of the Ministry and of the Parliament and the FP7-NCP is to increase the critical mass of Kazakh participants at the EU FP and other research programs.



Source:

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