

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



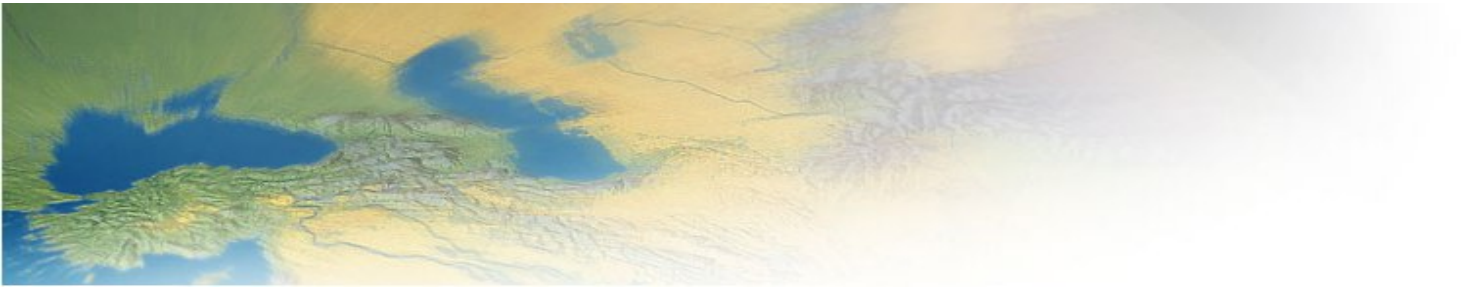
Kyrgyzstan

Country Report

(last updated 18 October 2010, source: NLKR)

IncoNet EECA





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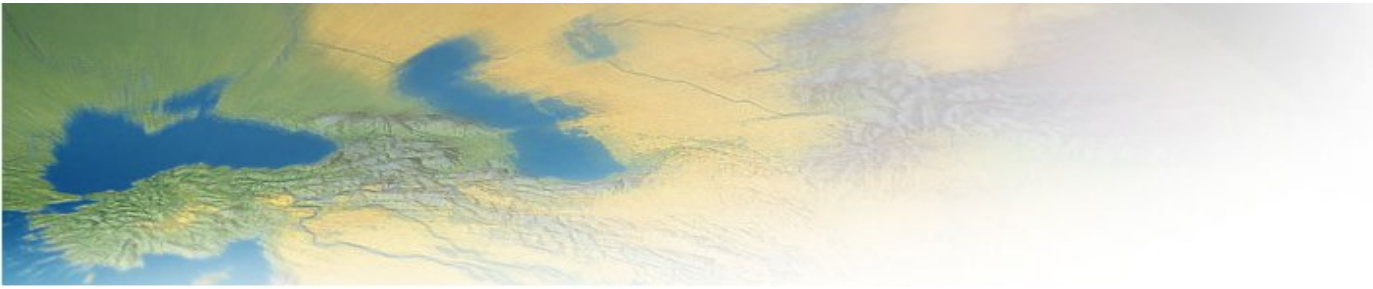
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General Information about Kyrgyzstan

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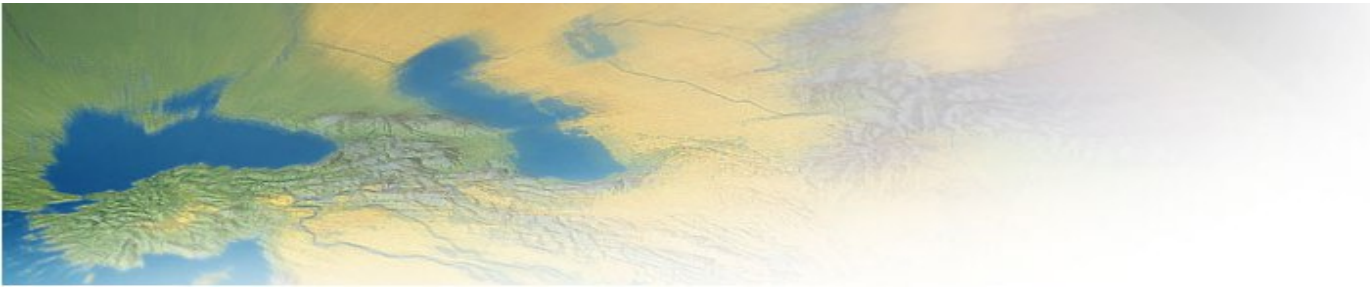
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General information about Kyrgyzstan:

Official name of the country	The Kyrgyz Republic
Population	5,431,747
Area	199, 951 sq km
Capital	Bishkek
System of Government	Parliamentary Republic
Head of Government	President Roza Otunbaeva Prime Minister will be appointed after the Parliamentary Elections
Minister of Education & Science Parliament	Kanat Sadykov Parliamentary Election was held in Kyrgyzstan on 10 October 2010. All 120 seats of the <i>Jogorku Kenesh</i> were elected by using a party list system. As a result of the elections 5 parties were elected, negotiations between them on forming the coalition is going on.
Administrative structure	Kyrgyzstan is divided into seven provinces (oblasts) administered by appointed governors, and two cities with municipal status. Each province comprises of a number of districts (<i>raions</i>).
Geography	Kyrgyzstan is a landlocked nation in Central Asia, it is bordered on the east and southeast by China, on the north by Kazakhstan, on the west by Uzbekistan and on the south by Tajikistan. The terrain of Kyrgyzstan is dominated by the Tian Shan and Pamir mountain systems, which together occupy about 65 % of the national territory. The climate varies regionally. The south-western Fergana Valley is subtropical and extremely hot in summer. The northern foothills are temperate, and the Tian Shan varies from a dry continental to polar climate, depending on elevation. In the coldest areas, temperatures are sub-zero for around 40 days in winter, and even some desert areas experience constant snowfall during this period.



Research structure

Characterisation of the research system

There are two separate and independent structures in Kyrgyzstan: The Ministry of Science, Education (MSE), and the National Academy of Science (NAS KR), which actually acts as a Ministry in itself and coordinates the branched- and university science, as well as academic institutes. Out of this, an Agrarian Science emerged, which is similar as NAS, but exists separately and is directly financed by the Ministry of Finance. It does not, and is not required to report to any other above stated institutions. All of this shows the non-existence of a united, centralized state body, to coordinate all of the country's scientific spheres, holding one and the same scientific and technical policy for all areas, thus, we see more serious and negative results from this system, rather than positive ones, even on state level.

The scientific potential of republic consists of about 5, 000 research, science and pedagogical and research and technical experts, including more than 600 doctors and 3000 candidates of sciences.

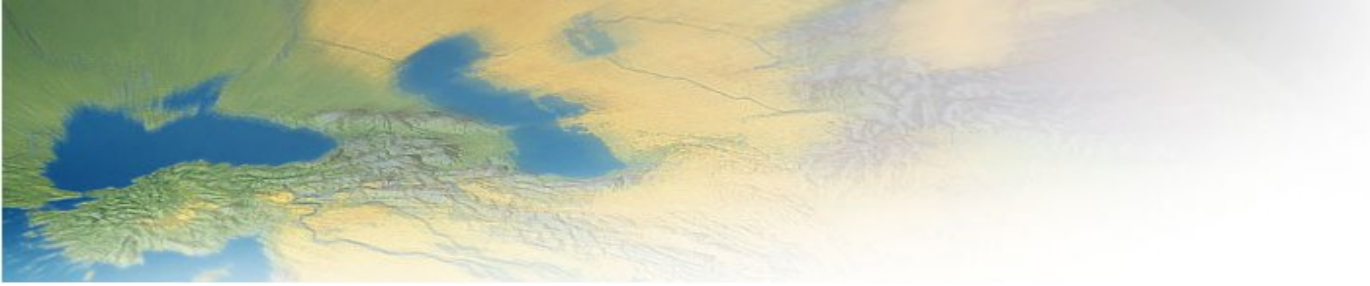
As a result of this weak structure on governmental level, there is a lack of the necessary institution(s) and national structure, in the area of science, which counts as one of the most restraining factors in the developments of science in Kyrgyzstan. As a visual sample, we can use and look at the functioning of the analogical scientific institutions of MSE, NAS KR and the MA, with their similar divisions, labs, and same scientific program.

There, it can be seen that quite the same structure exists, which duplicates each other on each level, thus, brings with it the separation and wasting of some amount of the state budget, earmarked for science.

The given budget for science has started to disappear rapidly among the numbers of smaller scientific institutions', branches, and academic centres, which appeared after the entrance into market economy.

The bigger and more surprising paradox is, that all these scientific institutions and organizations, no matter the size, nor the years of operation, put together their own programs and projects and, for those, demand money from the country's budget and, after receiving their requested amount, they then calmly continue their "work", more slowly than speedy.

Any kind of monitoring and research about the usage of their product by market, society and state, after their initial research, if at all done, and whether it will be in demand or not, is not being conducted, and correct market-research, before and after, doesn't exist. Trained people, which are able to systematize on the macro-scientific level, are missing,



and the most interesting part of this whole situation is, that nobody feels and wants to be responsible for it.

All of the above tells us and shows clearly the urgent necessity of radical reform in the sphere of science in Kyrgyzstan.

Research indicators

Science indicators are developed for the strategic program of development of science and innovations for the period 2009-11 (within the limits of new Strategy of development of the country for the specified term), it was prepared in 2008, and it will be accepted by the Government of the Kyrgyz Republic.

Research indicators of the recourses on the priority level of the country:

- Water problems and renewable sources of energy
- New technologies and materials

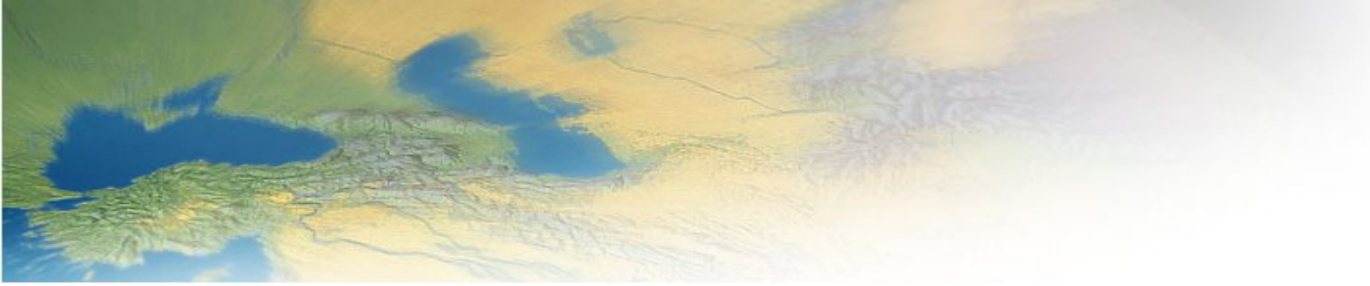
Inclusion of the orders into the list of the proposed state scientific and technical programs, which are going to be in use, can be defined by their coincidence to the priorities, having scientific potential, material and technical basis, which is enough to fulfill the order.

The ministries, institutions, departments, and other central- and regional bodies, are the primary customers of the purposed short-, medium-, and long-termed goals of state scientific- and technical programs, which are using currently the science for their own branched problems.

Scientific researches and elaborations, which are being done through the budgetary money and formed through the republican and regional projects, which have been included into the states' proposed scientific and technical programs.

Research funding system

Financing of science is multi - channelled: the separated line of the republican budget subsidizes scientific institutions of the National academy of sciences of the Kyrgyz Republic, the Ministry of rural, water management and a process industry of the Kyrgyz Republic and the Ministry of Education and Science of the Kyrgyz Republic. Other ministries and departments are being supported the scientific divisions at the expense with the help of off-budget means.

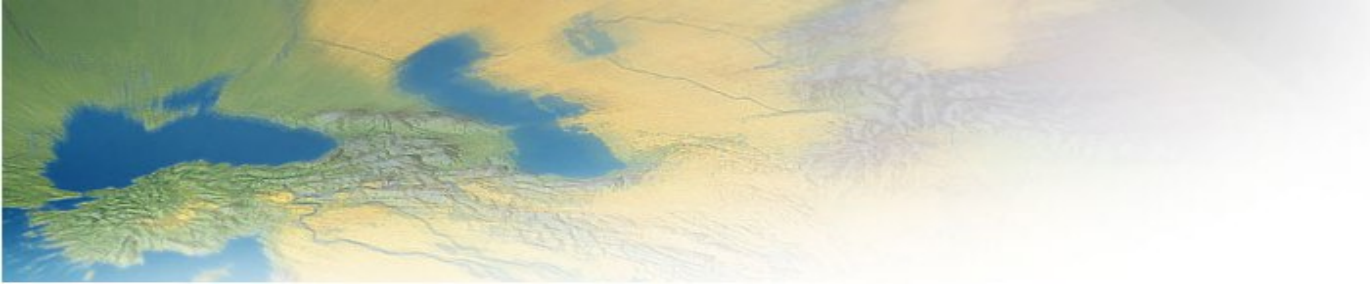


Unfortunately, only 0.11% of the country's GDP is given to science, which is 10-12 times smaller than in other CIS countries, and 26-40 times smaller than in higher developed countries!

The current law of financing and of salaries, have brought with it the crisis of the condition in science in this country, and contributed to the "brain drain" of the most capable part of the scientific staff, as well as to the other economic branches, in comparison to other countries.

Today, Kyrgyzstan finances only 3 lines (so called defended items) in the scientific sector of the country, which are: salary, the payment to a social fund, and the payment for municipal services (and this not even fully). As for other items, necessary for normal scientific activities, such as buying new and modern scientific equipment and reactive, experimental researches, transport, expeditions, field works, travel expenditures, scientific contacts, training of scientific personnel, publications of materials, participation in conferences, and many other, are not being properly financed (only 3-5%).

The MSE finances 60 scientific- and research institutes of university- and branched science, encompassing 198 scientific projects in the amount of 35.0 million soms (local currency). In 26 Institutes of the NAS KR, 51 projects for about 80.0 million soms are being financed, and in 3 institutes at the Ministry of Agriculture (MA), 72 projects are being financed for about 12.6 million soms. There are 89 Scientific- and Research institutes and Universities in the KR, which carry 252 of combined scientific projects, with the cost of around 127.6 million soms. According to statistics: for each singular scientific project (no matter as to which entity it belongs to), amounts of 0.18 million-, 1.6, and/or 0.17 million soms are being granted individually. This shows that, in average, the amount spend for each one single project, is close to 8 times larger, than the amount spend and granted, of the branched- and universities scientific projects. As a whole, the academic science receives 63% of the total budget, which includes all of the countries science departments and projects. Of this, 27% were distributed to the university's science departments, while 10.5% were given for Agrarian researches.



Research policy

Context of research policy

Uniform coordination of a science is not present for today; the new bill «About a science and innovative activity» was brought to the Government of the Kyrgyz Republic in the second quarter of 2008, but till now it was not accepted by Jogorky Kenesh (Parliament) of the Kyrgyz Republic. There were showed definite purposes, problems and priorities of the State Scientifically - Innovative Policy.

The cornerstone of Scientific - Technical Policy, is the state-order for science, on the basis of which there are priorities defined by the state.

Directions for the development of fundamental science are being defined by the scientific community; they are proceeded from the tendencies in the development of world science and techniques, on the basis of scientific-, material- and technical potentials. The main directions of the surveys in the fundamental sciences are defined by the NAS KR and MSE, integrating from the priorities of the economic development, society and the receivment of new results.

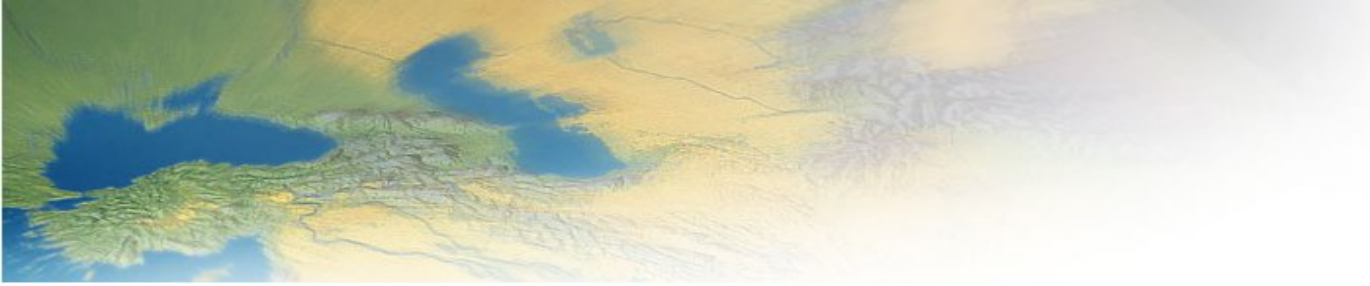
Research policy: objectives and priorities

The purpose of the research policy is the transformation of the researched resources, to channel into the economy and renovation of Kyrgyzstan, by reforming and holding effective state research policies, adequate to the economic position and its priorities and the development of the Kyrgyz Republic in the nearest future.

Policy making and coordination

A National Plan for science and its development was composed, in which was underlined, that:

- Science in Kyrgyzstan is observed as one of the sources of economic growth, and its potentials as indicators of competitiveness of the country on the world market;
- Scientific and technical progress and their effective and purposeful usage and their achievements, are the necessary conditions for a firm human development in the XXI century;
- Nevertheless, of all the encountered difficulties of the transformation period, Kyrgyzstan, to some point, has kept its scientific and technical potentials, by the ongoing operation of scientific schools, achievements in the areas of medicine and agrarian science, the creation and incorporation of new techniques and technologies in the building and construction science (sector), in the investigations of mineral



recourses, in the ecology- and natural disciplines, as also in the economics- and social sciences:

Altogether, however, there are also problems, defeats and not used possibilities, which are:

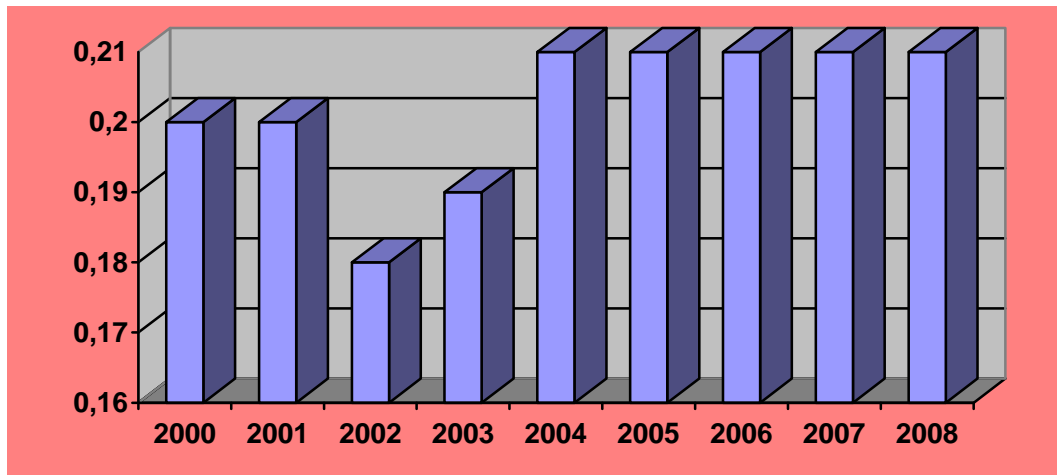
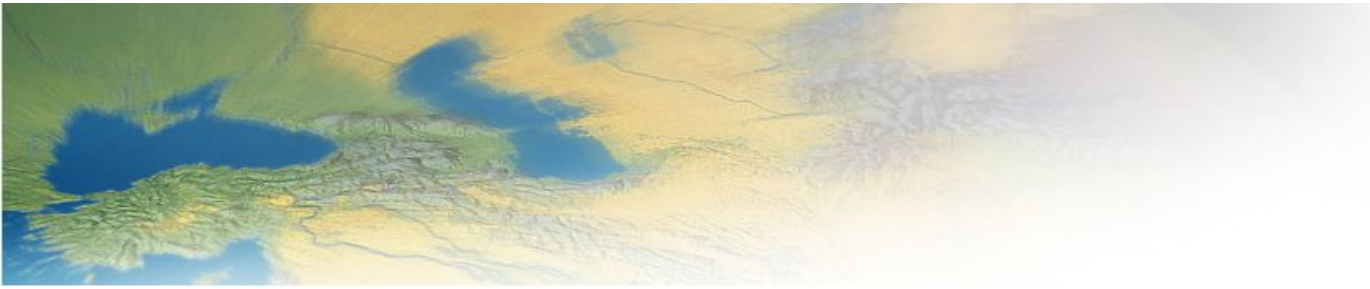
- Lack of functioning ties between ministries, administrative institutions, enterprises, and scientific institutions of the republic;
- Non- specified, low expectations, of and towards elaborations, brought on by inculcation;
- Lack of high technological and flexible, small enterprises, carrying scientific products, which are easy to rebuild for, and into new types of products, in connection with the conjuncture of the market;
- Not enough state-recourse supplements of the scientific and technical sphere;
- Low level of budgetary financing and low part of out-of-budget sources of finance;
- Lack of financing of science from private sectors.
- Science is coordinated by the National Commission of Science, under the President of the Kyrgyz Republic.

National research programmes

The NAS of the Kyrgyz Republic has developed a complex program, to activate the researches and popularization of the history of Kyrgyz Statehood, for the duration of the years of 2006-2010.

Additionally, a State Program for the development of science and innovative activities in the Kyrgyz Republic was developed, being set to be implemented during the period of 2006-2015.

The purpose of those programs is the creation of an innovative economics, on the basis of native and foreign scientific, technical and intellectual potentials. Unfortunately, however, the realisation of the given programs needs financial recourses. Budgetary assignation of the last years show permanent positions of the budget policy in financing science, i.e., that there is not yet priority given to any of the given items.



Picture 1. Assignment for the R&D from the budget of the State of KR, in % GPD

The national innovative system in the Kyrgyz Republic (on the basis of the foreign experience), intends its realization in several periods:

I - period –it is a creation of preliminary conditions for the forced transition for innovative ways of development (2006-2008)

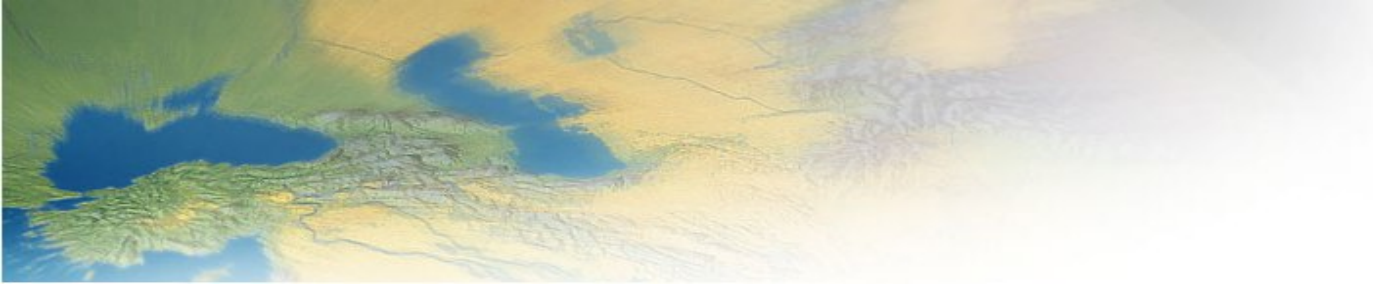
- Activation of innovative potentials in the environments of entrepreneurships;
- Preparation of the conceptual, institutional, and legal bases, to introduce a modern system of innovative and mutual actions, between the state and scientific and technical sections and the industry;
- Organization of constant monitoring, using as basis expertise on the regulation of/on business activities, innovative, scientific and technical activities, and practice of the usage of the legislative norms, for its corresponded building of international standards;
- Repair of the supporting structure on the main directions in technology, on the basis of organizational partnerships of state and industry.

2-period-formation of the net mutual actions (2007-2010)

- Organization of the constant process in clearing up and monitoring the factors and barriers, which are interfering on innovative activities;
- Introduction into practice of the elaborated institutional instruments;
- Terminal introduction, and putting into action, the schemes of the state assistance towards the processes of diffusions and transfers of technologies;
- Clear up the existing nest and clusters.

3 period - clusterization of an innovative system (2009-2015):

- Transfer to the state scientific-technical and innovative policy from the support of separate organizations, leading research and elaborations, to the support of development in the relation to the clusters, connected organizations, holding research, elaborations and inculcations

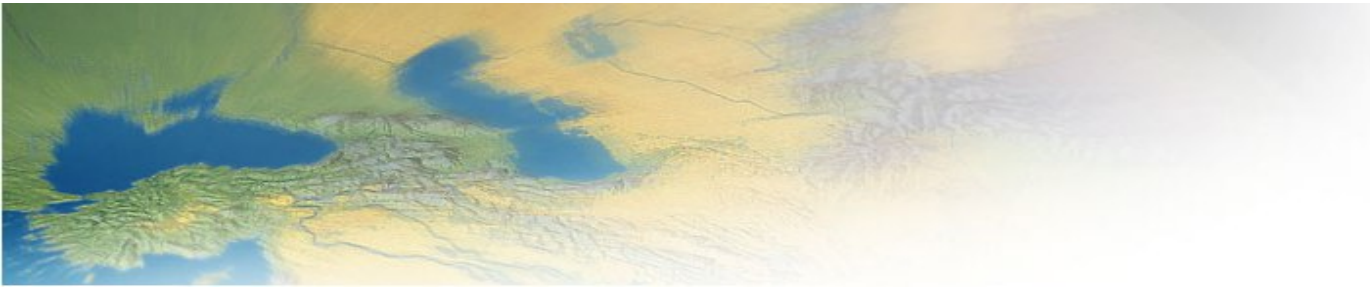


- Necessary recourses for realization of the Program will demand the means of around 2.6 - 3.0% of GPD.

The Program foresees the necessity of maximal involvement of the private sector, venture capitals, native and foreign capital.

We took into consideration the situation of the developed countries, while we were defining the given meanings and the extraction of the recourses for Scientific Research in KR, where financing of the scientific activity from 0.4 - 2.6% should supply only research work, and only 2.6% from GPD shall be brought into the innovative way of the economy, thus can be reached:

- Increase of the direct foreign investigations into innovative- and research-activities
- Optimization of the financing system of the applied researches of KR
- Creation of an effective, innovative infrastructure, including of a united informative basis of innovative activities in the republic.
- Formation of a system of venture finance, with the participation as a native, for foreign capital increase.
- Increase of the level of innovative management
- Improvement of the legislative basis, in connection with the holding of innovative developments policies.



International co-operation in research, science and technology

Scope and objectives

The main component in the state research policy is the international research co-operation.

The Kyrgyz Republic accomplishes an international co-operation in several directions:

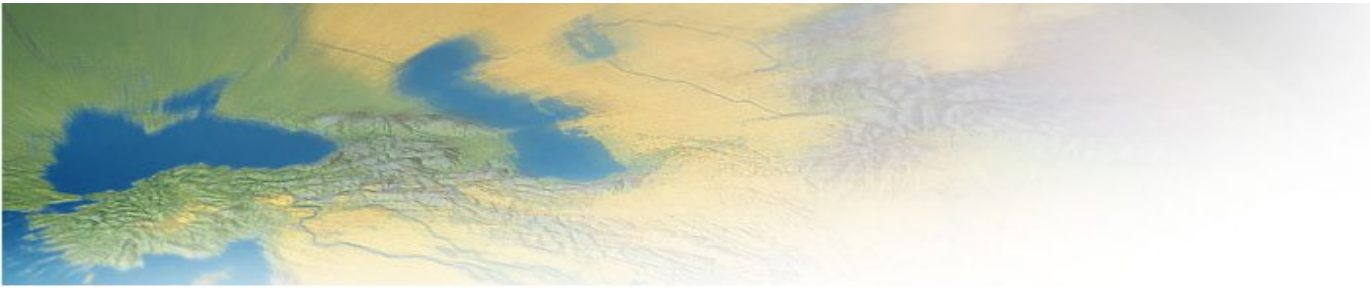
First of all, activities in the frames of inter-academics, inter-ministry, systems-associations, and boards; secondly: co-operation with concrete research- and international organizations, locally and abroad; thirdly: contacts on the institutional levels and other divisions of the NAS KR and MSE of KR.

Definite attention is paid to recreation of the co-operative ties with the CIS countries, in accordance with modern realities, keeping research schools, and the joint usage of unique scientific objects and buildings.

Concordance of the research policy, in the frames of CIS, must foreseen the definition of the priority directions of co-operation, achievements, and the united standards and methodology in organizations of researches, harmonization in the national laws, in the sphere of science, and full usage of infrastructures and recourses.

In the field of innovative activities, an international co-operation is oriented for getting commercial effects. In the conditions of lack of recourses and fall of the internal necessities in scientific labs, subjects of scientific and innovative spheres, they themselves bare looking forward to develop external economic ties. So, international contacts develop in the condition of the decrease of state influence and control, of such activities. Foreign investments are uncontrollably used in the areas of science, unqualified trade of technologies, "know-how", and other objects of intellectual properties.

External economic activities are often being hampered, or stopped altogether, by either, some, or all of following problem-areas : not solved organizational problems, non-flexible tax policies, under- or undeveloped infrastructure, lack of experience, lack of specialists and/or specialized systems, and the divisions of staff of research organizations. For the solution of these problems, it is necessary to develop a system of training managers on international levels, for innovative activities, for keeping measures to supply patent (and other), and for the security of intellectual property.



Co-operation with EECA-countries

One of the perspective ways to develop science and elaborating new technologies, is the widening of international scientific ties, and the strengthening of current ones.

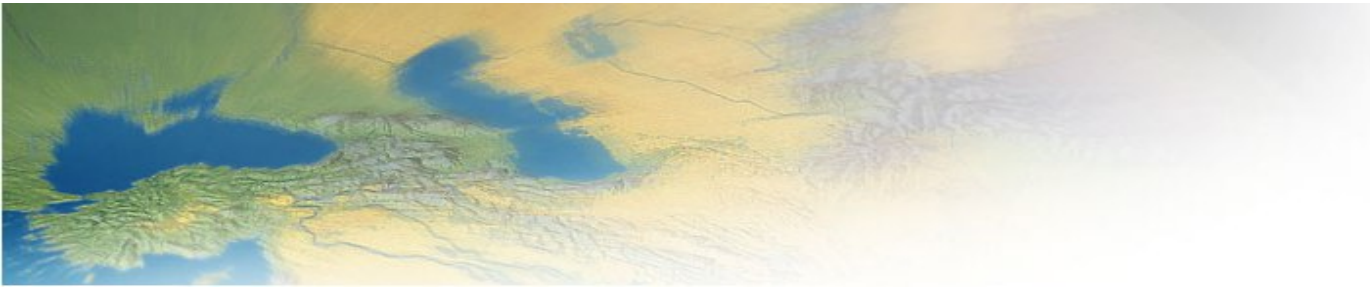
The amount of Grant-support allowed conducting field works. Supply labs with up-to date equipments, to attract young researchers and to take part in international congresses, symposiums, conferences and seminars.

Projects to attract investments include researches on ecological pollution and underground waters, system elaboration to rule the water-spread system, incultation to the market of biogas equipments, an mountaineer technique, elaboration of the system of control and usage of electric power, evaluation of a landslide risk in the regions of dislocation of hydro-technique constructions, etc.

A bright sample of the successful international co-operation, is the creation of, according to the International Research and Technical Center, a radio-physic observatory on the lake Issyk-Kul, to receive operative information of the condition of the ozone-level, above the whole region of Central Asia. There are already preliminary agreements, on including this observatory into a world-wide net on the monitoring of the atmosphere.

Last year, several successful developing projects on the monitoring- and prevention of epidemics of the most dangerous infections in human beings and animals, received more than 1 million dollars in funds.

Above was given an information about joint research projects, conducted on the basis of foreign grants and, because of it, our scientists became co-actors of these international projects, such as "Keeping the monuments of the Great Silk Road", "Composition of specialized geological, geo-physical, and mineral-genetic maps of Central Eurasia", "Geo-dynamics and geo-ecological problems of the high mountains of Tyan Shan", International geological correlative program "Gold, silver, telluric and selenium consisting mines". Our scientists worked closely with, and co-operated with RAN and SO RAN, the Ural State Technical University, the Islam Philosophical Society (Turkey), as well as diverse research centers and universities of Eastern Europe and Central Asia. Meaningful and strong international research ties and relations were built in this atmosphere of archaeology and ethnography, with scientists of the Russian Academy of Science in Moscow, Saint Petersburg, Novosibirsk, Yakutia, Tajikistan, Kazakhstan, and Uzbekistan, and of the International Institute of Central Asian researches in Samarqand.



Co-operation with EU-member states and associated countries

In the process of working out the steps of co-operation with NATO, in the frames of SEAP/PRM, Kyrgyzstan pays great attention to the non-military sector. This direction is seen as a priority and is especially noticeable through the acts of communication, out of military involvement. Through the development of practical ties with scientific committees of NATO, and scientists of NAS KR, parts in three different research projects, under the label of this organization, have been taken, thus strengthening the relations with the committees, in accord of the calls of modern society.

Nowadays, in the KR NAS's center, the Agency is looking closely into possible problems, their solving and preventions, to, in the end, will supply a constant exchange of information about current measures of the Agency, of which all scholars can take part.

The international project "Virtual Silk Speed Road", is a easy tool for scholars to access and enter into the scientific and educational institutions of KR, the European research nets and internet. This project is created and directed for the support of academic communities in Central Asia and Caucasus. It also supplies an access to the informative recourses of the NATO countries, together with the necessary telecommunication infrastructure of scientific- and educational computer nets, and it reduces expenditures for an internet in the country.

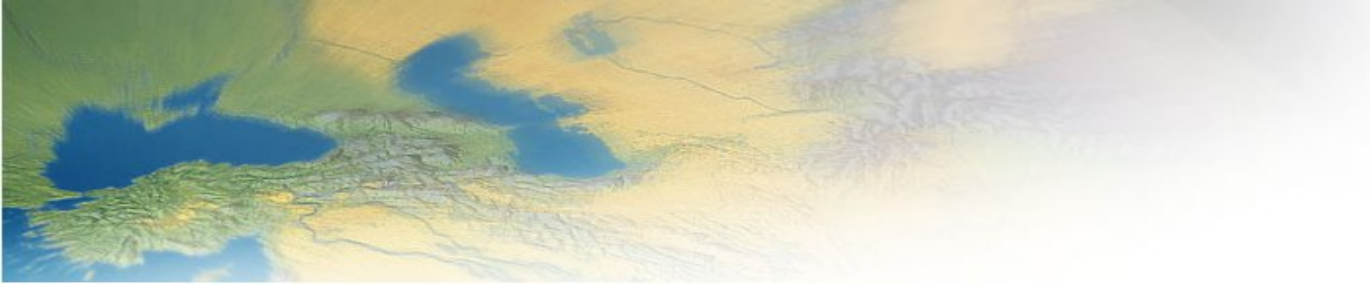
Also are in existence projects of the program "Science for peace", which is directed to transfer in inculcation, the scientific achievements into industry, to help strengthening the safety in our region, and to serve for integration in the fields of science and education with NATO countries.

With the help of the administration of the NATO Committee and, in accordance to the calls of modern society, a practical realization of the experimental project "Solution of the ecological problems in the aim of firm development in the countries of Central Asia" had been started.

Researches, with the help of the EU, and University funds from Zurich, Velix, Carl Popper, Swiss National Scientific Fund, Kirles, and the Government of Norway and the Christensen Foundation, were conducted.

In the frame-work of the Program of "Farm agrar-variety in Central Asia", sponsored by the UNEP/GEF, and in accordance of the Project of the IPGRI International Institute of genetic recourse of the plants (Rome, Italy), more than 25 forms of wild fruit cultures, for further usage in the selective works, were being gathered.

At the project "Elaboration, spread and inculcation of the normative rules to collect the wildly growing berries, in accord to International practice", with the support of the Program for smaller grants of the UNEP/GEF, and the project "Convention", of GTC and



the UN, which is about the land-flee of Central Asia and its constructive measures for its reverse, were discussed together with some local and foreign specialists. Also, during those discussions, some normative rules were worked-out, to collect wildly growing berries and herbs”.

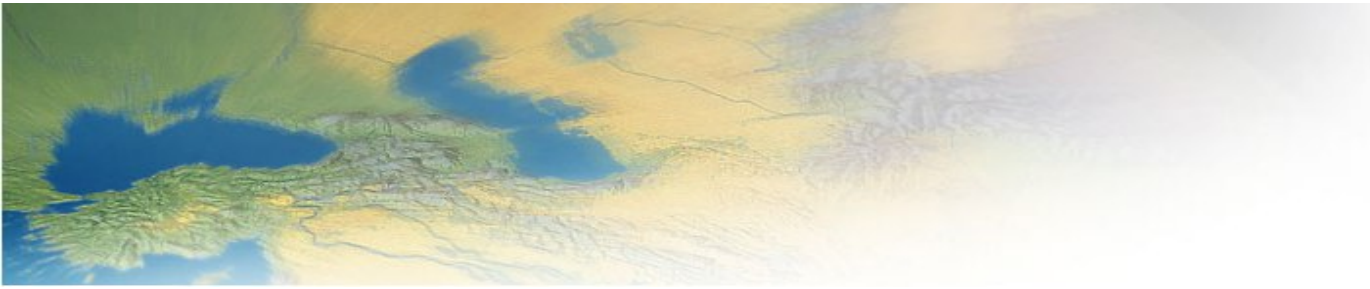
By the project ISTC KR-964 “Detoxicants of the complex influence on the basis of gummous substances”, were the detoxification-qualities of the gummous acids in the coal of Kara-Keche and Kizil Kia, in the relation to the hard metals, was discussed and researched, and the neutralizing and rendering action of detoxicants was discovered.

The works, done by our scientists, received wide support, in the form of grants from different international research funds, such as ISTC, IAEA, and other diverse programs and organizations of the EU. The most noticeable and widely acknowledged projects are:

- Evaluation of the seismic risks in Central Asia (Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan)
- The Institute of seismology, funding of ISTC.
- Geo-dynamics of Talas, the Fergana Valley, and of Tian-Shan, as well as natural disasters on the territory of the Central Asia-Institute of Seismology, funding of ISTC.
- Conducting of the international monitoring, above the seismologic and atomic explosions, on the basis of equipments of IRIS, funding of OMSE and SVTO.
- Apparatus and methodological supply for the monitoring of the ozone level above Central Asia, by the radiometric method-Institute of physics, funding of ISTC.
- Digital geological map of the Inner Tian – Shan, - Institute of geology, Swiss Research Foundation.
- Evaluation of the geological risk in the area of storage at high-mountain-air, of Minkush- Institute of physics and mechanics of mountainous rocks in Minkush mine, Institute of physics and mechanics of mountainous rocks, funded by CRDF.
- Study of the quadric waves in the change of climate, on Tian-Shan, - frozen and waves of the levels in flowing lakes, such as Issyk-Kul and Chatir-Kul, through the Institute of water problems and hydro-energetic, funded by ISTC.

EU-funded co-operation/ projects

Of the recognition by the international communities, of the high qualifications of our scholars, speaks the following fact that, in 2006, NAS was included into the elaboration of the State-program “Between States”, of the Eurasian economic communities, as being the seventh, out of eight priority directions.



Kyrgyz Scholars are also in co-operation with the scientific centres and universities of France, Germany, Belgium, Finland, Great Britain, Holland and the French Research Institute in Tashkent, the CNRS of France, and continued work with UNESCO and UNDP.

- Universal algebra and the theory of cells, of the Mathematics Institute, INTAS.

Further co-operation

We are greatly interested in the creation on the territory of Kyrgyzstan, in joint with foreign companies of research and innovative-technological systems, and participation of venture capital, which will supply interested Kyrgyz and foreign participants in international, innovative co-action, for effective practice of normative- and agreement-based, two-sided and multi-sided, international research co-operation.

Ministries, branches, and territorial organizations of the Kyrgyz Republic, give the possibility for the realization of the conceptions, in the areas of organizing the infrastructure for the national innovative system (innovative institutes, industrial parks, business-incubators, ventured and innovative funds, innovative-technological zones etc.), of the different branches and regions.

International co-operation must be widely used, as in the areas of staff-training in the research and technical complex, the creation of the united scientific, technical and informative spaces, within the frame of CIS, and the sharing of propaganda abroad, for and of the achievements of the native science.

Source:

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