Information Exchange in Science and Technology between the European Research Area and Eastern Europe | Central Asia | South Caucasus

Uzbekistan
Country Report
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IncoNet CA
Uzbekistan

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General information about Uzbekistan:

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<th>Official name of the country</th>
<th>Republic of Uzbekistan</th>
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<tr>
<td>Population</td>
<td>31.574 million (2016)</td>
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<tr>
<td>Area</td>
<td>Total: 447,400 sq. km; land: 425,400 sq. km; water: 22,000 sq. km</td>
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<td>Capital</td>
<td>Tashkent</td>
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<tr>
<td>System of government</td>
<td>Republic; Cabinet of Ministers: The government of the Republic of Uzbekistan is the executive power body of the Republic of Uzbekistan, ensuring guidance on effective functioning of the economy, social and cultural development, execution of the laws, and other decisions of the Oliy Majlis, as well as decrees and resolutions issued by the President of the Republic of Uzbekistan.</td>
</tr>
<tr>
<td>President</td>
<td>Islam Abduganievich Karimov</td>
</tr>
<tr>
<td>Prime Minister</td>
<td>Shavkat Miromonovich Mirziyoev</td>
</tr>
<tr>
<td>Parliament</td>
<td>The Oliy Majlis of the Republic of Uzbekistan consisting of two chambers – the Legislative Chamber (the lower chamber) and the Senate (the upper chamber)</td>
</tr>
<tr>
<td>Geography</td>
<td>Most of the territory of Uzbekistan is occupied by plains (nearly four fifths of the territory). One of the main plains is the Turanian Plain. In the east and north-east of the country are the ranges Tien Shan and the Pamirs, which is the highest point in the country. One of the largest deserts in the world, the Kyzyl Kum desert, is located in the north of the central part of the territory of Uzbekistan.</td>
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State authority:

Cabinet of Ministers - The Government of the Republic of Uzbekistan is the executive power body of the Republic of Uzbekistan, ensuring guidance over effective functioning of the economy, social and cultural development, execution of the laws, and other decisions of the Oliy Majlis, as well as decrees and resolutions issued by the President of the Republic of Uzbekistan.

The activity of the Cabinet of Ministers is based on the law of the Republic of Uzbekistan "On Cabinet of Ministers of the Republic of Uzbekistan" dated May 6, 1993. The Cabinet of Ministers heads the system of bodies of state management and established bodies for economic management, and ensures their coordinated activity.

The Cabinet of Ministers is competent to consider:

1. issues concerning state and economic, social, financial, money-credit policy, the development and realization of the programs related to science, culture, education, healthcare and other spheres of economy and social sphere;
2. implements the measures to protect economic, social, and other rights and interests of the citizens;
3. Issues resolutions and ordinances in accordance with the current legislation. This shall be binding on all bodies of administration, enterprises, institutions, organisations, officials and citizens throughout the Republic of Uzbekistan.
4. Provides the laws implementation of the Republic of Uzbekistan, Oliy Majlis decisions, decrees, acts and orders of the President of the Republic of Uzbekistan;
5. Makes annual reports to Oliy Majlis of the Republic of Uzbekistan on the important issues of social-economic life of the country;
6. Fulfils other authorities indicated in the constitution and laws of the Republic of Uzbekistan.

The Cabinet of Ministers issues decrees and orders in accordance with constitutional norms and acting legislation that is mandatory to implementation over the Republic of Uzbekistan by all authorities, enterprises, institutions, organisations, stakeholders and citizens. The Cabinet of Ministers is responsible in its activity to the Oliy Majlis and to the President of the Republic of Uzbekistan.

The Prime Minister of the Republic of Uzbekistan organises and directs the activities of the Cabinet of Ministers. He is personally responsible for its performance, preside at meetings of the Cabinet of Ministers, signs its decisions, the Cabinet of Ministers is in international relations and signed intergovernmental treaties and agreements, in consultation with the President of the Republic of Uzbekistan distributes responsibilities among the Deputy Prime Minister, decide on the governance and management, do not require consideration at a meeting of the Cabinet of Ministers, President of the Republic of Uzbekistan is making representation on the appointment and dismissal of khokims regions and Tashkent city, performs other functions provided by the laws of the Republic of Uzbekistan.
Research structure

The system of R&D management accepted in Uzbekistan is based on state support of fundamental & applied research by awarding grants for relevant projects through their peer-review selection.

S&T priority fields for the country are formed taking into consideration main priorities for socio-economic development, as well as modern trends of global science development.

The research complex of Uzbekistan includes more than 361 institutions in academic, higher education, medical and agricultural spheres (193 research institutes, 76 universities, 65 design organisations, 32 scientific & production associations and experimental enterprises). The number of research institutes has decreased due to the reorganisation of the Uzbekistan Academy of Sciences.

The Committee for Coordination of Science and Technology Development under the Cabinet of Ministers of the Republic of Uzbekistan (CCSTD), The Academy of Sciences, Ministry of Higher and Secondary Specialized Education, Ministry of Agriculture and Water Resources and Ministry of Healthcare of Uzbekistan are the main ministries with the biggest scientific research infrastructure.

The Committee for Coordination of Science and Technology Development under the Cabinet of Ministers of the Republic of Uzbekistan (CCSTD) is the main governmental body responsible for implementing the state S&T policy. CCSTD was established by the Decree of the President of Uzbekistan No. 436 dated 7 August 2006.

The Committee for Coordination of Science and Technology Development under the Cabinet of Ministers of Uzbekistan approved the priority directions for the development of science and technology for 2012-2020, which were developed by the leading scientists and specialists of the country jointly with the ministries and departments concerned.

The priority directions for the development of science and technology for 2012-2020 comprise the following thematic areas:

- Spiritual-moral and cultural development of democratic and legal society, innovation economy formation
- Energy, energy-resource saving
- Development of renewable energy resource usage
- Development of information and communication technologies
- Agriculture, biotechnology, ecology and environmental protection
- Medicine and pharmacology
- Chemical industry and nanotechnologies
- Earth sciences (geology, geophysics, seismology)
The main tasks of CCSTD are as follows:

- Working out priority fields of S&T development taking into consideration tasks of socio-economic development of the country and achievements of modern science and technologies;
- Coordination of research programmes, innovation activities of ministries, departments, universities, institutes and design organisations in the framework of the priority S&T fields;
- Monitoring and implementation of research and innovation projects, efficiency of use of funds allocated to relevant projects and application of the projects' results in industries;
- Development of mutually beneficial international S&T co-operation, involvement of foreign investments in the country's scientific sphere, assistance to research institutes, universities, scientists and engineers of Uzbekistan in wide participation in international S&T programmes.

Organisational chart of CCSTD

Academy of Sciences of the Republic of Uzbekistan (hereinafter referred to as Academy) is the highest scientific organisation in the country, that is carrying out fundamental, applied and innovative research (hereinafter – research or research
investigations) in science, technology, culture and education, and providing effective management and coordination of scientific research and timely introduction of the achievements of science and high technologies in practice helps to improve the intellectual, economic and spiritual potential of the state.

It unites academicians and foreign members of the Academy of Sciences, as well as research fellows and specialists working in its institutions.

The Academy is financed by state budgetary and extra budgetary funds attracted and invested in the prescribed manner.

**Academy of Sciences of Uzbekistan** performs the following tasks:
- Pursues basic and applied research in the field of natural, technical, medical, social and human sciences, thereby contributing to the economic, social and spiritual development of society;
- ensures implementation of the state policy in the field of science;
- analyses and examines current problems of development of nature, society and man, development of the relations among nations and national cultures, countries and peoples, education and intellectual and moral values;
- realizes development and practical implementation of new techniques and modern technologies;
- promotes the development of science-intensive industries, exploring the latest advances in science and technology and supports the wide use of them;
- provides training of highly qualified scientific personnel, the necessary conditions for productive creative activities of Uzbek scientists;
- promote effective integration of science, education and industry;
- provides the organisation and co-operation with the academies, universities, research institutions, foundations, and other related organisations in foreign countries, as well as with international scientific organisations.

**The Academy of Sciences** consists of 28 research institutions and 4 State museums, 4 fundamental library and 1 training center which are organised into three organisational complex according to scientific areas:
- physical and mathematical sciences and engineering;
- chemical and biological sciences and earth sciences;
- social and human sciences; and two Regional Departments - Karakalpak Department and Khorezm Mamun Academy.

Currently, the Academy of Sciences of Uzbekistan accounts for more than 4793 scientific staff members, including over 2200 scientific workers, 73 Academicians, 281 Doctors and 745 candidates of Science.

To date, Academics and other leading scientists of the Academy of Sciences conduct their activities in various fields of science and education. Academy of Sciences of the Republic of Uzbekistan is actively involved in international cooperation, scientific contacts are
established and joint research is conducted with research organisations, scientific societies, institutions and universities of more than 40 countries of the world.

Academy of Sciences of Uzbekistan in recent years successfully developed international scientific and technical links with its traditional partners from the CIS countries - Russia, Ukraine, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan, Azerbaijan, and the United States, Germany, France, China, Korea, Japan, Turkey, Egypt and other countries.

Bilateral agreements on cooperation were concluded with the Royal Society of Great Britain, Russian Academy of Sciences, National Academy of Sciences of Ukraine, National Academy of Sciences of Belorussia, Chinese Academy of Sciences, Mongolian Academy of Sciences, Academy of Scientific Research and Technology of Egypt, and the academies of sciences of other countries. Academy of Sciences of the Republic of Uzbekistan is one of the founders of the International Association of Academies of Sciences (MAAN or IAAS), the membership of which includes the national academies of 15 countries. In order to enhance the scientific and technical cooperation, to introduce in the process the latest technologies created by Uzbek scientists, as well as to realize practical application of research and development projects, the Academy of Sciences established a close cooperation with such well-known foreign firms and companies as "Telecom" (Malaysia), “Sandoz-Agro” (Switzerland), "Latoksan" (France), "EN Technology Incorporation" (Korea), “Chemotrade GmbH” (Germany) and others. Scientific institutions of AS RUz concluded 26 international agreements on bilateral scientific and scientific-technical cooperation.

Under the Ministry of Higher and Secondary Specialized Education of the Republic of Uzbekistan there are 72 universities and research institutes, with the highest research potential (approx. 65% of PhD researchers are working in this system). A further strength of the higher education research infrastructure is that it is located not only in the capital city Tashkent, but also in the provinces: the universities of Samarkand, Bukhara, Khorezm, Fergana and Termez have strong research teams and well equipped labs, which successfully participate not only in domestic research programmes, but also in programmes and calls of such international organisations as the Volkswagen Foundation, Konrad-Adenauer-Stiftung, Goethe-Institute, DAAD, GIZ, JICA, KOICA, TEMPUS, Erasmus Mundus, etc.

International cooperation in the high education sphere is conducting by intergovernmental and interdepartmental agreement with Republic of China, Korea, Malaysia, Egypt, Sultanate of Oman, Russian Federation, Azerbaijan, Turkmenistan, Ukraine and other countries.

The Universities of Uzbekistan have direct cooperation with leading Universities of the USA, Germany, Great Britain, France, Italy, Japan, Republic of Korea, Republic of China, Malaysia, India, the Russian Federation and other countries in the framework of inter-institutional agreements.
The **Scientific & Production Centre of Agriculture** under the leadership of the Ministry of Agriculture and Water Resources is the biggest R&D infrastructure of Uzbekistan in the field of agriculture, with 12 research institutes and 6 higher education establishments. Research carried out at the centre is directed at solving the main S&T problems in the agricultural industry (breeding of new varieties of cotton and other industrial crops, resistance of plants to environmental stresses, water-saving technologies, new effective fertilizers, horticulture, etc.). At present this centre is actively co-operating with Korea and Austria.

The **Ministry of Healthcare** is the central body of governmental management of healthcare and it depends on Cabinet of Ministers in its activity.

The Ministry accomplishes its work in interaction with other state administration bodies, executive bodies of the Republic of Karakalpakstan, regions, city of Tashkent and public organisations.

Under the **Ministry of Healthcare** there are 3 scientific-practical centres, 5 scientific-research institutes, 5 practical centres, 10 educational institutions and 14 territorial bodies. The total number of persons involved in R&D in the field of medicine and development of new effective drugs is more than 5074.

In addition to the institutes and universities subordinate to the aforementioned ministries, there are another 143 institutes and universities belonging to other ministries and independent entities which also have rather significant research potential (approx. 25%). Coordination and financing of the R&D activities of these entities are executed directly by CCSTD and this research covers practically all priority S&T fields.

A grant-based system of state support for research activities has been introduced on a competitive basis. In 2014, 1742 projects of fundamental and applied research and innovative developments were implemented in the framework of state scientific and technical programs.
Distribution of The State Scientific and Technical Programs’ grants through the Ministries and Offices.

Main R&D funding institutions and mechanisms:

Under the conditions for the realisation of economic reforms on the transition of the republic to a market economy, the necessity of developing the appropriate principles for regulation of scientific and technical activity is urgently dictated. The principle of state support for the development of scientific and innovation activity is well known from global experience. This support is fully orientated towards the final scientific and technological results, the competitive selection of perspective applied research and the development as well as the stimulation of competitiveness of intellectual production, the effective functioning of economic and the legal mechanisms, thereby determining the responsibility of the participants in scientific, technical and innovative activity for the results of work and targeted use of state funds.

At the same time, the state support through financial assets and material resources is carried out not for the separate establishments of science and hierarchical structures but for concrete programmes and projects.

Competitive innovative scientific and technical projects cover applied scientific R & D in the field of natural and technical sciences as well as design and technological work. At the same time development should be focused on obtaining concrete “commodity”.
The results as trial samples of installations or experimental batches of production arising from the purposes and tasks of calls on the basis of significant results, inventions, advanced technologies, etc.

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**Basic (fundamental) research – 5 years**

Finance: 100% – by budget

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**Applied research – 3 years**

Finance: 75% – by budget, 25% – industry

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**Innovative projects – 2 years**

Finance: 50% – by budget, 50% – industry

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**International S&T projects**

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**Multilateral international S&T projects – 2-3 years**

Finance: 100% – foreign investment

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**Bilateral international S&T projects – 2-3 years**

Finance: 25% – local budget, 75% – foreign investment

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**State programs of basic and applied research and international co-operation** are developed on the basis of peer-review selection of the proposals submitted to the Academy of Sciences, Ministry of Higher and Secondary Specialized Education, Ministry of Agriculture and Water Resources, Ministry of Healthcare by their subordinate institutes and universities and CCSTD. The indicated ministries receive funds for execution of relevant programs from the Ministry of Finance.

**Scientific potential of the country**

There are more than 400 institutions involved in scientific research, which employ about 35.5 thousand scientists, researchers and professionals, 2.5 thousand of them are candidates of sciences and 9.2 thousand are PhDs. The Presidential Decree PD-4456 of 24 July 2012 “On further improvement of the system of training and certification of scientific and scientific-pedagogical personnel has introduced a single-staged system of graduate education which meets international standards.
Research policy

The deep transformations in all spheres of society that began from the moment the independence of the Republic of Uzbekistan was declared have had a significant impact on the characteristics of development of science, techniques and technology. Independence has opened up new opportunities for us in revival and enhancement of the great achievements and traditions amassed by generations before us.

At present the state scientific and technical policy of the Republic of Uzbekistan is focused on concentrating the efforts of available scientific and technical potential in the Republic for solving socio-economic problems in Uzbekistan in the conditions of a gradual transition to a socially oriented market economy. The appropriate transitional period approaches for the development of science and technology have been offered and pursued, and the state scientific and technical programmes on priority directions for the development of science and technology have been formed.

The basis of the national legislative system for a functioning sphere of science and technology has been formed: the laws on legal protection of scientific and technical results and objects of intellectual property have been approved and put into action, and the normative documents regulating the specific fields of state support and stimulation of scientific and technical innovative activity have been developed.

A national patent system has been formed: the State Patent Office has been set up; the Republic has signed international agreements and contracts on the subject of legal protection of industrial property objects; security documents of the Republic of Uzbekistan on industrial property objects have been issued.

With the best traditions and deep study of their historical heritage, the scientists of Uzbekistan are continuing in the worthy footsteps of their predecessors.

There are radical changes in the educational system allowing it to be raised on the level of new time requirements. The important condition of transformations carried out in the educational system is the formation of an optimum system of personnel training on the basis of a rich intellectual heritage of the people and human values, achievements of modern culture, economy, science, techniques and technologies. The national programme has been adopted on personnel training stipulating the realisation of a national model of personnel training, creation of socio-economic, legal, psychological, pedagogical and other conditions for the formation of an all-round advanced person, adaptation to life in a modern changing society, realised choice and subsequent development of educational and professional programmes, and education of citizens, who are aware of their responsibility before society, state and family.

Today Uzbekistan is a large centre of science in Central Asia with an advanced research base, extensive scientific fund and qualified scientific staff. The scientists of the Republic pursue fundamental and applied research on major directions of modern science and world-class scientific schools have been created.
International co-operation

The legislative basis of the international S&T co-operation of the Republic of Uzbekistan includes more than 50 interstate and intergovernmental agreements. The establishment of international scientific links is seen as a necessity for the support of research carried out in the country and the creation of favourable conditions for integrating Uzbekistan into the world scientific and technological community.

The Republic of Uzbekistan has signed 42 bilateral agreements on S&T co-operation at high governmental level. Among these 9 are between Uzbekistan and EU Member States: i.e. Hungary, France, Czech Republic, Latvia, Lithuania, Poland, Italy, Germany, and Bulgaria.

The Committee for the Coordination of Science and Technology Development in collaboration with the US Civilian Research and Development Foundation announced the call "Uzbekistan-CRDF Global 2013" for fundamental research. Financial support was granted to 3 projects.

As the result of this call (2014-2015) 8 scientific articles were published in international journals, and 3 articles in the scientific journals of Uzbekistan. 9 reports were presented at international and 6 reports at republican conferences. 1 patent was submitted.

The Committee for the Coordination of Science and Technology Development realised 6 projects in applied research in the framework of the "Uzbekistan-Germany 2013" call in collaboration with the German Federal Ministry of Education and Research.

Over the period of 2 years (2014-2015) 9 scientific articles were published in international journals and 13 articles in the scientific journals of Uzbekistan, 8 reports were presented at international and 6 reports at republican conferences. 1 patent was submitted.

With the aim to further develop the scientific-technical cooperation between the scientific communities of the Republic of Uzbekistan and the Chinese People’s Republic, and to implement the state protocol of the second session of the subcommittee for scientific-technical cooperation between the Republic of Uzbekistan and Chinese People’s Republic dated 17 June 2014, a call for joint Uzbek-Chinese projects was held in the frame of the scientific research programme “Uzbekistan-China 2015”.

38 applications were submitted, 31 projects proposals passed the evaluation by international experts and 10 of them were granted.

In 2016 Uzbek scientists actively participated in joint projects with foreign partners within multilateral foreign programmes and calls. 30 projects were realised within such programmes in 2015.

In addition, Uzbek scientists prepared 25 international scientific projects for participation in foreign S&T calls in the current year.

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