

Wegmarshaus, Gert-Rüdiger

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Uzbekistan's higher education and research system: Main actors and recent reforms of doctoral graduation

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DISCUSSION PAPER

Leibniz Institute of Agricultural Development in Transition Economies

Uzbekistan's higher education and research system: Main actors and recent reforms of doctoral graduation

Gert-Rüdiger Wegmarshaus

DISCUSSION PAPER NO. 165

2017



Leibniz Institute of Agricultural Development
in Transition Economies

Theodor-Lieser-Straße 2, 06120 Halle (Saale), Germany

Phone: +49-345-2928-101

Fax: +49-345-2928-199

E-mail: iamo@iamo.de

Internet: <http://www.iamo.de>

Author's bio

Dr. Gert-Rüdiger Wegmarshaus, Study of Philosophy, Social Sciences, and Russian Language, State Exam and Diploma, Leningrad State University, USSR; Research Position, PhD, 1987, Academy of Sciences, Berlin; Teaching Position, Research Fellowship, Europa-Universität Viadrina (EUV), Frankfurt/Oder; Habilitation, 1999, EUV; Professor of Political Science (extra-ordinary), 2006, Europa-Universität Viadrina, Teaching, Research, Publications on Political Theory, History of Ideas, Democratic Transition; Director of European-College at Tartu University, Estonia, 2006-2008; Teaching Position at the National University of Uzbekistan, Administration of Academic Exchange between Uzbekistan and Germany, Tashkent, 2012-2017.

Affiliation:

Europa-Universität Viadrina, Grosse Scharnstr. 59, D-15230 Frankfurt/Oder, Germany

Phone: +49-335-5534-2694 (Secretary); E-Mail: wegmarshaus@hotmail.com

ABSTRACT

The objective of this study is to examine the conditions of higher education and the reform of doctoral graduation in Uzbekistan. The current system operates under strict government control. The President, the Supreme Attestation Commission at the Cabinet of Ministers regulating and monitoring academic graduation, and the relevant ministries fully determine the operation of the higher education and research institutions. State control leaves little room for academic self-rule or self-responsible university education. The teaching obligations of university staff fill the entire working day. This situation makes it almost impossible for university teachers to pursue an individual research agenda. The university system is chronically underfinanced. Technical equipment, library and information technology are not up to international standards, salary is comparably low providing few incentives for young researchers. The Uzbek Academy of Sciences serves as the main pillar of fundamental and applied research in the country. In 2013, doctoral graduation moved from a Soviet-style two-tier system including a PhD and a doctor of science degree to a more anglo-saxonian one-tier PhD system. The new President of Uzbekistan Shavkat Mirziyoyev announced to return to a two-tier system by July 2017 and intends to notably raise the level of international cooperation of Uzbek academic institutions.

JEL: I20, I21, I23, I28

Keywords: university education system, Academy of Sciences, PhD-graduation, Supreme Attestation Commission, international research cooperation.

ZUSAMMENFASSUNG

DAS HÖHERE BILDUNGS- UND FORSCHUNGSSYSTEM USBEKISTANS: HAUPTAKTEURE UND KÜRZLICHE REFORMEN DER PROMOTIONSVERFAHREN

Das Ziel dieser Studie besteht in einer Analyse der Bedingungen der Hochschulausbildung und der Reform der Promotionsverfahren in Usbekistan. Das derzeitige System arbeitet unter strenger Kontrolle der Regierung. Der Staatspräsident, die Oberste Attestierungskommission beim Ministerrat, die die wissenschaftlichen Abschlüsse reguliert und überwacht, und die zuständigen Ministerien bestimmen vollständig die Arbeit der höheren Bildungs- und Forschungseinrichtungen. Staatliche Kontrolle wird auf eine Weise ausgeübt, die wenig Raum für akademische Selbstbestimmung oder selbstverantwortliche universitäre Ausbildung lässt. Die Lehrverpflichtungen der Universitätsmitarbeiter füllen den gesamten Arbeitstag. Dieser Umstand macht es den Dozenten nahezu unmöglich, eine individuelle Forschungsagenda zu verfolgen. Das Universitätssystem ist chronisch unterfinanziert; die technische Ausrüstung, Bibliotheken und Informationstechnologien entsprechen nicht den internationalen Standards, die Gehälter sind vergleichsweise niedrig und bieten Nachwuchswissenschaftlern wenig Anreize. Die usbekische Akademie der Wissenschaften stellt die Hauptsäule der Grundlagenforschung und der angewandten Forschung im Land dar. Im Jahr 2013 wurde das zweistufige Promotionssystem der Sowjetära, das eine Promotion und eine Habilitation (Doktor der Wissenschaften) umfasste, auf ein angelsächsisches, einstufiges System umgestellt. Der neue Präsident der Republik Usbekistan Shavkat Mirziyoyev kündigte an, im Juli 2017 zu einem zweistufigen System zurückzukehren.

und den Umfang der internationalen Zusammenarbeit usbekischer Wissenschaftseinrichtungen deutlich zu steigern.

JEL: I20, I21, I23, I28

Служеселсвörter: System der Hochschulbildung, Akademie der Wissenschaften, Promotion und Habilitation, Oberste Attestierungskommission, Internationale Forschungskoooperation.

РЕЗЮМЕ

СИСТЕМА ВЫСШЕГО ОБРАЗОВАНИЯ И ИССЛЕДОВАНИЙ В УЗБЕКИСТАНЕ: ОСНОВНЫЕ УЧАСТНИКИ И НЕДАВНИЕ РЕФОРМЫ В СИСТЕМЕ ДОКТОРАНТУРЕ

Задачей данного исследования является оценка состояния высшего образования и реформы докторантуры в Узбекистане. Текущая система докторантуры работает под строгим государственным контролем. Президент, Высшая аттестационная комиссия при Кабинете Министров, регулирующая и контролирующая академический выпуск, и соответствующие министерства полностью определяют деятельность высших учебных заведений и научно-исследовательских учреждений. Государственный контроль оставляет мало места для академического самоопределения или самостоятельного университетского образования. Преподавательские обязательства занимают весь рабочий день университетских сотрудников. Такая ситуация делает практически невозможным проведение индивидуальных научно-исследовательских работ преподавателями университетов. Университетская система испытывает хроническую нехватку финансовых средств. Техническое оборудование, библиотеки и информационные технологии не соответствуют международным стандартам, зарплата сравнительно низкая, что дает мало стимулов для молодых исследователей. Академия наук Узбекистана выступает в качестве основы фундаментальных и прикладных исследований в стране. В 2013 году докторантура перешла от двухуровневой системы советского образца, включавшего степени кандидата и доктора наук, к англо-саксонской одноуровневой системе. Новый президент Узбекистана Шавкат Мирзиев объявил о возвращении к двухуровневой системе с июля 2017 года и намерен заметно повысить уровень международного сотрудничества академических институтов Узбекистана.

JEL: I20, I21, I23, I28

Ключевые слова: университетская система образования, Академия наук, аспирантура, Высшая аттестационная комиссия, международное научно-исследовательское сотрудничество.

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1 Introduction¹

Uzbekistan represents a young nation-state having gained political and economic independence just 25 years ago. The sovereign state of Uzbekistan emerged on the international scene after the collapse of Communist rule in the Soviet Union and its final break-up into fifteen independent nation-states. The former fifteen national Soviet republics declared their sovereignty – one after another – during the year 1991. In the consequence these new, young states gaining full independence entered the international arena as full-fledged states, as sovereign actors of world politics. Uzbekistan declared its Independence on 1 September 1991. This day is marked and celebrated in the country as the nation's Independence Day.

Sovereign Uzbekistan faced the necessity to form a national system of academic research and teaching. This was not an easy task to do because of the novelty to the country to run its domestic affairs independently, solely relying on its own resources, knowledge and manpower. Uzbekistan claims to be an ancient place with a great and significant heritage of higher learning in literature, in medicine, with important traditions of knowledge in the fields of the humanities, notably in philosophy and theology, as well as in the exact sciences: mathematics, astronomy, geography, geology, physics and chemistry. This heyday of medieval science and learning on the territory of today's Uzbekistan took place from the 11th until the 15th century. The specific social, political and religious circumstances of that blossoming of the sciences are marked by the dominance of Islamic-Arabic culture in Central Asia beginning in the 9 century, alongside with older, more ancient traditions of Persian, Jewish and Greek culture.

Giving full and due credit to these ancient scientific achievements forming a substantial part of today's national pride of Uzbekistan, one has to acknowledge at the same time, that modern Western, European science and technology, as well as the industrial, technical basis for fundamental and applied research reached Uzbekistan only in the wake of the Russian conquest of Central Asia during the second half of the 19th century. The military, political and cultural consolidation of Russian imperial power in Uzbekistan by the end of 19th, beginning of 20th century also resulted in the establishment of institutions of higher learning in the capital Tashkent and other major cities of the country. Of particular importance is the founding of Russian higher educational institutions like gymnasiums and lyceums.

University education, though, came to Uzbekistan just at the end of World War I in 1918. Today's National University of Uzbekistan was founded in 1918 as the first university in Central Asia:

The "first national university was founded in 1918 in the old-town part of Tashkent by Munavvarkori Abdurashidkhonov, Mahmudkho'ja Behbudy and Abdulla Avloni. Our university began its' function in 1918 as People's University. From 1920 university was named Turkistan State University, 1923 Central Asian State University, from 1960 to 2000 it was named as Tashkent State University. On 14 September 1995 according to the decree of Council of Ministries of Uzbekistan university was named after Mirzo Ulugbek" (National University of Uzbekistan 2017).

During the 1920s, the imposition of Bolshevik rule and, subsequently, of Soviet statehood on Uzbekistan led to the establishment of a wide range of institutions of higher learning and of research. The needs of Soviet modernization in education, agriculture, industry, mining, transport

¹ This study was conducted within the project "Preparation of a structured doctoral programme on sustainable agricultural development in Central Asia" coordinated by IAMO and Samarkand Agricultural Institute (SamAI). Financial support by the Volkswagen Foundation is gratefully acknowledged. The author is grateful to Nodir Djanibekov and Martin Petrick for comments on a previous version of the manuscript. The document represents the state of knowledge as of 1 June 2017.

and urban development triggered the spread of universities and of research institutes throughout the country, beginning from the 1930s. This process of founding of academic institutions in Uzbekistan had continued over the entire period of Soviet power from the mid-twenties to the late eighties of the 20th century. It is noteworthy that the network of academic institutions (universities, special profile academic education centers in the fields of medicine, engineering, agriculture, education, sports and fine arts) and of branch research institutes, stretched over the entire country, covering basically all provinces and regions. The idea behind this educational and research policy was to serve the needs of developing the country as a whole, and to establish a firm political and ideological grip on the Uzbek population, especially on the young generation. The aim was to educate the young generation all over the country according to the Soviet doctrine, to turn talented young people into scientifically well trained and both politically loyal and hard-working specialists.

All the established universities located either in the center or in remote areas of the country, alongside with a greater number of special branch institutes of higher learning (i.e. teacher training colleges, colleges of agriculture, engineering, mining, sports and arts) served entirely the objective of education of the young generations. It is important to take into consideration that education in the Soviet system was given a double meaning: First - education as the process of knowledge and skills transition from one generation to the other (in German: *"Bildung"*, *"Ausbildung"*), and second - education as the process of upbringing the younger ones in a prescribed way, defined by state ideology (*"Erziehung zur Staatstreue"*). This peculiarity of the Soviet higher learning institutions had the effect that academic research work – in the proper sense of an open-minded, problem-oriented search for new ideas, new approaches and non-standard solutions – had almost no place within the teaching institutions. The *"Humboldt'ian Academic Principle"* of the modern university claiming that teaching and research form an insoluble unity (*"Einheit von Forschung und Lehre"*) had no right of existence in the Soviet university system.

Scientific research, both fundamental and applied, ought to be conducted, in an almost exclusive way, at the Academy of Sciences and at non-university (often military controlled) research establishments. This separation of educational functions and of research responsibilities between universities at one hand, and the Academy at the other was a strong feature of the Soviet System from its revolutionary beginning in the 1920s until its disastrous end in the 1980s (Graham 1993).

2 The university system of Uzbekistan

By the end of 1991, at the time of gaining its political independence, Uzbekistan inherited the Soviet university system of higher education on its territory. This system of higher education was state run. It consisted of classical universities and specialized institutions of higher learning fulfilling educational tasks for different branches of industry, technology, medicine and culture. The national supervision of the system of higher learning was put predominantly on the Ministry of Higher Education and, depending on the branch, on the respective ministries.

Over the past 25 years the Uzbek university system has undergone substantial change in terms of state financing, institutional structure, teaching curricula, graduation scheme, and international cooperation. The most significant changes occurred in the three areas: institutional structure, curricula reform with a two-tiered graduation scheme, and scientific cooperation with international partners.

2.1 The establishment of private foreign universities

Private foreign universities were established to fill specific knowledge gaps predominantly in economics, finance, technology, and computer science. A very prominent case is the Westminster International University of Tashkent (WIUT). It was founded on 16 January 2002 jointly by the University of Westminster (UK, London) and the UMID Foundation of the President of the Republic of Uzbekistan. Today there are seven private, foreign universities operating in the city of Tashkent, the capital of Uzbekistan:

- Westminster International University Tashkent (WIUT) (<http://www.wiut.uz/index.php/en/home/>)
- Turin Poly-Technical University Tashkent (<https://polito.uz/index.php?lang=en>)
- The Management Development Institute of Singapore (MDIS) (<http://www.mdiss.uz/>)
- The INHA University (Information Technology, South Korea) (<https://inha.uz/en/>)
- The “Lomonossov” Moscow State University, Tashkent Branch (<http://msu.uz/>)
- The “Plekhanov” University of Economics, Tashkent Branch (<http://reu.uz/>)
- The “Gubkin” University for Oil and Gas, Tashkent Branch. (<http://gubkin.uz/>)

These Universities represent private, tuition fee-based, high-class and prestigious foreign universities operating on the basis of their own teaching curricula approved by their “mother universities” in the UK, in Italy, in Korea, Singapore or in Russia; they are attracting foreign teaching and research staff, partly as flying faculty. They provide excellent academic training in the study programs which are taught in English or in Russian. The graduates of these universities receive UK, Italian, Korean or Russian diplomas. The enrolment numbers are, compared with Uzbek state-run universities, relatively small, accounting for a few hundred students at each of these universities.

2.2 Study reform according to the Bologna Process with Bachelor and Master Study programmes

By 2005, Uzbekistan had introduced the two-tiered university study curricula of two consecutive study programmes at the levels of Bachelor (“*Bakalavreat*”) and Master (“*Magistratura*”) to its state universities. The Bachelor study programme takes four years, the Master study two years. Uzbekistan as a state has not yet joined the Bologna-Process. Hence the European Credit Point Transfer System (ECTS) is not introduced. Despite this situation, international student exchange for Uzbek students is taking place, notably through the “*Deutscher Akademischer Austauschdienst*” (German Academic Exchange Service, DAAD) and the ERASMUS plus Programs of the European Union.

Uzbek state funding of Master study places appears to be strictly limited. Research into enrolment numbers of MA-students in a variety of academic fields indicate that no more than 10% of BA-students are admitted to MA-study programs. In many cases, MA-studies are not fully funded by state budget; therefore Uzbek national tuition fee rules apply. The amount due varies by year and study field. With tuition fees up to 3.000 USD per year, MA-study programmes in the fields of law, economics, and finance are among the most expensive.

2.3 Enhancing international university cooperation

International university cooperation draws on various forms and programmes of foreign financ-

ing and support (EU – TEMPUS; ERASMUS Mundus, ERASMUS Plus; Germany – DAAD, US – Fulbright, and other: Japanese, Korean, Chinese, Indian, Turkish academic support programs etc.).

Besides the academic exchange support offered to Uzbekistan by the European Union through the TEMPUS and ERASMUS Programmes, the assistance provided by Germany to the Uzbek university system is noteworthy. The most influential partner here is the DAAD located in Bonn. In Uzbekistan, the DAAD has been active with its exchange and scholarship programmes for more than 20 years. Over this period of time, approximately 1.500 scholarships of different design have been awarded to applicants from Uzbekistan – scholars, teachers and students alike. These scholarships cover shorter or longer research stays at German universities (up to 10 months), PhD research grants (up to 3 years), Master-studies (MA or MSc) in virtually all scientific disciplines (duration of one or two years), and German language as well as German culture summer school programmes at German universities (usually 3-4 weeks in July or August). All these German academic exchange programmes – for scholars and students alike – are being offered every single year, and they are extremely popular in Uzbekistan. The competition, accordingly, is really high.

In addition to these general scholarship programmes, there are many other forms of German-Uzbek university cooperation which are running on a bilateral, institutional, long-term basis. As an example one might point at the *“Germanistische Institutspartnerschaften”* (GIP): Institutional Partnerships in the field of German language and literature or German culture studies. These GIPs are established between universities in Germany and their counterparts abroad. For Uzbekistan, four German language partnerships have been operating over the last ten years. Among the partner universities in Germany were the University of Mainz, the University of Bochum, the Pedagogical Universities (*“Hochschule”*) in Freiburg im Breisgau and in Heidelberg, and the University Münster.²

3 Current actors in the research and education system of Uzbekistan

The Uzbek System of Science, Research and Higher Education up to now continues the Soviet tradition of a strong division between the educational objectives of higher learning and the research objectives of scientific investigation and technological development. There is – on one hand – the sector of research and development. This sector is represented by the Uzbek Academy of Sciences, its research institutes and laboratories, and by other state-run research establishments, which are often under the jurisdiction of the branch ministry, for instance Ministry of Agriculture and Water Management or the Ministry of Health. There is – on the other hand – the sector of teaching and education at universities and branch institutes of higher learning. In addition, the Supreme Attestation Commission (*Vysshiaia Attestatsionnaia Komissiiia*, VAK) at the Cabinet of Ministers is responsible for regulating doctoral graduation procedures, awarding degrees, and for supervising the quality of doctoral research.

3.1 The university system

The overall stable economic development of Uzbekistan over the past years certainly has had a positive bearing on the university system of the country. There is an ongoing process of re-

² The institute of German language of the University of Münster under the leadership for Prof. Dr. Tomas Tomasek maintained an intensive partnership with Uzbekistan over a period of more than 13 years, producing three PhD graduates, organizing a joint scientific conference, published five conference volumes, and exchanged several dozens of teachers, students, tutors, and internship-takers for teaching and learning (Bismark et al. 2005; Schulze et al. 2016).

construction and renovation of many university buildings, alongside the modernization and the improvement of technical equipment. At the same time the Uzbek university system has to cope with a substantial and lasting lack of funding: salaries of university teaching and technical staff are notoriously low (an academic person with full time senior teaching position earns approximately 1,500,000 UZB Sum per month, this makes, given the official exchange rate as of May 2017, roughly 400 Euros per month). The stock in university libraries should urgently be updated; there is a severe lack of funding for purchasing new academic literature (textbooks, journals, access to e-journals and scientific databases). The technical, experimental equipment is largely outdated. These technical shortcomings are strongly felt in the natural and technical sciences in particular. In recent years though, one can see certain attempts to improve the situation by embarking on projects of joint high-tech scientific research and innovation parks with foreign partners, so far notably from the UK, Japan, and Korea.

The main task of universities consists of the transfer of academic-professional knowledge to the younger generation. Besides teaching and education, some research activities are taking place at universities, but they play definitely a secondary role in comparison to student instruction and supervision. The reason lies in the functional objectives of universities: they are set to be places of higher learning in the sense of transfer of established disciplinary knowledge and of well-defined professional skills from the teachers to the following generations. This strictly defined university teaching profile is underpinned by the obligatory schedule of classes resembling high-school curricula. The university teachers have to cope with a substantial teaching load up to 22-24 academic hours per week. This teaching burden alongside administrative paperwork and supervising and social control of the student body barely leaves time for any systematic research activity. This situation is aggravated by a serious shortage of modern, up-to-date scientific literature, by outdated technical, laboratory equipment, and a low level of international academic cooperation. All these factors, taken together, make it difficult for university teaching staff to seriously pursue their own research activities in a continuous way yielding a systematic output.

Within certain limitations there are opportunities provided by international academic partners, universities and exchange organizations or programs like the DAAD, ERASMUS, Campus France, British Council, Fulbright Foundation for Uzbek scholars and university teachers to embark on own research projects by using foreign funding and invitations to foreign universities. These chances might compensate, to a certain degree, the still existing shortcomings for Uzbek universities teachers to systematically pursue their own research activities.

The Uzbek system of higher learning institutions consists currently of 62 universities and institutions of higher learning. This number does not include the regional branches universities based in the capital city. Most universities in Uzbekistan are public, state-run, state-financed institutions. A smaller albeit important group consists of foreign, private universities. All these foreign establishments are situated in Tashkent. The state universities of Uzbekistan can be grouped in the following way:

a) Full universities - 11 (National University in Tashkent + 10 regional universities)

b) Specialized universities and institutions

Medicine and pharmacy	6
Economy and finances	4
Technology and computer science	16
Agriculture and food technology	5
Architecture / arts / design / music	5
Education / languages / culture / theology / sports	12
Political science / public administration / law	3

- c) Institutions for post-graduate, continuous education: the Tashkent Institute for improving knowledge and skills of medical doctors working at state hospitals and clinics and the Tashkent Academy for continuous education of public administration staff subordinated to the President of the Republic of Uzbekistan.

The Uzbek university system operates with a two-tiered study model, similar to the European System introduced within the Bologna Process. However, Uzbekistan has not yet officially joined the Bologna process; hence no ECTS model has been introduced. The university study year in Uzbekistan lasts from the beginning of September until end of June. It is divided in two semesters, each of them last for 20 weeks. The teaching period covers identically 20 weeks, with 18 weeks filled with lectures and with seminars, while the closing 2 weeks at the end of January and of June are devoted to the examination period.

3.2 The Academy of Sciences of Uzbekistan

The Academy of Sciences of Uzbekistan (<http://www.academy.uz/>) dates back to the Soviet Academy of Sciences, commencing its work in 1925. This Soviet Academy of Sciences on its part succeeded the Russian Imperial Academy of Sciences, founded in 1725 in Saint-Petersburg by Tsar Peter the Great. The Soviet Academy of Sciences - a highly centralized, state controlled and state financed, huge research complex employing tens of thousands of academic workers had been the backbone of Soviet fundamental research in all fields of sciences. It was an official honour to be working at the Soviet Academy of Sciences, and it was a prestigious place to serve the advancement of human knowledge for “the victorious glory of Communism”. The research institutes of the Soviet Academy of Sciences pursued, especially after WW II, a strict policy of attracting and hiring the brightest academic talents in order to turn the USSR into an internationally recognized scientific and technological great power able to compete in political, military and economic terms with the USA. The research institutes of the Academy (alongside secret military institutions) played a decisive role in the “academic race” with the United States for scientific, technological and military supremacy. Of particular high importance had been, from the 1950s onwards, the research fields of aero- and hydrodynamics, nuclear physics, laser technology, solid state physics, optics, electronics and computer technology, material science, chemistry, geology, astronomy.

The “Central” Soviet Academy of Sciences was situated in Moscow, with a significant concentration of institutes and research laboratories also in Saint-Petersburg (then Leningrad), as well as in industrial hubs in branches in the Urals and in Siberia, notably in Novosibirsk with its “*Akadem-Gorodok*” (Academic Town) built from scratch at the outskirts of the city.

The “Central” Moscow-based Academy of Sciences was supplemented by “National” Academies of Sciences in the non-Russian Soviet republics. In Uzbekistan this process took several years: In 1932 a Committee of Sciences was established for guiding and coordinating the development of over 50 scientific institutions on the territory of Uzbekistan. In the year 1940, this committee was transformed into the Uzbek branch of the Academy of Sciences of the USSR. This was the immediate predecessor of the Uzbekistan Academy of Sciences. On 27 September 1943, during WWII, the resolution “On Reorganization of the Uzbek branch of the Academy of Sciences of the USSR into the Academy of Sciences of the Uzbek SSR” was adopted. Soon after, on 4 November 1943, the solemn ceremony of establishment and opening of the Uzbekistan Academy of Sciences took place. Quite obviously this process of “spreading” scientific Academies all over the Soviet Republics received its momentum during World War II. The military struggle made it necessary to evacuate many scientific institutions based in pre-war times in Moscow, Minsk, Leningrad, Kiev, Charkiw and other cities in the European part of the country to remote areas,

including the “national republics” in Central Asia, among them prominently Uzbekistan with its regional center, the capital Tashkent.

Under these difficult circumstances, the Academy of Sciences of Uzbekistan was finally established in November 1943. The basis of this National Uzbek Scientific Academy was formed by leading research staff transferred to Tashkent from other Russian cities. After the war and during the reconstruction period in the late 1940s and 1950s the Uzbek Academy, like other “national” Academies of Sciences, gained reputation and influence by fulfilling significant research functions in serving regional developmental goals. The academic targets in the “National Academies” were set, again, similar to the science policy conducted in the Soviet capital Moscow, by the state authorities. In Uzbekistan, the peculiarities of the country, its geography, its climatic conditions, its soil, its water supply etc. had been taken into consideration for defining specific research objectives. These research goals imposed on the Uzbek Academy of Science had both fundamental and applied character. Suffice to point at two outstanding examples: First, given the peculiar conditions of a high and stable level of solar radiation in Uzbekistan, special emphasis has been put in the 1970s and 1980s on the establishment of an advanced solar energy research installation. Second, the atmospheric situation of the prevalence of extreme dry air in Uzbekistan, due to the arid climate, has been beneficial for locating important academic astronomical observation stations in this country.

Gaining political independence in 1991 had dramatic effects on the entire national research system including the Academy of Sciences. Uzbek science had been part of the Soviet-built, supra-national research and technology network of the USSR for more than six decades. The specific limiting conditions and the peculiarities of the political “Soviet command system” notwithstanding, Uzbek science, including the Academy in Tashkent, could and did rely on the resources of the Soviet science system controlled and distributed from Moscow. In this respect, the Uzbek Academy of Sciences was an integrated part of the internationally visible, and reputable Soviet science system. In its technological basis, Uzbek academic scientific institutes could and did draw on the (although limited, nevertheless helpful and much welcome) material, financial and manpower resources of the entire Soviet state. All this came to a sudden halt by the end of 1991: state sovereignty for Uzbekistan meant political and economic freedom with the undeniable obligation to find an independent way of national existence. For Uzbek science, including the Academy of Science, the acquired new liberty had to be turned into chances, opportunities and in new research strategies for the sake of national development. Not surprisingly, the first decade of the Uzbek research system under the auspices of national sovereignty was marked by many hardships of a transition into a new existence under widely uncertain conditions including funding, technical support, international communication and exchange. The national leadership of Uzbekistan under the long-term presidency of Islom Karimov managed to embark on a path of national consolidation and reconstruction, including the Academy of Sciences. After 25 years of independent development of the Uzbek Academy of Sciences, official reports do claim many positive, remarkable results and visible achievements of the Uzbek national research center. 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. The 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 organizations, scientific societies, institutions and universities of more than 40 countries of the world. 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.

The 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 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."

During the first years of Uzbek independence, a radical reorganization of the Academy of Sciences allowed the formation of research strategies of priority to the Republic and to switch to a competitive grant-based funding system of Research Institutions projects within official governmental programmes.

The Uzbekistan Academy of Sciences consists of 32 research institutes to date. In order to meet the challenges of the country, the Uzbekistan Academy of Sciences established the following new institutions in the fields of exact sciences and technology:

- The Institute of Genetics and Interdepartmental Centre of Genomics and Bioinformatics focusing on producing transgenic varieties of cotton, wheat, etc. on the basis of genetic engineering;
- The Institute of Materials Technology operating a Large Solar furnace of 1,000 kW for high temperature production of ultra-pure and high-temperature-resistant materials;
- The International Solar Energy Institute, supported by the Asian Development Bank
- The Institute of ion-plasma and laser technologies focused on developing new technologies and materials
- The Institute of the Genofond of Flora and Fauna, including botanical gardens in Tashkent and Karakalpakstan, herbarium, serpentarium, and others;
- An Upgraded network of seismic stations for seismic diagnostics, operational registration and reporting of data on earthquakes.
- The high-altitude observatory Maidanak exploiting superb climatic characteristics continued its work.

The Uzbek Academy of Sciences with its research installations and scientific laboratories still appears to be the most significant single academic institution in the country, responsible for many visible results in fundamental and applied research. At the same time there are ongoing high-level governmental, ministerial evaluation and re-assessment processes designed to politically determine the role, the size and the shape of the Academy of Sciences as a major place for research and innovation in the country.

The Academy of Sciences still has, like its Soviet predecessor, a twofold function: It is, first, an association of eminent, reputable, and renowned national scholars. And it is, second, the leading research organization of the country, made-up by a network of institutions and laboratories. In its first function as a high-ranking scholarly association, the Academy certainly serves as a national advisory body for science policy. In this capacity the National Academy of Sciences clearly

provides invaluable service to the country as a whole. As to its second function, being a research enterprise, privileged and detached from the university system, the status of the Academy is not any longer taken for granted. There is, unfortunately, so far little documentary evidence of seriously and officially questioning the research enterprise function of the Uzbek Academy of Sciences. But, conversations with leading Uzbek scientists indicate an ongoing, high-ranking internal debate on the issue. In very recent times the author has learned about governmental decisions of transferring of Academy research institutes to state universities. Surprisingly, these decisions are now seemingly stopped, in obvious coincidence with the return to the two-tiered Dissertation scheme in Uzbekistan (see below). Even so, transferring Academy research institutions and laboratories to the university system could make sense. Such a move might in fact strengthen the research pillar of the higher education sector. It remains a question of further study to find out the perspectives of the Uzbek Academy of Sciences as a research enterprise. The current decision making process under the new President has not produced yet any reliable news on the future institutional framework of science, higher education, research and innovation.

3.3 The Supreme Attestation Commission at the Cabinet of Ministers of Uzbekistan (VAK)

The Supreme Attestation Commission at the Cabinet of Ministers of the Republic of Uzbekistan was founded 31 March 1992 by the Decree PF – 371 of the State President Islom Karimov. The establishment of this highest academic commission follows the tradition of the Soviet scientific system. During the Soviet era the Supreme Attestation Commission of the Soviet Union was based in Moscow. The objective of this scientific commission was twofold.

First, it had to regulate and monitor all academic graduation works undertaken at universities and research institutes of the Soviet Union for obtaining the scientific degrees “*kandidat nauk*” (roughly equivalent to the German degree “Dr.” or the British/American “PhD”) and “*doktor nauk*” (comparable to the German degree “*Dr. habil.*”). By approving the topics and the objectives of the submitted research and graduation proposals, the commission should guarantee that all scientific graduation works are fully in line with the overarching goals and the main directions of Soviet development as well as the ideological premises of the Soviet state.

Second, it had to prove and guarantee the academic quality of the submitted graduation works for obtaining the degrees “Dr.” and “Dr. habil.” Considering both the territorial vastness of the Soviet state, stretching from Central Europe to the Far East and the Chinese border, as well as the underdeveloped scientific communication system being an obstacle to an intense and productive academic exchange throughout the country, it turned out a necessity to reconsider and to finally approve the scientific quality of all graduation works submitted country-wide in one central place, i.e. in the Soviet capital Moscow.

This scientific system with the Academy of Sciences on top and with the Supreme Attestation Commission as a “watchdog”, as a guardian of the academic quality of all graduation works, marks a stark contrast to the academic system existing in Western, liberal democracies. In the Soviet Union, the academia was not free from state interference; there was neither academic nor administrative autonomy of universities or research institutes. All academic establishments were state funded and state supervised in a very thorough way. Everything in science was state controlled. There was no such thing as academic self-government. Procedures and provisions of university self-rule established centuries ago in Western Europe and North America, which were firmly and properly based in legislation, constitutionally enshrined and which formed the autonomous body of university administration, could not, and did not exist in the Soviet system.

The Uzbek Supreme Attestation Commission follows this inherited line. Every single academic

graduation work commenced in the Republic of Uzbekistan has to be approved by this commission. In case of approval, the dissertation topic will be assigned a registration number, which allows keeping track of the graduation process up to the final defense of the thesis.

The Bulletin of the Supreme Attestation Commission publishes the decisions and the provisions of the VAK, it reviews all scientific graduation works either commenced or finished and defended at Uzbek higher educational establishments or research institutes on a regularly updated basis. This information is provided in every single case following a scheme of five points:

1. Surname and Name of the academic graduation seeking scholar;
2. The VAK registration number of the graduation work;
3. The research topic of the graduation work (in Uzbek and in Russian);
4. The Surname and Name of the academic supervisor;
5. Name of the academic affiliation of the degree seeking scholar.

The editorial board of the Bulletin of the Supreme Attestation Commission is currently (summer 2016) composed of the following academic and administrative persons:

- A. Yusupov, Head of the VAK
- U. Inoyatov, Minister of Education
- B. Begalov, Rector of the Tashkent Finance Institute
- I. Abdurakhmonov, Director of the Research Center for Genome Analysis and Bio-informatics
- G. Abdullaev, Director of the Research Institute for Oil and Gas
- B. Daminov, Rector of the Tashkent Institute of Pediatrics
- A. Rasulev, Chairman of the Expert Council for Physics and Mathematics of the VAK
- A. Turaev, Director of the Research Institute for Bio-organic Chemistry
- K. Karimov, Professor at the Tashkent University of Technology
- S. Zulunov, Head of the Monitoring Department of VAK.

(Bulletin of the Supreme Attestation Commission, 2016/3, p.1)

The Governing board of the Uzbek Supreme Attestation Commission consists of high-ranking scholars with country-wide and international scientific reputation.

The work of the VAK is organized in standing scientific councils according to the following nomenclature of academic research fields:

- | | |
|---------------------------|----|
| - Physics and Mathematics | 01 |
| - Chemistry | 02 |
| - Biology | 03 |
| - Geology and Mineralogy | 04 |
| - Technical Sciences | 05 |
| - Agrarian Sciences | 06 |
| - History | 07 |
| - Economics | 08 |
| - Philosophy | 09 |
| - Philological Sciences | 10 |
| - Geography | 11 |

- Law	12
- Pedagogics / Education	13
- Medicine	14
- Pharmacy / Pharmacology	15
- Veterinary	16
- Fine Arts	17
- Architecture	18
- Psychology	19
- Sociology	22

4 Reforms in the postgraduate system of doctoral researchers

4.1 The two-tiered system of dissertations (Candidate and Doctor of Science) until 31.12.2012

After gaining political independence and sovereign statehood on 1 September 1991 Uzbekistan inherited the regulations and provisions imposed during the Soviet era. It took several years to lay ground for a proper legal basis for the functioning of the new-born Uzbek society. Accordingly, the science and research system of Uzbekistan had to be put on a national legal and administrative basis. A substantial part of this transformation process of the academic life of Uzbekistan was laid down in state documents only by the beginning of the year 1996. According to the Decree of the Cabinet of Ministers of Uzbekistan, №34/2, dated 25 January 1996, registered by the Ministry of Justice on 10 July 1996, the national regulation of granting academic degrees came into force (Sultanov 2009:53). This document was amended by the Supreme Attestation commission on 17 July 2003; registered by the Ministry of Justice of Uzbekistan on 12 August 2003 and on 29 January 2004 (Sultanov 2009:68). These documents fixed the two-tiered system of academic degrees: "*Kandidat Nauk*" and "*Doktor Nauk*".

The documents make clear that the right to grant the above mentioned two academic degrees is vested solely in the Supreme Attestation Commission. The document states the possible languages for writing a dissertation of either type in accordance with the law on state language of Uzbekistan. Except the provisions for using the Karakalpak language (autonomous region of Uzbekistan) the text states that dissertations might be written, submitted and defended in three languages: Uzbek, Russian or English (Sultanov 2009:69).

The document states in its Chapter II the requirement of passing dissertational exams for all contenders. These exams are in the following academic fields: Philosophy, The Idea of National Sovereignty, Scientific Methodology, Foreign Language, Information Technology and one Scientific Discipline closely to the research topic of the dissertation (Sultanov 2009:69-70).

Chapter III describes in greater length and in some detailed way the general requirements for submitting a dissertation. The text lists basically all well-known requirements of any research work as: Academic novelty, originality, scientific salience, a seminal, ground-breaking character for basic research as well as practical usefulness, applicability for applied research. Special attention is given to the publication record of the applicant: For attaining the first doctoral degree it is necessary to publish at least ten scientific articles in academic journals officially recognized by the Supreme Attestation Commission. For attaining the second doctoral degree in fields of the humanities and in the social sciences it is required to have published a monograph on the topic of the dissertation. Concerning the scientific articles for being granted the second doctoral degree it is made clear, that out of the necessary number of articles published internationally, at

least 50% of these articles must be published in leading specialized academic English language periodicals edited in Europe, the US, Canada, Japan, Korea or China. This required number of high ranking international publications might be increased by decision of the Supreme Attestation Commission in order to boost the standing of certain scientific disciplines (Sultanov 2009:71-73).

Chapter IV regulates the provisions for submitting and defending the two types of doctoral dissertations. After completion of the dissertation, the applicant presents his academic work to the university and the department or the research institute he/she is affiliated with in a first step. This institution has to give its own expertise concerning the academic merits of the proposed dissertation. Additionally the applicant might seek independent expertise for his scientific work. In a second step the dissertation is submitted to the Supreme Attestation Commission where, according to its internal regulations, a specialized expert council has to deal with the dissertation work. After receiving the dissertation an official announcement has to be published on the web-site of the Supreme Attestation Commission (Sultanov 2009:74-75).

Chapter IV also provides regulations concerning the schedule, the time-frame of submitting and reviewing the dissertation. The text states the requirement for the applicant to write and submit an extended abstract of the dissertation in Uzbek, Russian, and English language. This procedure is mandatory in order to provide the opportunity for foreign, international reviewers to give a qualified assessment of the dissertation. The extended abstract should be distributed to academic institutions throughout the country; the list of these institutions is fixed by VAK. The document contains regulation as to the length of the text of the dissertation: The first type dissertation ("*Kandidat Nauk*") should not exceed 120 standard pages (A4), the second type dissertation ("*Doktor Nauk*") should not exceed 250 pages. These requirements remain rather vague, for no special provision on page layout (spacing, font type and size etc.) is given. For dissertations in the field of humanities or social sciences, the text size limit might be 30% higher. The chapter gives detailed regulations about the academic assessment procedure of the submitted dissertation: The VAK appoints official reviewers ("opponents") of the dissertation. In case of a dissertation "*Doktor Nauk*", there shall be three external reviewers, all of them holders of the "*Doktor nauk*" degree. At the same time it is allowed that one person out of these three can serve as a member of the specialized expert council judging the submitted dissertation. In case of a dissertation "*Kandidat Nauk*" there shall be two external reviewers, one of them shall be holder of the "*Doktor Nauk*" degree; the second might hold the "*Kandidat nauk*" degree. The reviewers ("opponents") shall not be affiliated with the same institution (Sultanov 2009:76-79).

Further provisions are given on how to conduct the public defense of the dissertations, about the quorum of the secret balloting, about the qualified majority of two thirds of the present commission members, about preparing the official minutes, the proper storage of the records of dissertation defenses etc. (Sultanov 2009:79-82).

Chapter V provides the regulations for final review of the defended dissertations by VAK. VAK with its scientific-attestation departments serves as the final approving agency for all defended dissertations. In case of obvious doubts whether the defense of a particular dissertation was up to the standards or not, VAK holds the right to convene a special council meeting for repeated discussion of the dissertation inviting the so far involved expert council, the opponents, the applicant him- or herself, and additionally the involved scientific institutions. In case of the detection of serious flaws in the dissertation defense the special council meeting shall prepare a recommendation to the Presidium of VAK on a final decision. The applicant is given the guaranteed right to file a request for revoking his/her dissertation at any stage of the process. A revocation of a dissertation at the written request of the applicant is final (Sultanov 2009:82-84).

The document is concluded by chapter VI on the nostrification of diplomas, chapter VII on the submission of dissertation diplomas, chapter VIII on the annulation of academic degrees, and, finally, chapter IX on the right and procedure of appellation (Sultanov 2009:85-87). The provisions for nostrification of academic degrees, including PhD, obtained in foreign countries are laid down in the resolution Nr.283 of the Cabinet of Ministers as of 25 July 2000 (Egamkulov 2016:236). In order to initiate an administrative process of nostrification of foreign diplomas on academic degrees, either a formal appeal by the academic institution the applicant is affiliated with, or a personal request by the researcher seeking the nostrification of his foreign PhD diploma document is required (Sultanov 2009:85).

Documents on a scientific degree of 'Doctor of Science' given to citizens of the Republic of Uzbekistan by the higher attestating organs of foreign countries and foreign citizens who live and work constantly in the Republic of Uzbekistan are validated (made equal to standard documents by recertifying) by the Supreme Attestation Commission according to the regulation of validating / nostrification (registration of equivalence) and admitting documents on getting a scientific degree in foreign countries confirmed by the Resolution Nr. 283 of the Cabinet of Ministers as of 25 July 2000 (Egamkulov 2016:236).

4.2 The one-level system of dissertation (PhD) introduced by 01.01.2013

The one-level System of Dissertation in Uzbekistan has been operational for around five years, from the publishing of Presidential decree Nr. PD-4456, signed by then President Islom Karimov 24 July 2012, until 1 July 2017 when the introduction of a renewed two-tiered academic graduation system will be introduced. The one-level dissertation scheme in Uzbekistan seems to be influenced by the Anglo-American PhD-system granting the right to scholars to immediately commence full academic duties and teaching responsibilities as an "assistant professor" at a given university after their successful defense of a PhD thesis. This PhD-based academic promotion system can certainly claim some advantages in comparison to the two-tiered system existing in the German speaking countries, in Poland or in Russia and other East-European countries. The historically grounded, and to-date still existing stark contrast between the German and the American academic career path got a brilliant analysis exactly 100 years ago by Max Weber (Weber 2011). The Uzbek attempt of introducing a PhD-like dissertation and academic promotion scheme and career track most probably was inspired by two arguments.

The first argument is to streamline the Uzbek academic system with the academic and research career provision adopted worldwide under the influence of the US and UK university systems. This measure introduced in Uzbek academic life reflected - to a certain degree - the overall policy of the country under President Karimov distancing itself from its (still existing and influential) Soviet/Russian heritage by maintaining an independent line in foreign and economic relation policies.

The second argument is to boost the academic career chances for promising researchers by opening up the eligibility for professorship / chair holder in relatively young age. This procedure and practice was obviously designed to rejuvenate scientific life in Uzbekistan. Hence the introduction of a scientific promotion scheme based on a sole, single academic degree, named "Doctor of Sciences" appeared to be a logical step.

Further inquiry is necessary for judging the academic results of this 5-year experiment which now, by spring 2017, came to a sudden halt. Presently unknown are the deeper, hidden reasons for putting this academic promotion and career system to an end. No evidence of a public academic debate on this issue was available to the author so far. Whether the overall scientific

results of the PhD theses accomplished over the past years have failed to meet the expectations of the one-tier PhD system directly qualifying for holding a professorship has to be clarified.

The official documents reflecting the provisions of the one-level system of dissertation are the following ones:

- Provisions of the Scientific Council giving the Academic Degree of “Doctor of Science”
- Provisions on Conferment of the Scientific Degree of “Doctor of Science”
- Provisions on Conferment of an Academic Status
- Provisions of Qualification Examinations
- Provisions on the Expert Council

All these documents have been published in three languages (Uzbek, Russian, and English) by the Supreme Attestating commission VAK in a single volume in 2016 (Egamkulov 2016). This fairly recent publishing date of the one-level PhD-regulations at a time when the first President of Uzbekistan Karimov still alive and in power might indicate that this academic promotion system was initially set to last much longer than until 2017. These provisions of one-level PhD-dissertation procedures do partly repeat and re-state the predecessor document valid until 01.01.2013. At the same time these provisions introduce some changes and some new requirements.

The provisions given in these documents, compared with the initial, first version of dissertation rules adopted in the 1990s, are in a more concise way logically structured, providing for the first time exact definitions, and clear and comprehensive procedural rules.

Comparing the rules, procedures, and requirements of the first, two tiered dissertation scheme (1996-2012) with the second, the one level system (2013-2017), one can clearly see many provisions, being in content or form similar or identical. There is of course a necessary continuity of requirements based on established academic standards for scientific graduation work. At the same time, a thorough analysis reveals a number of differences, and some innovations in the dissertation requirements. The main changes in the new, one-level dissertation provisions are the following:

- The length of the text of the now solely doctoral dissertation shall not exceed 200 pages. In the field of humanities or social sciences, the limit is increased (like in to the old system) up to 30%.
- The research results of the dissertation are to be published in scientific periodicals. The required total number of published journal papers reflecting the dissertation research is at least 15 articles. Out of these, 10 articles are to be published in leading scientific journals selected, approved, and officially listed by VAK.
- The research results in the fields of humanities and social sciences must be published, in addition to the required journal papers, in a printed monograph.
- At least two articles out of the dissertation research shall be published in leading (“authoritative”) scientific journals of developed countries (no country-list is provided, but it may be assumed that all OECD countries will fall under this provision).
- At least two scientific communications, research reports of the dissertation shall be included into academic conference volumes, one of them must be an international conference proceedings.
- Scientific papers which are not or not yet published shall not be attached to the dissertation.

- Academic textbooks or teaching manuals reflecting research of the dissertation are not to be considered as published scientific works. Therefore they will not count as publications relevant to the dissertation process (Egamlulov 2016:227-229).

It is noteworthy that in the provisions for deprivation or revocation of the scientific degree "Doctor of Science" the clause was introduced that if 10 years have elapsed since the date of granting the doctoral degree by VAK, the deprivation issue of the scientific degree is not subject to consideration (Egamkulov 2016:234). This clause was totally new compared to the old dissertation provisions valid from 1996 until 2012 (Sultanov 2009:86). Introducing a statutory period of limitation ("Verjährungsfrist") into a provision for dealing with serious academic fraud like plagiarism certainly is to be considered a delicate matter. It remains to be seen whether there are or will be practical consequences of that clause.

There are special provisions on taking qualification examinations (Egamkulov 2016:256-263). The text contains four chapters dealing with general regulations (1), the procedure of qualification examinations (2), procedures of undertaking the qualification examinations (3), and final regulations (4).

Article 1: Researchers, working on the dissertation for obtaining the degree "Doctor of Sciences" are supposed to pass qualification examination in the following fields:

- The new history of Uzbekistan,³
- A special topic according to the theme of the dissertation,
- A foreign language (English, French, or German).⁴ An examination of another foreign language in accordance with the research topic of the dissertation might be required.

Article 2: Additionally, depending on the field of science, researchers have to pass the following examinations (Egamkulov 2016:257):

- Humanities: The Ideology of Independence of Uzbekistan and its economic, socio-political, and moral basis and the scientific foundations of building a democratic society,
- Exact and Natural Sciences: Questions on the new history of Uzbekistan,
- Economic Sciences: The Theory of Economics,
- Questions on the special field outlined by VAK for those researchers whose special field is different from the dissertational field of science.
- Foreign Philology: A second foreign language.

Article 3: Foreign researchers shall pass qualification examinations only in the subject of specialization relevant to the theme of the dissertation (ibidem).

These qualifying examinations shall be organized at scientific institutions. These academic institutions will be marked and singled out by VAK, granting them a special license. After receiving the license for dissertational examination, the institution shall form a commission composed

³ This subject is not further defined, it is unclear whether the wording means "Recent History of Uzbekistan" (in German: Zeitgeschichte von Usbekistan) or "New History of Uzbekistan" (Neuere Geschichte von Usbekistan). The periodization in question would probably mean the History of Uzbekistan since Independence in 1991 in the first case, in the second case most certainly the Uzbek history in the 20th and 21st Centuries. According to the Russian version using the term "noveishaia istoriia" it is likely that the examination will deal with "Recent History of Uzbekistan".

⁴ The level of required proficiency in the foreign language is not specified. The European Reference Frame of Language Proficiency (from A1 to C2) is not mentioned.

of five to seven members including the chairperson who has to be a Doctor of Sciences in the field or to have the status of a professor. At least two members of the examination commission are to hold the degree of Doctor of Science (Egamkulov 2016:259).

The examinations shall be held according to an officially agreed and announced timetable with examination dates falling on the months February, May, November and December each year (ibidem). The examination will be held in written and oral form. The written examination is to be held on the basis of a marked test list prepared by the responsible institution. The oral test takes place in front of the examination commission (Egamkulov 2016:260). The results of the examination shall be graded according to the 100 Point scale used at Uzbek state universities. The marks will be given as: Excellent (86-100), Good (71-85), Satisfactory (56-70), Fail (0-55) (Ibidem).

There are special provisions on the Expert Council. The text contains eight chapters dealing with general regulations (1), principles and functions of these exams (2), the establishing and the work of the expert council (3-5), the issue of deprivation or restoration of a scientific degree (6), the issue of appealing (7), and final regulations (8) (Egamkulov 2016:265-273). These expert councils are formed for the various fields of science at VAK. They are responsible for the entire process of doctoral dissertations in the country. They are to define and to establish the academic standards for doctoral dissertations and they supervise the formation of the particular scientific councils who are to receive and to evaluate the submitted doctoral dissertations (Egamkulov 2016:266-267). They are to be formed by appointing leading, highly qualified scientists and scholars (Egamkulov 2016:268-269).

As to the overall scientific effect of the one-tier PhD system, it is, perhaps, too early to judge; further, more substantial inquiry into the detailed research results of the accomplished graduation works and into the academic promotion and the career opportunities of the successful PhD graduates is needed. The idea of the one-tiered system was, as already mentioned, to accelerate the academic growth of talented young researchers, enabling them – without undue delay – to step in leading scientific and administrative positions up to chair-holder posts. Whether this effect has been reached should be evaluated after further scrutiny. There is, though, an overview over the topics of PhD graduations undertaken and finished during the years 2013-2016, i.e. exactly during the period of the one-tier PhD graduation scheme. The Bulletin of the Supreme Attestation Commission, issue 3/2016, has published an overview of all academic graduation works undertaken and defended in all academic fields from 2013 until 2016. The overview presents the following picture revealing an interesting clustering of research activities:

- Physics and Mathematics	01	- 17	Dissertations defended
- Chemistry	02	- 10	Dissertations defended
- Biology	03	- 10	Dissertations defended
- Geology and Mineralogy	04	- 1	Dissertation defended
- Technical Sciences	05	- 71	Dissertations defended
- Agrarian Sciences	06	- 18	Dissertations defended
- History	07	- 1	Dissertations defended
- Economics	08	- 8	Dissertations defended
- Philosophy	09	- 1	Dissertation defended
- Philological Sciences	10	- 10	Dissertations defended
- Geography	11	- 0	Dissertations defended

- Law	12	- 3	Dissertations defended
- Pedagogics / Education	13	- 5	Dissertations defended
- Medicine	14	- 60	Dissertations defended
- Pharmacy / Pharmacology	15	- 7	Dissertations defended
- Veterinary	16	- 1	Dissertation defended
- Fine Arts	17	- 0	Dissertations defended
- Architecture	18	- 0	Dissertations defended
- Psychology	19	- 1	Dissertation defended
- Sociology	22	- 1	Dissertation defended

The overview reveals further that the very substantial part of the agrarian dissertations approved and/or defended during the last three years are linked to the Tashkent Agrarian University, to the Tashkent Institute of Irrigation and Melioration or to non-university research institutes like – not surprisingly for Uzbekistan – the Institute for Cotton Research (Bulletin, Supreme Attestation Commission, issue 3/2016).

This PhD graduation overview presents a clear picture of research activities in the various fields of science. The overwhelming majority of dissertations fall into two academic areas: Medicine and Technology. Many of the research topics in these fields clearly have an applied, practical character. The need for such kind of research activities is fully understandable under the given circumstances of a developing economy. In this regard the spectrum of scientific activities in Uzbekistan certainly do resemble the research picture of Kazakhstan with also a dominating influence of applied technical and technological research activities (Karatayev 2016).

Also comparable to Kazakhstan is the situation around the issue of scientific publications in Uzbekistan. The rules and requirements imposed on PhD candidates in Uzbekistan do oblige them – quite similar to their peers in Kazakhstan – to publish a substantial number of scientific articles and research communications in foreign, international academic journals. As a matter of fact, international publications are definitely needed for Uzbek, as well as Kazakhstani researcher to overcome the still existing local isolation of the academic system of these countries. Uzbek scientific results are in many cases not visible internationally. The requirement for PhD seekers to publish in foreign journals is fully justified. This requirement is simply a matter of good academic practice established worldwide.

The problem, though, for Uzbek researchers lies, first, in the quality of the submitted articles and, subsequently, in the quality and the reputation of the journals chosen for publication. To place a scientific publication in a first-class international academic journal is, as well known, a very demanding matter. Given the – just in quantitative terms – rather high research publication requirements for Uzbek PhD applicants, the fact of choosing second- or third-class or even dubious journal should not come as a surprise. The publication requirements for Uzbek PhD applicants have been increased dramatically over the years.

Comparing the dissertation rules valid until December 2012 (the old two-tiered system) and until June 2017 (the one-tiered, PhD system) reveals some differences: Whereas in the provisions of 2009 there are given no quantitative publication requirements for the first dissertation (*"Kandidat nauk"*) and just a few general regulations are indicated for the second dissertation (*"Doktor nauk"*) on the required scientific publications (Sultanov 2009:72-73, 152), the PhD defense rules valid from January 2013 until June 2017 make a clear-cut statement on the publication record: "Scientific results of the dissertation are to be announced in periodical scientific publications.

Total number of scientific papers in line with the dissertation theme are to be at least 15, and, at least, 10 them are to be published in the leading scientific journals, recommended by the Supreme Attestation Commission for publishing the basic scientific results of doctoral thesis, as well as in publications included in the e-scientific-technical journals' list" (Egamkulov 2016:228).

As to the international visibility of PhD research results the same document states: "At least two articles based on the dissertation theme are to be published in the list of the developed foreign countries' authoritative special scientific journals, as well as two materials (articles, reports or thesis) are to be included into scientific-practical conference materials, one of which into foreign conference materials publication" (Ibidem). The official list of the accepted high-ranking international scientific journals for mandatory PhD research publication by Uzbek scientists is approved by VAK; this list is being published and updated on a regular basis on the VAK website www.oak.uz.

These publication provisions adopted within the Uzbek research and graduation system for providing international visibility should serve as a proper means against the temptation of young PhD applicants to publish at any cost in any foreign journal regardless of reputation, standing and world wide recognition.

The regulations and provision described under the one-tier system will be formally out of force by 1 July 2017.

4.3 The return to a (modernized) two-tiered system of dissertations by 01.07.2017

On 16 February 2017, the new President of the Republic of Uzbekistan Shavkat Mirziyoyev issued a decree "On further improvement of the system of post-graduate university education" announcing a return to a two-tier system of doctoral graduation by 1 July 2017. This decree is outlined in a relatively short text, four pages long, stating just the guiding idea, the general provisions and the further steps to be taken by the Uzbek government. It remains to be seen which new legal and administrative documents will be issued in the coming months in order to practically underpin the introduction of the new two-tiered dissertation scheme by summer 2017. One may assume that many of the existing regulations of the duties of scientific councils, of the responsibilities of the Supreme Attestation commission, of the procedures of passing doctoral examination before admittance to the defense of the thesis itself, and finally, of the requirements of internationally visible scientific publications will be restated in the upcoming regulations.

The text of the presidential decree opens with an appraisal of the achievements of the Uzbek academic system in establishing a well operating a scheme of post-graduate, post-university academic training and, based on that, professional advancement of promising young scholars and scientists. A statement on the validity of the one-level dissertation scheme introduced 1 January 2013 and the subsequently achieved positive results follows. After these introductory remarks, the decree turns to the necessity to reconsider the existing situation in post-university academic training and promotion of young scholars based on scientific dissertations. Under the present conditions there is a need both to accelerate and to improve the scientific growth of young scholars in the country. A close scrutiny of international experience, including some of the leading countries in the world, suggests the necessity to introduce a two-tiered system of post-graduate academic training by 1 July 2017.

The decree consists of eleven paragraphs:

Paragraph 1 maintains that in accordance with the suggestions made by the Ministry of Higher and Secondary specialized Education, the Academy of Sciences, the Committee for Coordination of Science and Technology Development and the Supreme Attestation Commission in Uzbekistan shall introduce a two-tiered system of postgraduate university education by 1 July 2017.

This system installs two kinds of doctorates:

First: The basic doctorate (*bazovaia doktorantura*) which will, after the successful defense of the dissertation thesis, grant the academic degree of a Doctor of Philosophy (PhD) in the according fields of science (LexUz_3123547, text lines 39-40).

Second: The doctorate (*doktorantura*) which will, after the successful defense of the doctoral dissertation, grant the degree of a Doctor of Science (Ibidem, text line 41-42)⁵.

Paragraph 2 regulates the access requirements to the basic doctorate and to the Doctor of Science.

Eligible for admittance to the PhD degree dissertation process are academically trained persons holding either a Master degree (MA, MSc.) or a medical degree after having accomplished the full university medical training and the subsequent "ordination period" (*ordinantura*). After the successful defense of the dissertation these person are entitled to be granted the PhD degree. The academic degree "Doctor of Science" is to be granted – after the successful defense of the Dr.sc. dissertation – to persons holding either the degree "*kandidat nauk*" or "PhD" respectively an equivalent scientific degree from a foreign countries (ibidem, text lines 41-71).

Paragraph 3 regulates the ceasing of accepting dissertations written based on the provisions of the one-level system by of the scientific councils established within that one-level dissertation scheme by the date of issue of this decree, i.e. 16 February 2017.

Paragraph 4 clarifies the provisions for continuation of current scientific graduation works. Persons holding either a "*kandidat nauk*" or a PhD degree are entitled to continue with their dissertations in order to seek the degree "Doctor of Science" as established in the new two-tiered system commencing 1 July 2017. Persons currently working on a dissertation which were commenced under the one-level system, and who are holding a Master degree are entitled to continue with their dissertation work in order to seek the academic degree PhD under new provisions (ibidem, text lines 76-107). This particular regulation concerning the continuation of dissertations started under the one-level system by scientists holding a Master degree certainly presents a hardship for those persons. They had relied on the chance to immediately seeking the degree of "Doctor of Science" by embarking on the dissertation track just after having earned their Master degrees. For those MA-holder applicants who have not finished their dissertations by the issue date of the present decree this chance has vanished. They now have to continue their dissertation within the two-tiered system for just earning the "lower" degree PhD.

Paragraph 5 outlines the list of practical tasks assigned to the government of Uzbekistan, to all concerned ministries. They include first and foremost the preparation of the administratively and legally binding documents for introducing the new dissertation scheme.

Paragraphs 6-8 deal with the budgetary side of the new dissertation system. The Cabinet of Ministers has to define and to approve the scholarships for dissertation applicants according to

⁵ At the moment it is unclear whether the name of the scientific degrees will be restricted solely to "Dr. phil.". Possibly other names, indicating – according to the practice in Germany – the special field of research and scientific expertise, like "Dr. oec."; "Dr. rer. nat."; "Dr. med.", might be appropriate.

established remuneration schemes for scientific collaborators at different salary levels.

Paragraph 9 revokes the existing one-level dissertation regulations established in the year 2012.

Paragraph 10 assigns the task to all involved ministries to make proposals for amending and/or changing the existing legal basis for the academic graduation and scientific promotion process in Uzbekistan.

Paragraph 11 defines the duty of control of the entire process by giving the assignment to the Prime-minister of the Republic Uzbekistan A.N. Aripov (ibidem, text lines 108-162).

In order to make the new dissertation scheme operational by 1 July 2017, a great deal of intense administrative work and law-making has to be accomplished. The relevant documents to be released and published in the very near future are subject to further scrutiny. It is by far too early to make any attempt of judging the new, not fully developed two-tier system of dissertation. One might, though, be tempted to assume, that, compared to the old two-tiered Dissertation system the new one will be much more elaborated in terms of rules of regulation, in terms of clarity of definitions, expectations and obligations. Supposingly the provisions, definitions and regulations given in the one-tier system 2012-17 will partly be kept, partly be amended and partly be tailored to the new two-tier system commencing 1 July 2017.

5 Internationalization of Uzbek Scientific Research

5.1 The policy of international visibility of Uzbek research results

The education, science and technology policy of Uzbekistan as a young nation-state and a developing economy aims at greater international visibility of the results of research and innovation currently achieved in the country. This international visibility is needed for being attractive to foreign scientific, technological and industrial partners. The presidency and the government of Uzbekistan are putting a great deal of emphasis on this issue. One of the crucial aspects in this respect is the knowledge of foreign languages. The decree of the first president of the country, Islom Karimov, on the state policy in the field of foreign language teaching, issued in December 2012, favoring the English language at all educational levels, from primary school to university, has played an important role in the state policy directed at enhancing foreign language competences of Uzbek youth.

Given the developmental goals for Uzbek science and the need for spreading international research and teaching contacts over the academic institutions throughout the country it is clearly understandable that the Uzbek government puts strong emphasis on the publication of research and dissertation results in leading international academic journals. This objective is operationalized by the Supreme Attestation Commission through the imposed requirements of publishing research results in high-ranking international scientific journals.

5.2. The new impetus for international cooperation

Under the Presidency of Shavkat Mirziyoyev new initiatives for the development of the national system of higher education and scientific research have been launched very recently. Among them is a programme to dramatically raise the level of international scientific and technological cooperation of Uzbek academic institutions. This programme was adopted by Presidential Decree Nr. PD-2909 developed for the decisive enhancement of the entire educational system of Uzbekistan for the period 2017-2021. According to this Decree, all educational institutions of the Republic should establish close partnerships with leading international research institu-

tions. They should broadly introduce advanced teaching technologies into the educational and teaching process, putting the educational programs and teaching materials on international educational standards, and dynamically involve teachers and professors into research activities as well as into professional and institutional development.

In preparation of the Presidential Decree PD 2909 a working group was established, which arrived at a number of conclusion and recommendations based on a thorough, critical evaluation of the current situation of the higher education system of Uzbekistan. The working group concluded that in a number of higher education establishments the quality of the pedagogical capacities does not live up to the modern, contemporary requirements of teaching and information technologies. The technical basis of teaching and education needs a fundamental improvement and thorough going modernization.

The Presidential decree criticises the absence of solid and continuous academic partnership relations between Uzbek universities and leading foreign academic partners. Taking this unsatisfactory state of academic affairs into consideration the Presidential decree outlines urgent measures for improvement of the situation:

First, the most important objectives for the work of improving the system of higher education are:

- The establishment of close partnership relations with leading foreign academic institutions by every single Higher Educational Institutions in Uzbekistan,
- The introduction of progressive teaching technologies, educational programmes and curricula and text books based on international educational standards,
- The active involvement of leading international experts, professors and teachers from foreign academic institutions into the process of up-grading and improving the Uzbek higher education system,
- The development of goal-oriented parameters for training and re-training of university teachers,
- The optimization of academic teaching programmes with special regard to the further development of the economy and the different regions of the country,
- The further improvement of the entire academic teaching process, of curricula and syllabies based on the most progressive pedagogical methods,
- The qualitative enhancement of scientific-pedagogical processes at the level of Master-Studies,
- The production of text books and teaching materials of a new generation including the purchase and translation of the most modern foreign teaching materials and academic books and their introduction into the academic teaching process in Uzbekistan,
- The permanent supply of most modern literature and information resources to the academic libraries and scientific information centers,
- The permanent enhancement of the scientific, research and pedagogical qualification of the university staff in Uzbekistan by using internship and PhD programmes at foreign academic institutions,
- The further development of the scientific capacities of the universities and other higher education institutions in close cooperation with the research basis of the Academy of Sciences,
- The active involvement of talented students into academic life and research processes,
- The strengthening of the technical basis of the Higher Educational Institutions, the renovation of university buildings and laboratories in line with the priority directions of university development,
- The installations of modern, up-to-date information and communication technologies, the broadening of the students' access to educational and informational resources around the globe.

Second, the programme of the complex development of the higher education system for the period of 2017-2021 includes:

- The complex of measures for modernization of the technical basis of the Higher Educational establishments, the introduction of modern laboratory equipment and communicational technologies,
- The parameters of the state-budgetary financial volume directed at the above mentioned tasks,
- The list of Higher Educational Institutions for being included into the investment and renovation programmes for the period of 2017-2021 .

Third, the Cabinet of Ministers shall prepare programmes for the upgrading of academic qualification of young university teachers and researchers within two months, including practical measures for organizing training courses, internships in academic institutions abroad, for offering opportunities to enroll in Master-studies and PhD research programs at foreign universities and research laboratories.

Fourth, foreign academia and researchers shall be invited to Uzbekistan and they shall be involved into higher education teaching, training, education and qualification processes,

- Making provisions for the remuneration of foreign academia and researchers being invited to Uzbekistan to be paid in convertible currencies according to the employment contracts,
- Making provisions for the offering of free air-tickets (return, twice a year) to foreign academia invited to Uzbek universities,
- Making provisions for the lodging of foreign academia up to four weeks to be organized by the Uzbek universities, for longer periods a re-embursement for renting apartments shall be transferred to foreign academia,
- Making provisions for paying to foreign academia per diems in national currency at the equivalent of twenty US-Dollars per day of the exchange course fixed by the National Bank of Uzbekistan,
- Making provisions for tax-free remuneration of foreign academia and researchers working on contract basis at Uzbek universities and scientific institutions.

The Presidential Decree consists of further provisions concerning the involvement of other ministries and city governments in order to guarantee the realization of the outlined measures for the modernization and internationalization of the Higher Education and Research complex of the Republic of Uzbekistan⁶.

6 Conclusions

During the first years after independence, the Republic of Uzbekistan has developed a full-fledged academic system of higher education and scientific research designed to serving the needs of the country. The education and research system consists of the Academy of Sciences, State and Foreign Universities, the other higher education establishments, and branch institutes of research and development. The following conclusions can be derived from this study:

1. The system operates under strict and comprehensive state control; the president with his administrative apparatus, the Supreme Attestation Commission at the Cabinet of Ministers regulating and monitoring academic graduation, and the relevant ministries (higher education, health, agriculture etc.) fully determine the operation of the higher education and

⁶ See <https://www.gov.uz/ru/news/vies/10292>.

research institutions. The graduation system with the Supreme Attestation Commission as a watchdog of all graduation works marks a stark contrast to the academic system existing in Western, liberal democracies.

2. State control leaves little room for any university autonomy, administrative self-rule or self-responsible determination of the education process. The teaching process is based on top-down administered regulations and state approved curricula resulting in didactical approaches resembling very much a class-room situation familiar in school or high-school settings.
3. The teaching obligations of university staff fill the entire working day; class-room work of teachers in full-time positions is up to 20-22 academic hours per week. This situation makes it quite unrealistic for university teachers to pursue a personal or a group-based research agenda in a systematic, ongoing way.
4. The university system is chronically underfinanced; technical equipment, library and information technology are not up to international standards, salary is comparably low providing less incentives for young talented and aspiring persons.
5. The Uzbek establishments of higher education operate with a consecutive Bachelor and Master curricular system with a 4-year Bachelor ("*Bakalavriat*") and a 2 year Master ("*Magistratura*") phase. Uzbekistan has not joined the Bologna Process. Hence no ECTS agreement is in place. This notwithstanding, Uzbek universities actively participate in international exchange programmes.
6. The state regulates the enrolment numbers at the universities through budgetary assignments on a yearly basis. The ratio between Bachelor students and study places in the Master phase is roughly Ten to One, i.e. just 10% of BA-students get the chance to continue their education. This low number of MA students might turn into a serious obstacle in finding talented young researcher and prospective PhD candidates.
7. The Uzbek Academy of Sciences with its research institutes and laboratories still serves as the main pillar of fundamental and applied research in the country. At the same time there is a process under way of strengthening the research capacities of the university sector. Recent presidential decrees indicate this process to be accelerated and financially underpinned.
8. In order to make the scientific and higher education system of Uzbekistan more dynamic, more competitive and more responsive to the real needs of society, culture and economy, a number of reforms were recently being started. In 2013, doctoral graduation moved from a Soviet-style two-tier system including a PhD and a doctor of science degree to a more anglo-saxonian one-tier PhD system. The new President of Uzbekistan Shavkat Mirziyoyev announced to return to a two-tier system by July 2017 and intends to notably raise the level of international cooperation of Uzbek academic institutions.
9. International graduate schools in crucial sectors of Uzbek higher education certainly could serve the objectives of raising the quality, the output, the visibility and the applicability of research and development in Uzbekistan. For making an international graduate school a true and lasting success story a number of conditions shall be met. Among them shall be the full academic freedom of the governing body of the school, international competition for recruitment and enrolment, substantial financial and administrative support from the Uzbek state authorities, and a functioning system of supervising of PhD research projects based on a co-supervision (co-tutelle) system.

References

- Bismark, H., Honemann, V., Neuß, E., Tomasek, T. (eds.) (2005). *Usbekisch-deutsche Studien I. Indogermanische und außerindogermanische Kontakte in Sprache, Literatur und Kultur*. Münster.
- Egamkulov, B. (ed.) (2016). *The Supreme Attestation Commission at the Cabinet of Ministers of the Republic of Uzbekistan: Provisions on the Scientific Council giving a Scientific Degree of "Doctor of Science", Provisions on Conferment of the Scientific Degree of "Doctor of Science", Provisions on Conferment of an Academic Status, Provisions on Qualification Examinations, Provisions on the Expert Council*. Volume edited by the Supreme Attestation Commission in three languages (Uzbek, Russian, English), Tashkent.
- Graham, L. (1993). *Science in Russia and the Soviet Union: A Short History*. Cambridge University Press.
- Karatayev, M. (2016). *Kazakhstan's science in the world: Looking at trends in scholarly publishing*. Creative Research Methods Lab, University of Nottingham, Nottingham.
- Karimov, I.G. (various years). *Speeches*, Tashkent.
- Schulze, K., Tyan, N., Engelhardt, L. (eds.) (2016). *Usbekisch-deutsche Studien IV. Kontakte: Sprache, Literatur, Kultur, Didaktik*. Berlin.
- Sultanov, K.S. (ed.) (2009). *The Supreme Attestation Commission at the Cabinet of Ministers of the Republic of Uzbekistan – Provisions on Conferment of Scientific Degrees, of Academic Status, Provision on the Expert Council*. Tashkent (in Russian *Высшая Аттестационная Комиссия при Кабинете Министров Республики Узбекистан – ПОЛОЖЕНИЯ о порядке присуждения ученых степеней, о порядке присвоения ученых званий, об экспертном совете*).
- Weber, M. (2011). *Wissenschaft als Beruf*, Berlin.

Legislation

- Decree of the State President of the Republic of Uzbekistan № PD-2909 "On measures for further development of the Higher Education System" – website (in Russian): <https://www.gov.uz/ru/news/vies/10292>
- Decree of the State President of the Republic of Uzbekistan Shavkat Mirziyoyev № UP 4958, dated 16th February 2017 "On further improvement of the system of university post-graduate education". LexUz_3123547.

Websites

The Government of the Republic of Uzbekistan: https://www.gov.uz/en/pages/general_information

The Parliament (Oliy Majlis) of the Republic of Uzbekistan: <http://parliament.gov.uz/en/>

The web-site of Uzbek legislation: http://www.lex.uz/ru/law_collection

The Ministry of Higher and Specialized Middle Education: <http://www.edu.uz/uz>

The Academy of Sciences of Uzbekistan: <http://www.academy.uz/en/>

The State Committee for Science and Technology <http://www.uzscience.uz/>

The Supreme Attestation Commission: <http://www.oak.uz/>

The National University of Uzbekistan named after Mirzo Ulugbek: <http://nuu.uz/>

The Samarkand Agricultural Institute: <http://samqxi.uz/index.php/uz/>

The University of Agriculture in Tashkent: <http://tdau.uz/>

The State Institute for Irrigation and Melioration in Tashkent: <http://tiim.uz/>

The German Academic Exchange Service: <https://www.daad.de/en/>

The ERASMUS office in Tashkent: <http://www.erasmusplus.uz/>

Appendix: Rankings of Uzbek universities

Table based on “2017 Uzbekistani University Ranking” (<http://www.4icu.org/uz>). The purpose of this university ranking is to provide an approximate non-academic ranking of all Uzbekistani higher education institutions based on the popularity of their official websites. The ranking is not intended to identify the best universities in Uzbekistan and should not be adopted as the main and only criteria for selecting a higher education institution where to enroll.

Rank	University	Town Location
1	Toshkent Davlat Agrar Universiteti	Tashkent
2	Jizzax Davlat Pedagogika Instituti	Jizzakh
3	Toshkent Xalqaro Vestminster Universiteti	Tashkent
4	Toshkent Shahridagi Singapur Menejmentni Rivojlantirish Instituti	Tashkent
5	O'zbekiston Milliy Universiteti	Tashkent
6	Toshkent Axborot Texnologiyalari Universiteti	Tashkent
7	Buxoro Davlat Universiteti	Bukhara
8	Toshkent Moliya Instituti	Tashkent
9	Qoraqalpoq Davlat Universiteti	Nukus
10	Samarkand Davlat Universiteti	Samarkand
11	Toshkent Farmatsevtika Instituti	Tashkent
12	Samarqand Davlat Chet Tillar Instituti	Samarkand
13	Toshkent Tibbiyot Akademiyasi	Tashkent
14	Samarqand Qishloq xo'jalik Instituti	Samarkand
15	Toshkent Pediatriya Tibbiyot Instituti	Tashkent
16	Jahon Iqtisodiyoti va Diplomatiya Universiteti	Tashkent
17	Toshkent Davlat Iqtisodiyot Universiteti	Tashkent
18	Toshkent Islom Universiteti	Tashkent
19	Toshkent Shahridagi Turin Politehnika Universiteti	Tashkent
20	Toshkent Avtomobil Yo'llar Instituti	Tashkent
21	Toshkent Davlat Texnika Universiteti	Tashkent
22	Samarqand Iqtisodiyot va Servis Instituti	Samarkand
23	Nukus Davlat Pedagogika Instituti	Nukus
24	Toshkent Temir yo'l Transporti Muhandislari Instituti	Tashkent
25	Samarqand Davlat Tibbiyot Instituti	Samarkand
26	Toshkent Irrigatsiya va Melioratsiya Instituti	Tashkent
27	Toshkent Davlat Pedagogika Universiteti	Tashkent
28	Termiz Davlat Universiteti	Termez
29	Samarqand Davlat Arxitektura-Qurilish Instituti	Samarkand
30	Farg'ona Politehnika Instituti	Fergana
31	Kamoliddin Behzod Nomidagi Milliy Rassomlik Va Dizayn Instituti	Tashkent
32	Qarshi Muhandislik Iqtisodiyot Instituti	Qarshi
33	Jizzax Politehnika Instituti	Jizzakh
34	Andijon Qishloq xo'jaligi Instituti	Andijan
35	Namangan Davlat Universiteti	Namangan
36	Qarshi Davlat Universiteti	Qarshi

Rank	University	Town Location
37	Guliston Davlat Universiteti	Guliston
38	Qo'qon Davlat Pedagogika Instituti	Kokand
39	Namangan Muhandislik-Pedagogika Instituti	Namangan
40	Farg'ona Davlat Universiteti	Fergana
41	Toshkent Arxitektura Qurilish Instituti	Tashkent
42	Bank-moliya Akademiyasi	Tashkent
43	Navoiy Davlat Konchilik Instituti	Navoiy
44	Buxoro Davlat Tibbiyot Instituti	Bukhara
45	O'zbekiston Davlat San'at va Madaniyat Instituti	Tashkent
46	Andijon Davlat Tibbiyot Instituti	Andijan
47	Toshkent Davlat Yuridik Instituti	Tashkent
48	Namangan Muhandislik-Texnologiya Instituti	Namangan
49	Buxoro muhandislik-texnologiya instituti	Bukhara
50	O'zbekiston Davlat Konservatoriyasi	Tashkent
51	Navoiy Davlat Pedagogika Instituti	Navoiy
52	Andijon Davlat Universiteti	Andijan
53	Andijon Mashinasozlik Instituti	Andijan
Un	Toshkent Kimyo-Texnologiya Instituti	Tashkent
Un	Urganch Davlat Universiteti	Urgench
Un	O'zbekiston Davlat Jahon Tillari Universiteti	Tashkent

Legend: Un - Unranked

Ranking by Cybermetrics Lab (<http://www.webometrics.info/en/Asia/Uzbekistan>) The "Webometrics Ranking of World Universities" is an initiative of the Cybermetrics Lab, a research group belonging to the Consejo Superior de Investigaciones Científicas (CSIC), the largest public research body in Spain.

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Uzbekistan

Rank	World Rank	University	Presence Rank	Impact Rank	Openness Rank	Excellence Rank
1	6388	National University of Uzbekistan / O'zbekiston Milliy Univesiteti	9490	11763	8635	3459
2	8150	Samarkand State University	1444	14727	8635	4142
3	9567	Tashkent University of Information Technologies	4900	9407	8421	5778
4	9837	Samarkand Agricultural Institute	5001	14343	8635	4482
5	10786	Toshkent Moliya Instituti / Tashkent Financial institute	7045	13118	6975	5778
6	11773	(1) Westminster International University in Tashkent	17935	11389	7527	5778
7	12338	Tashkent Medical Academy	3683	14855	7873	5778
8	14125	Tashkent Pediatric Medicine Institute	4040	16604	8195	5778
9	14620	Tashkent Institute of Railway Technology / Toshkent Temir yo'l Transporti Muhandislari Instituti	7589	14995	8635	5778
10	14643	Tashkent Polytechnic University / Таласский государственный университет	3511	18410	7727	5778
11	14675	University of World Economy and Diplomacy	6982	15217	8635	5778
12	14848	Tashkent Islamic University	3041	16481	8635	5778
13	15019	Tashkent Pharmaceutical Institute	9847	15122	8635	5778
14	15140	Urganch State University	10537	18883	8635	4916
15	15245	Fergana State University	4854	18818	8635	5228
16	15256	Tashkent Institute of Textile and Light Industry	4975	16481	8635	5778
17	15265	Tashkent State Pedagogical University	3448	16887	8635	5778

Rank	World Rank	University	Presence Rank	Impact Rank	Openness Rank	Excellence Rank
18	15336	Karakalpak State University / Бердақ атындағы Қарақалпақ мәмлекетлик университети	4323	16721	8635	5778
19	15379	Andijon Davlat Tibbiyot Instituti	2449	17379	8635	5778
20	15532	Samarkand State Institute of Foreign Languages	7151	16395	8635	5778
21	15767	Bukhara State University / Бухарский государственный университет	4851	17176	8635	5778
22	15869	Tashkent Automobile Road Institute	14867	15174	8635	5778
23	16032	Samarkand Institute of Economics and Service	8547	16793	8635	5778
24	16214	Inha University in Tashkent	12241	16231	8635	5778
25	16618	Management Development Institute of Singapore in Tashkent	12640	16636	8635	5778
26	16838	Tashkent State University of Economics	11136	17232	8635	5778
27	16923	Namangan State University / Namangan Davlat Universiteti	11661	19568	8635	5228
28	17052	Tashkent State Technical University	12119	17333	8635	5778
29	17147	Tashkent Institute of Irrigation and Melioration / Ташкентский институт ирригации и мелиорации	14080	17042	8635	5778
30	17294	Andijan State Medical Institute / Андижанский государственный медицинский институт	18398	16231	8635	5778
31	17312	Termiz State University	10140	18094	8635	5778
32	17408	Karschi Engineering Economic Institute	8974	18456	8635	5778
33	17573	Uzbekistan State University of World Languages	10606	18335	8635	5778
34	17752	International Business School Kelajak Ilmi	22731	15683	8635	5778
35	18025	(3) Plekhanov Russian University of Economics Tashkent Branch	14053	18225	8635	5778
36	18133	Nukus State Pedagogical Institute	13976	18410	8635	5778

Rank	World Rank	University	Presence Rank	Impact Rank	Openness Rank	Excellence Rank
37	18208	Tashkent State Agrarian University / Toshkent Davlat Agrar Universiteti	11584	18990	8635	5778
38	18237	Andijan Agricultural Institute	14311	18456	8635	5778
39	18308	(3) Tashkent University of Information Technologies Samarkand Branch / Самаркандский филиал Ташкентский университет информационных технологий	7951	19853	8635	5778
40	18338	Tashkent Institute of Architecture and Civil Engineering	6568	20153	8635	5778
41	18417	Guliston State University	10364	19568	8635	5778
42	18637	Andijan State University	12314	21552	8635	5228
43	18687	Karshi State University / Qarshi Davlat Universiteti	13317	19280	8635	5778
44	18826	Samarkand State Architectural and Civil Engineering Institute	11451	19853	8635	5778
45	18895	Moscow State University in Tashkent Branch	19651	18094	8635	5778
46	18912	Tashkent Chemical Technological Institute	16284	21102	8635	5228
47	19019	Kokand State Pedagogical Institute	7938	20758	8635	5778
48	19052	National Institute of Arts and Design Kamoliddi Bezhod	15586	19205	8635	5778
49	19104	Tashkent State University of Oriental Studies	10586	20315	8635	5778
50	19293	Namangan Engineering Pedagogical Institute	6050	21345	8635	5778
51	19583	Jizzakh Politechnical Institute / Jizzax Politexnika Instituti	11040	20828	8635	5778
52	19680	Banking and Finance Academy of Uzbekistan	12881	20575	8635	5778
53	20001	Samarkand State Medical Institute / Самаркандский Государственный Медицинский Институт	16204	20315	8635	5778
54	20451	Tashkent State University of Law	5630	22723	8635	5778

Rank	World Rank	University	Presence Rank	Impact Rank	Openness Rank	Excellence Rank
55	20701	State Institute of Arts and Culture of Uzbekistan / Государственный институт искусств и культуры Узбекистана	14681	21461	8635	5778
56	20746	Namangan Muhandislik-texnologiya Instituti	7498	22723	8635	5778
57	20755	Jizzax State Pedagogika Instituti	14886	21461	8635	5778
58	20789	Uzbek State Institute of Physical Culture	10035	22396	8635	5778
59	20844	(3) Tashkent University of Information Technologies Nukus Branch / Тошкент ахборот технологиялари университети Нукус филиали	8188	22723	8635	5778
60	21097	Navoi State Pedagogical Institute	13345	22167	8635	5778
61	21701	Andijon Machine Building Institute	11736	23057	8635	5778
62	22005	Davlat Soliq Qo'Mitasi Soliq Akademiyasi	19692	22055	8635	5778
63	22643	Bukhara State Medical Institute / Бухарский Медицинский Институт	23188	22055	8635	5778
64	22991	(3) Tashkent Institute of Irrigation and Melioration Buxoro filial	19314	23306	8635	5778
65	23408	Tashkent State Higher School of National Dance and Choreography	16404	24176	8635	5778
66	23449	Navoiy State Mining Institute / Navoiy Davlat Konchilik Instituti	21955	23426	8635	5778
67	24171	Tashkent State Dental Institute	17141	24802	8635	5778
68	25628	Nagoya University Office in Uzbekistan	25177	25498	8635	5778
69	26131	Tashkent State University of the Uzbek Language and Literature	18389	26233	8635	5778

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