

# **Promoting internationalization of research through establishment and operationalization of Cycle 3 Quality Assurance System in line with the European Integration (C3QA)**

## **Initial country review report**

### **Kazakhstan**

#### **Introduction**

The report gives an overview of positioning of Cycle 3 programs in the system of higher education of Kazakhstan, as well as their implementation in practice and quality assurance. The data given is taken from the national regulations, strategic development documents, policy statements, research papers, domestic and foreign reports on the given topic, and statistics of the state bodies.

The report includes the information provided by two university partners: M.Auezov South Kazakhstan State University and KAZGUU University. The universities gathered qualitative data from the interviews, the results of which were used in the analyses and integrated in to the report. The interview forms are provided in the Annex to the report.

#### **Executive summary**

The report follows the table of contents provided by the project coordinator. Chapter 1 describes the national higher education system, research and quality assurance context in Kazakhstan. It includes national legal framework and regulations governing quality assurance of Cycle 3, overview of strategies and incentives for Cycle 3 at national level, analysis of the impact and use of international practice at the national context, and funding mechanism that have an impact.

Chapter 2 deals with main characteristics of Cycle 3 programs, characteristics of the study process, statistics related to Cycle 3, positioning and follow-up of PhD students and graduates, as well as internal and external QA mechanisms of Cycle 3.

Chapter 3 gives understanding of main challenges of Cycle 3 programs and its quality assurance at national and institutional levels. It includes analysis of the qualitative data collection from institutions, PhD students and the socio-economic world.

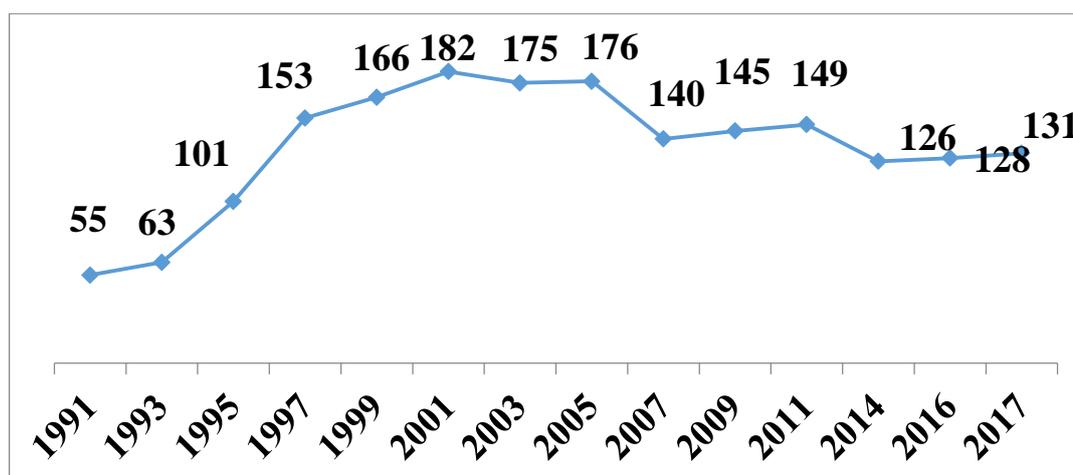
Finally, Chapter 4 provides good practice examples on implementation of Cycle 3 programs.

# Chapter 1: Overall landscape – National Higher Education (HE), research and QA context (with focus on Doctorate level)

## 1.1 Brief presentation of the HE and research system

1.1.1 The population of Kazakhstan on March 1, 2017, is 17, 9 mln<sup>1</sup>. There are 131 higher education institutions (HEIs) (Fig. 1): 10 national HEIs, 32 state HEIs, 14 non-civic HEIs, 1 international HEIs, 18 joint-stock HEIs, 55 private HEIs, 1 HEI in the authority of the Supreme Court of the Republic of Kazakhstan<sup>2</sup>.

Figure 1. Changes in the number of HEIs



In 2016-2017, there are 477, 074 thousand Bachelor's students in 131 HEIs, there are 32, 893 thousand Master's students in 105 HEIs and 2, 710 thousand PhD students in 63 HEIs<sup>3,4,5</sup>.

According to article 35 in paragraph 2 of the Law on Education of the Republic of Kazakhstan the main types of HEIs are: national research university, national HEI, research university, university, academy, institute and equivalent institutions (conservatory, higher school, specialized school). In addition, in 2011, new types of HEIs were defined: research and national research universities, conducting individually developed study programs of higher and postgraduate education in wide areas and using outcomes of fundamental and applied research to generation and transfer of new knowledge.

In Kazakhstan, the study programs are conducted according to the Classifier of Majors in Higher and Postgraduate Education. It contains 13 groups of majors, including 518 study programs of which 157 Bachelor's programs, 4 Specialist's programs, 179 Master's programs and 178 PhD programs.

The higher education study programs are divided into Bachelor's and Specialist's programs. They are aimed at training highly-qualified personnel according to demands of economic sectors. These programs are intended at fundamental training of the students.

<sup>1</sup>[Committee on Statistics under the Ministry of National Economy of the Republic of Kazakhstan](#)

<sup>2</sup>[Ministry of Education and Science of the Republic of Kazakhstan. List of higher education institutions indicating the organizational and legal form \(March 26, 2016\).](#)

<sup>3</sup>[Committee on Statistics under the Ministry of National Economy of the Republic of Kazakhstan](#)

<sup>4</sup> Ibid

<sup>5</sup>[Committee on Statistics under the Ministry of National Economy of the Republic of Kazakhstan. Educational statistics. Bulletins for 2016](#)

The duration of the study at the Bachelor's level with awarding the degree of "Bachelor" is not less than 4 years. It requires accumulation of 129 credits of theoretical study and a minimum of 6 credits of professional practice. The duration of Specialist's program with awarding a qualification "Specialist in corresponding area" is 5 years, which requires accumulation of 167 credits.

According to the Law on Education postgraduate education can be pursued on the basis of higher education. It is delivered on Master's, residency and PhD levels at national HEIs and research institutions, foreign HEIs via state scholarship "Bolashak" in line with a list of annually approved majors (Law on Education, article 36, para 1, 2).

The structure of the postgraduate study programs contains theoretical training of core and specialized disciplines, professional practice, research (experimental-research) in the frame of the dissertation.

The duration of the Master's study programs (taught route), awarding the academic degree "Master" in a corresponding major is 2 years. These programs require accumulation of 55 credits. At professional route of the master's programs the duration of study is 1 year, which requires accumulation of 24 credits.

The duration of study at PhD level with the award of research degree PhD or Professional PhD in a particular area is 3 years, for which the students need to take 75 credits. Dissertation is part of the PhD programs requirements. It should contain theoretical provisions, that can be qualified as a new research achievement or solution of the research problem. The PhD programs are delivered in two routes:

- 1) research-pedagogical with the duration of 3 years;
- 2) professional route with the duration of 3 years (the Law on Education, art. 36, para 4).

The PhD study programs are delivered in line with:

- the list of majors and qualifications that the HEIs eligible to deliver;
- state compulsory standard of postgraduate education;
- standard curriculum of specialties;
- standard and working training programs in the disciplines;
- academic calendar;
- individual working plan of the doctoral candidates.

The PhD study programs are legally eligible to be delivered by HEIs with the license giving the right to conduct educational activities in the relevant specialties of doctoral study programs, regardless of departmental subordination and ownership, and a contract with accredited research partner organizations on cooperation in joint implementation of relevant research and study programs and the provision of a research base.

The general duration of the academic year is 36 weeks. The academic period contains a term of 15 weeks.

In HEIs, the research is conducted by the teaching staff and the Bachelor's, Master's and PhD students in the framework of the academic study in line with the perspective and individual plans as well as during the extracurricular time.

In general, the policy and the areas of research are defined by HEIs according to profile of HEI, technical and human potential, state policy, demands of the region, on the territory of which the HEI is located.

Research is conducted on the basis of the following regulations:

- the Law on Education
- the Law on Science
- State Program for Education and Science Development for 2016-2019
- State compulsory standard of the Republic of Kazakhstan 5.01.024-2008 "The Research Activity"
- State compulsory standard of higher education
- State compulsory standard of postgraduate education
- Rules on accreditation of research and (or) research and technical institutions

- Provisions on the contest “Leading Faculty Member”
- Provisions on the Republic contest of students’ research work.

Additionally the research is regulated by internal documents, developed by HEIs, for instance, Statute, Strategic development plan, provisions on “Student’s research work”, individual plans of the teaching staff, plans of the academic units on research, calendar of research activities, thematic plans on research, individual plans on research work of PhD candidates and Master’s students.

In general, the research activities are assessed by the quality assurance mechanisms, which include particular criteria. They are the scope of the funded research, the amount of the grants, allocated to research, the number of obtained patents, published academic articles as well as academic articles, published in peer-reviewed journals, citation of the articles and monographs of the teaching staff, cooperation with international organizations and institutions in CIS and Kazakhstan, the number of Master’s and PhD students, defined in individual plans, reports on research, the number of students, involved in research, the effectiveness of the students’ research.

HEIs individually develop various study programs, structured in line with the principle of modular training, National qualifications framework, professional standards and the Dublin descriptors and European qualifications framework.

In order to increase academic freedom Kazakhstani HEIs are given the extended rights, in particular, in defining the content of study programs in the Bachelor’s degree - 55%, Master’s degree - 70%, PhD degree - 90%. Thus, HEIs can offer a wide range of study programs that contribute to strengthening their competitiveness in the market of educational services.

PhD study programs have a research and pedagogical orientation and involve fundamental educational, methodological and research training and in-depth study of disciplines in the relevant areas of science for higher and postgraduate education and the science area.

The supervision on doctoral theses is carried out by a minimum of two consultants, appointed by the decision of the Academic Council among the number of Doctors or Candidates of Sciences or PhD, one of whom is a scholar from a foreign HEI (with the exception of the group of specialties “Military Affairs and Security”) . In the case of PhD study programs in professional route (Professional PhD), the second consultant is appointed among the specialists of the relevant industry or field of activity. Defense of a doctoral dissertation includes the preparation of a dissertation, its design and procedure for defense.

The study in PhD involves research, pedagogical and research internships, terms and duration are determined by HEIs<sup>6</sup>.

Thus, PhD study programs are delivered at HEIs, while the defense of the thesis and the assessment of graduates compliance with the set requirements is carried out by the dissertation councils and advisory council, advisory body by the Committee for Control of Education and Science under the Ministry of Education and Science of the Republic Kazakhstan on the relevant research area, which examines the thesis examination on compliance with the requirements for award of a research degree. One of the requirements for the Doctoral students is the publication of the research results in academic, academic and analytical as well as scientific and practical publications.

With a positive decision of the above-mentioned Committee on the results of the examination, individuals who fully fulfilled the requirements of the PhD program and successfully defended their doctoral thesis are awarded a PhD or specializes doctor degree and are issued a state diploma with an diploma supplement (transcript).<sup>7</sup>

<sup>6</sup> Resolution of the Government of the Republic of Kazakhstan dated 23 August 2012 No. 1080 “On the approval of the State Compulsory Standards of the Relevant Levels of Education”, State Compulsory Standard of Postgraduate Education.

<sup>7</sup> Order of the Minister of Education and Science of the Republic of Kazakhstan dated March 31, 2011 No. 127. Registered in the Ministry of Justice of the Republic of Kazakhstan on May 13, 2011 No. 6951 "On Approval of the Rules for awarding research degrees" <http://adilet.zan.kz/rus/docs/V1100006951>

Over the last three years, the number of admissions has increased in all levels of education, particularly in PhD level. However, there is a negative trend, expressed in an increase in the number of graduates of PhD graduates who did not defend the thesis in the set period. This trend is particularly evident in such areas like Education, Humanities, Natural and Technical Sciences. (See Annex 1, Table 1).

### **National Qualifications Framework**

A key step in the modernization of the education system was the development and implementation of the National System of Classifications (NSC), which was legally approved in 2012 in the Labor Code of the Republic of Kazakhstan. The NSC is aimed at solving the problem of the discrepancy between the professional level of graduates of HEIs and the labor market.

The structure of the NSC contains the national qualifications framework, the sectoral framework of qualifications, professional standards, the system for assessing and certifying the quality of qualifications. As can be seen from the figure 2, the National Qualifications Framework (NQF) is an integral part of the NSC, which is in line with the Education Law of the Republic of Kazakhstan and the European Qualifications Framework, comprise the following eight qualification levels:

1-2 levels – general secondary education;

3-4 levels – technical and vocational education (upper level);

5 level – technical and vocational education (middle ranking specialist), then – secondary or higher education;

6 level – higher education;

7-8 levels – higher and postgraduate education (Bachelor's, Master's and PhD degrees).

The NQF provides a structural description of the requirements for personal and professional competencies, skills and knowledge. They are detailed in the sectoral qualifications framework and professional standards. Drawn on the NQF, the followings are developed:

– professional standards;

– study programs;

– requirements for learning outcomes of the study programs;

– procedures for determining the qualifications of graduates of all levels of professional education<sup>8</sup>.

Currently more than 20 sectoral qualifications frameworks, 345 professional standards were developed on the basis of the NQF. In partnership with the National Chamber of Entrepreneurs, professional standards are being improved, work is continuing on the establishment of independent centers for issuing qualifications.

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<sup>8</sup> [National Qualifications Framework. Approved by the protocol of March 16, 2016, by the Republican Tripartite Commission on Social Partnership and Regulation of Social and Labor Relations](#)

**Figure 2. The structure of education system of the Republic of Kazakhstan**



1.1.2 The implementation of scientific research in the Republic of Kazakhstan is carried out in accordance with the National priorities for research for 2014-2016 approved by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan and includes 5 directions:

- Rational use of natural resources, processing of raw materials and products;
- Power engineering and machine building;
- Information and Telecommunication Technologies;
- Life Sciences;
- Intellectual potential of the country.

In the framework of the competition for grant financing of research for 2015-2017, 5749 projects of higher education institutions, research institutes, other organizations and individuals were submitted. 4884 of them were approved and sent to the state scientific and technical expertise. The dominant number of applications is presented in 3 directions: “Intellectual potential of the country” (32.1%), “Rational use of natural resources, processing of raw materials and products” (26,6%), “Life Sciences” (20,4%). Then there are presented “Information and Telecommunication Technologies” (11,2%) and “Power engineering and machine building” (9,7%).

Higher education institutions of the Republic Kazakhstan submitted 2702 applications (55.3%), research institutes - 1892 applications (38.7%), other organizations - 254 and individuals – 36.<sup>9</sup>

#### **Relationships between academia and research centers**

In recent years, Kazakhstan has pursued a policy of convergence between universities and national research institutes that have always functioned under the National Academy of Sciences.

As part of the integration of academic and research institutes, some of the structural subdivisions of the National Academy of Sciences have been transferred to universities (Al-Farabi Kazakh National University, K.Satpayev Kazakh National Research University).

<sup>9</sup> The National Report on Science, 2015, Astana

In addition, Kazakhstan's leading universities have their own research institutes that carry out fundamental and applied research. For example, M. Auezov South Kazakhstan State University has 9 scientific institutes and 11 scientific centers.

1.1.3 All study programs of Cycle 3 contain at least 6 Kazakhstani credits for an internship. In accordance with the regulatory requirements, doctoral studies include the following types of internship: pedagogical, research or industrial.

Types and duration of internship depend on the program profile:

- 1) The programs of the research and pedagogical direction envisage undertaking pedagogical and research practice (the total duration is 8-10 weeks);
- 2) The programs of the profile direction provide pedagogical and industrial practice (the total duration is 8-10 weeks).

All types of doctoral internships are conducted in accordance with the academic calendar and a PhD student's individual plan.

The state policy in the field of training doctoral candidates is aimed at matching the PhD research to the industrial and innovative development of the country's economy and practical implementation of the results of PhD research in the real sector of the economy.

To fulfill these tasks, doctoral students have free access to the innovative infrastructure of universities. In Kazakhstan there are 16 Commercialization Offices, 3 Technoparks and 4 business incubators<sup>10</sup>, on the basis of the universities that assist and consult doctoral students in the commercialization of scientific results obtained in the course of their dissertation research. State expenditure on research in Kazakhstan is 0,16% from GDP, while in OECD countries this indicator is 2,4% (expenditure on science)<sup>11</sup>.

## **1.2 Overview of the national legal framework and regulations governing quality assurance (QA) of Cycle 3**

The legal framework of quality assurance of higher and postgraduate education is the Law on Education of the Republic of Kazakhstan, which outlines the main provisions on the accreditation of HEIs and study programs. The law sets out the main incentive for HEIs to pass accreditation. Thus, the state educational order must be placed in HEIs which passed international accreditation at the agencies, full members of the international European networks on quality assurance of education and listed in the National Register of the Ministry of Education and Science of the Republic of Kazakhstan. Accreditation is carried out on a voluntary basis, HEIs have the right to choose the agency. Accreditation is carried out by agencies in line with their standards, including the standards of specialized accreditation, within which the assessment of study programs of PhD programs is carried out. In addition, the basis for ensuring the quality of PhD programs is the qualification requirements for educational activities and state compulsory standards for postgraduate education. The opening of doctoral programs is regulated by the qualification requirements for educational activities, as a result of which the HEIs are granted a license and the right to conduct educational activities in the framework of the PhD study programs. Among the requirements for HEIs are:

- conformity of faculty's education and research degrees with a profile of the taught disciplines;
- HEIs deliver courses in partnership with enterprises and other organizations: they have funded research and development work;

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<sup>10</sup> [Strategic plan of the Ministry of Education and Science of the Republic of Kazakhstan for 2014-2018](#)

<sup>11</sup> Ibid

- experience of exchange with accredited foreign HEIs and research organizations that provide training for PhD students;
- availability of a specialized research and technical, scientific-methodological, clinical, experimental base for delivery of the PhD programs;
- availability of computer equipment, library, availability of broadband Internet, material and technical and educational-methodical laboratory;
- the existence of contracts with domestic organizations and foreign HEIs for delivery of internships of the Doctoral candidates;
- availability of medical facilities and food courts in the study buildings;
- availability of own study rooms<sup>12</sup>.

### **1.3 Strategies and incentives for Cycle 3 at national level**

To meet the needs of HEIs and research institutions in research and pedagogical staff from 2015, citizens enrolled for PhD programs on the basis of the state educational order are required to work in HEIs or research institutions for at least three years after completing the studies<sup>13</sup>. Since 2016, the new entry requirements have been introduced for PhD programs: the presence of a “Master’s” degree or the completion of training in residency for medical specialties and work experience of a minimum of 3 years. In addition, to increase access to postgraduate education since 2016, admission to PhD programs is available on a fee basis also.

According to the State Program for the Development of Education and Science for 2016-2019 it is planned to increase the number of state grants for training at the PhD level, including in Nazarbayev University to provide the higher education sector with research and pedagogical staff.

In the near future, the mechanism of admission and training of students in Bachelor’s, Master’s and Doctoral degrees will be improved due to market regulation of the amount of the state educational grants in HEIs regardless of the form of ownership. From 2017, the issue of transferring to higher education credit-per capita financing has been under consideration with elaboration of proposals for financing the state educational order, taking into account the academic volume of academic loans with the involvement of employers. Thus, from 2017, the training of PhD students will be carried out in partnership between the state and employers.

At the same time, there is no policy in the country aimed at maintaining a gender balance in studies at PhD level.

### **1.4 Impact of European Principles, Standards and Guidelines at national level**

In March 2010 Kazakhstan officially joined the Bologna Declaration and became the 47<sup>th</sup> member of the European Higher Education Area (EHEA) and first Central Asian state recognized as a full member of the EHEA.

Since that time Kazakhstan has fully completed the transition to three cycle system (Bachelor, Master, PhD) in accordance with the Bologna process. The new ECTS Users’ Guide, approved at the Yerevan Conference on 14-15 May 2015, is being introduced. In recent years

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<sup>12</sup> Order of the Minister of Education and Science of the Republic of Kazakhstan dated June 17, 2015, No. 391. Registered in the Ministry of Justice of the Republic of Kazakhstan on July 22, 2015, No. 11716. "On approval of qualification requirements for educational activities and a list of documents confirming compliance with them" <http://adilet.zan.kz/rus/docs/V1500011716>

<sup>13</sup> Education Law of the Republic of Kazakhstan dated July 27, 2007, No. 319-III (with the amendments on December 22, 2016) Article 47. Rights, duties and responsibilities of students and pupils [https://online.zakon.kz/Document/?doc\\_id=30118747#pos=196;-171](https://online.zakon.kz/Document/?doc_id=30118747#pos=196;-171)

academic mobility of teaching staff and students is developing actively. Academic mobility programs are financed by state budget and universities' own funds.

Since 2013 study programs are structured by modules, developed on the basis of competencies and learning outcomes in accordance with the Dublin descriptors. The internal quality assurance systems have been introduced and are developing in the universities. The gradual transition from state attestation to independent public professional accreditation took place. The Standards and Guidelines for Quality Assurance in the EHEA (ESG-2015) are reflected in internal and external quality assurance of institutions and programs.

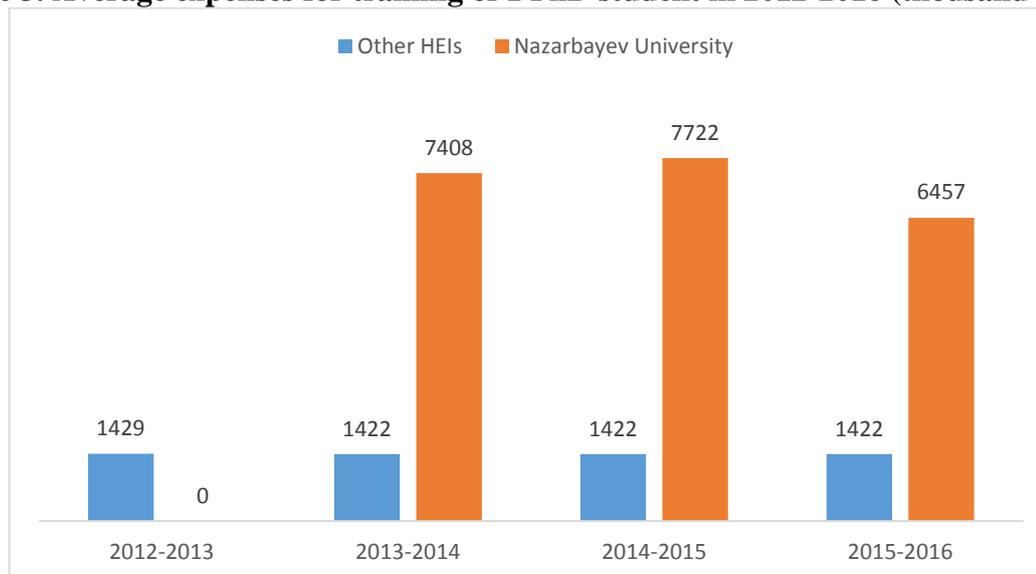
Supervisory Boards have been established in large universities. It is planned to further implement corporate government principles through phased expansion of academic, management, and financial independence of higher education institutions, as well as to develop a mechanism for formation of endowment funds in the universities.

The legislative base and following from them management mechanisms for realization of a state policy in the system of research and pedagogical staff training on PhD programs substantially address the Salzburg principles of organization of doctoral education. Institutionalization of PhD, establishment and development of higher schools, flexibility in independent formation of the content of PhD study programs, internationalization of the study process, state grants for PhD studies – all of these are used to achieve a critical mass in PhD studies. However, there are some points that should be addressed, such as analysis of the impact of the labor market on the training of personnel in the PhD system and organization of their employment, as well as increasing interdisciplinary and intersectoral mobility of PhD students.

## 1.5 Financial conditions

Every year the government allocates about 37,000 state grants (scholarships) for studies in universities, including 2% for PhD studies. Until 2016, the training of PhD students was carried out only by means of the state budget, but since 2016 a paid basis for training in PhD studies was also introduced (Decree of the Government of the Republic of Kazakhstan № 404 dated 14 July 2016). As it is seen from the Figure 3, there was a significant growth in the number of doctorate students receiving full state funding for their education.

**Figure 3. Average expenses for training of 1 PhD student in 2012-2016 (thousand tenge)<sup>14</sup>**



<sup>14</sup> The Resolution of the Government of the Republic of Kazakhstan dated 18 May 2012 No.640; The Resolution of the Government of the Republic of Kazakhstan dated 20 May 2013 No.500; The Resolution of the Government of the Republic of Kazakhstan dated 31 May 2014 No.604; The Resolution of the Government of the Republic of Kazakhstan dated 17 June 2015 No.453.

PhD students who receive state grants are also awarded with a state scholarship for the entire period of study and are paid monthly. At present moment, the amount of the monthly state scholarship of PhD students constitutes 81998 tenge in accordance with the Decree of the Government of the Republic of Kazakhstan dated 7 February 2008 № 116 "On Approval of the Rules of Appointment, Payment and Amount of State Scholarships for Students in Educational Organizations".

**Table 1. Amount of a state scholarship for PhD students in 2012-2016, thousand tenge<sup>15</sup>**

Year	2012	2013	2014	2015	2016
Amount of the scholarship	59635	59635	65599	65599	81998

Due to the fact that the percentage of the teaching staff holding research degrees is quite low (only 2% of the total number of the teaching staff hold a PhD degree), academic staff are offered various types of financial incentives for admission to PhD studies. The teaching staff from state educational organizations have an opportunity to receive an additional raise to salaries if they have a corresponding diploma: for a PhD degree and a Professional doctorate degree in the amount of one monthly minimum salary<sup>16</sup>; for a degree of Candidate of Sciences in the amount of one monthly minimum salary and a Doctor of Science in the amount of two monthly minimum salaries.<sup>17</sup>

## Chapter 2 – Cycle 3: state of the art

### 2.1 Main characteristics of Cycle 3 programs

#### 2.1.1 PhD programs in partner universities

Training of doctoral students in M. Auezov South Kazakhstan State University has been conducted since 2009. At present, 25 PhD students have successfully completed their PhD programs, 21 of them have defended their PhD theses.

M. Auezov South Kazakhstan State University offers 14 Cycle 3 Programs (PhD) (scientific-pedagogical and profile direction):

6D070100 - Biotechnology (by industry)

6D072000 - Chemical Technology of Inorganic Substances

6D072100 - Chemical Technology of Organic Substances

6D072600 - Technology and Design of Light Industry Products

6D073300 - Technology and Design of Textile Materials

6D072400 - Technological Machines and Equipment (by industry)

6D073100 - Life Safety and Environmental Protection

6D073000 - Manufacture of Building Materials, Products and Structures

6D010900 - Mathematics

<sup>15</sup> The National Report on the State and Development of the Education System of the Republic of Kazakhstan, Astana, 2014; The Resolution of the Government of the Republic of Kazakhstan dated 7 February 2008 No.116 "On the approval of the rules of appointment, paying and size of state scholarship for students of educational organizations".

<sup>16</sup> The size of the minimum wage of the Republic of Kazakhstan for 2017 – 24459 tenge  
[http://egov.kz/cms/ru/articles/article\\_mci\\_2012](http://egov.kz/cms/ru/articles/article_mci_2012)

<sup>17</sup> Law on Education of the Republic of Kazakhstan, p. 56, para 6.

6D012000 - Vocational Training (by industry)  
 6D011100 - Computer Science  
 6D020500 - Philology  
 6D050600 - Economy  
 6D060100 - Mathematics

KAZGUU University offers two PhD programs: 6D030100 - Law and 6D030200 – International Law. PhD in Law is aimed at the fundamental study of the national law of the Republic of Kazakhstan. The main objective of this program is to prepare graduates for research, teaching and legal career in educational institutions and government institutions that can influence the development of national legislation and the vision of lawyers of national companies. PhD in International Law focuses on the fundamental study of international law and its application in national legislation.

### 2.1.2 Nature of the doctoral programs

Cycle 3 Programs are developed taking into account the National and European qualifications frameworks and are formed on a modular structure.

Learning outcomes programs are determined on the basis of the Dublin descriptors of the third level and are expressed through competences. The results of the training are formulated both at the level of the whole program and a separate discipline.

The content of Cycle 3 Programs includes: theoretical training, including basic and profiling disciplines, professional practice, scientific research (experimental research) work with the writing of a dissertation.

Universities independently develop and approve working curricula, academic calendars, determine the trajectory of learning and the direction of research.

The structure of the Cycle 3 Programs (PhD) contains two components: educational (20%) and scientific (80%).

The educational component of the doctoral program includes disciplines of two cycles: basic disciplines (BD) and major disciplines (MD). Each cycle includes the disciplines of the compulsory component and the elective component.

The research component of the doctoral program is formed from the scientific research (experimental) work of the doctoral candidate, scientific publications and the writing of a doctoral dissertation.

The workload of the doctoral studies is calculated in Kazakhstani credits KZ and ECTS and is not less than 75 KZ / 112 ECTS.<sup>18</sup>

**Table 2. The content of a Cycle 3 Program**

<b>№</b>	<b>Name of disciplines and types of activity</b>	<b>KZ credits</b>	<b>ECTS</b>
<b>1</b>	<b>Cycle of basic disciplines</b>	3	5
1)	Compulsory component	3	5
2)	Elective component	ATT	
<b>2</b>	<b>Cycle of major disciplines by profile</b>	12	18

<sup>18</sup> The State Compulsory Standard of Postgraduate Education, approved by the Government of the Republic of Kazakhstan dated 23 August 2012 No.1080

1)	Compulsory component	-	
2)	Elective component	12	18
	<b>Total theoretical training</b>	15	23
<b>3</b>	<b>Additional types of training</b>	not less than 55	82
1)	Practice (educational, research or industry-based)	not less than 5	7
2)	Scientific-research (experimental-research) work	not less than 20	30
3)	Doctoral dissertation	30	45
<b>4</b>	<b>Final attestation</b>	<b>5</b>	<b>7</b>
1)	Complex examination	1	2
2)	Completion and defense of a doctoral dissertation	4	6
	<b>Total</b>	<b>Not less than 75</b>	<b>112</b>

The volume of basic disciplines cycle is 4% of the total curriculum (3 credits), which belongs to the compulsory component. The volume of major disciplines cycle is 16% of the total curriculum (12 credits).

The list of elective disciplines is made by an institution independently in accordance with the requests of the doctoral candidate, employers and the needs of the labor market. The educational needs of the doctoral candidate in the elective component can be implemented by means of additional types of training.

Scientific guidance of doctoral students in Kazakhstan is provided by one national scientific adviser and one foreign consultant. In order to realize the European approach in the preparation of PhD doctors, one of the mandatory requirements is the appointment of a foreign consultant from among professors with experience in training specialists of this level. Their role is consulting of doctoral students in distance, direct management of the preparation of the thesis and reading of courses at the invitation of the university and foreign internships of a doctoral student.

As a rule, the selection and approval of a foreign scientific consultant, as well as his/her functioning in this status, is a complex process and is connected both with the PhD candidate's level of language proficiency and with the foreign consultant's mobility as he/she needs to come to the university. An obligatory element of the experimental program of doctoral studies is a foreign research internship for a PhD candidate.

### 2.1.3 Characteristics of the Cycle 3 study

Until 2016, studies in PhD was performed only on a budgetary basis. Thus, the distribution of budget places (state grants) was determined by the Ministry of Education and Science of the Republic of Kazakhstan, providing a balance of scientific personnel for various sectors of the economy.

The main criteria for choosing a research supervisor are the following: a scientific degree of Doctor of Sciences / PhD in relevant specialty or Professional Doctorate degree in a specific field of science, a professor's title; active work in this field of knowledge and experience in the scientific management of PhD thesis. The supervisor of PhD theses must have at least 10

publications on the doctorate direction in the rating international journals with a high impact factor.

The thesis defense takes place at a meeting of the Dissertation Council in accordance with the Standard Statute approved by the Minister of Education and Science of the Republic of Kazakhstan for the PhD thesis defense. Each university has its own Regulations for PhD thesis defense developed according to the Standard Statute.

#### **Criteria for a dissertation (thesis)**

The thesis must meet one of the following requirements:

- 1) to contain new scientifically grounded results, which solve an important scientific problem;
- 2) to contain new scientifically grounded results, the usage of which provides for solving an important applied problem;
- 3) to contain new scientifically grounded theoretical and (or) experimental results, a set of which is important for the development of specific scientific directions.

The increase of publications in scientific journals with impact factor was ensured by a requirement stipulated in the National Regulations on the Award of Degrees. PhD candidates are allowed to proceed with the thesis defense if they have at least 7 scientific publications on the thesis topic, including at least 3 publications in editions recommended by the Committee for Control in Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan, at least 1 publication in an international edition with non-zero impact factor in Thomson Reuters Database or included in the Scopus Database, and 3 publications in proceedings of international conferences, including 1 publication in proceedings of a foreign conference.<sup>19</sup> One of the deterrents to the greater publication activity is the insufficient English language proficiency.

Defense of the PhD thesis is conducted in accordance with the approved schedule at an open meeting of the Dissertation Council with the participation of at least 2/3 of its members, with mandatory participation in the meeting of at least three specialists in the specialty corresponding to the profile of the thesis to be defended. The defense of the PhD thesis must be of the nature of a scientific discussion. The meeting of the Dissertation Council is held under the guidance of the Chairman of the Dissertation Council. In the Chairman absence or simultaneous absence of the Chairman and the Academic Secretary, the meeting of the Dissertation Council is not held.

Decision of the Dissertation Council is considered to be accepted as positively, if two thirds or more members of the Dissertation Council who participated in the meeting voted positively for it. If less than two thirds of the members of the Dissertation Council who participated in the meeting voted for a positive decision, a negative decision is made.

An appeal to a negative decision of the Dissertation Council is submitted by a doctoral candidate in informal addressed to the rector of the university within two months from the date of the Dissertation Council's decision.

These requirements and the procedure are universal and each PhD student has an access to them. For example, PhD student can get this information from the website of the Ministry of Education and Science, in the university postgraduate study center or from the Academic Secretary of the Dissertation Council.

#### **The composition of the Dissertation Council**

Dissertation Councils are created by the Committee for Control in Education and Science of the Ministry for 3 calendar years in higher education institutions, which provide PhD programs on the basis of the state budget (state educational grants).

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<sup>19</sup> [The Order of the Minister of Education and Science of the Republic of Kazakhstan dated 31 March 2011 No.127 "The rules on awarding research degrees"](#)

The Dissertation Council includes at least 3 specialists for each specialty with a scientific degree (Candidate of Sciences, Doctor of Sciences, PhD or Professional Doctorate degree), who has at least 5 scientific publications in the relevant field of research.

Herewith at least one third of the members of the Dissertation Council should be full-time employees, at least one third of the members should be representatives of other HEIs, and at least one third of the members should be representatives of scientific or other organizations.

The Dissertation Council consists of a Chairman, a Deputy Chairman, an Academic Secretary and members. The quantitative composition of the Dissertation Council is at least 5 persons. The rector of the university, employees and members of the expert councils of the Committee for Control in Education and Science of the Ministry are not included in the composition of the Dissertation Council.

The Chairman, Deputy Chairman and Academic Secretary of the Dissertation Council cannot perform their duties at a meeting of the Dissertation Council in the case when they are scientific consultants of the doctoral candidate whose PhD thesis is considered at the meeting.

The defense is held publicly, a relevant announcement is posted in advance on the stand, as well as on the website of the Committee for Control in Education and Science of the Ministry and on the university's website. Anyone can get acquainted with the PhD thesis and reviews of consultants and reviewers (available on the website of the university's Dissertation Council), the date and place of the defense is specified.

Defense of the thesis is performed through presentation of the research results. All Council members receive annotations and a copy of the presentation. The dress code is official. Gowns are not used.

There is no procedure to validate PhD at work. However, if a PhD teaches in a higher education institution he/she can apply to the Committee for Control in Education and Science of the Ministry to validate the title of an Associate Professor. "Validation on skills" is not provided.

#### 2.1.4 PhD degree statistics (within the country)

**Table 3. PhD degree statistics in Kazakhstan for 2012-2016, persons<sup>20</sup>**

	2012	2013	2014	2015	2016
Number of students starting a doctorate - overall	565	638	729	794	1086
Of whom – Professional doctorate students	13	31	-	32	25
Of whom – PhD students	552	607	729	762	1061
% of Male starting doctorate	227	251	260	748	391
% of Female starting doctorate	338	387	469	46	695
Students who dropped out	62	87	76	93	77
Of whom – Professional doctorate students	4	22	6	3	38
Of whom - PhD students	58	65		90	39
Preparation over the due date	15	118	252	51	34
Of whom – Professional doctorate students	-	28	20	28	17
Of whom - PhD students	15	90		23	17
Number of graduates - overall	257	373	503	533	619
% of Male graduates	124	172	189	233	231
% of Female graduates	133	201	314	300	388
Number of thesis in co-direction or bi-national direction	110	100	125	175	117

<sup>20</sup> [The Committee on Statistics under the Ministry of National Economy of the Republic of Kazakhstan](#)

As of 2016, the total number of doctorate students was 2,710, of whom 1 673 or 61.7% were female students. The number of professional doctorate students is 93 people and PhD students is 2 617 people. Thus, the number of students entering the doctorate program for a five-year period increased 1.9 times.

In the context of specialties, for a five-year period the majority of theses were defended within the programmes of "Social Sciences, Economics and Business" (170) and "Technical Sciences and Technologies" (95). The minimum number of theses was defended for the programmes of "Veterinary" (15), "Services" (7) and "Military Affairs and Security" (2), which can also be explained by a small number of admission and graduation of doctorate students in these specialties (Annex 1, Table 3).

Within a five-year period given in the table above, the lowest figures for graduation of doctorate students with thesis defence are presented for 2016 - only 18.9% of graduates defended their theses, which is almost half of the 2015 indicator (32.8%). In general, given the number of all graduates of the doctorate program for 5 years, which is 2,285 people, the percentage of theses being defended for the entire period under consideration constitutes only 27.1% (Annex 1, Table 3).

On the basis of the OECD review report, the decrease of the number of PhDs with defense is mainly connected with ineffective distribution of time for PhD students' work on thesis, and with the insufficient involvement of foreign research supervisors.<sup>21</sup> Thus, the State Compulsory Standard devotes only 30% of time for PhD student's research work activities.

### **2.1.5 Positioning of Cycle 3**

All PhD students of natural and technical directions are assigned to a corresponding research laboratory while doing research and writing their thesis. Moreover, most of PhD students are co-participants of financed research projects. PhD students have free access to the corresponding research and university laboratories.

Themes of PhD theses are chosen taking into account their actuality, demand for a region and the country, practical importance and the PhD student's scientific interests and potential. Themes pass several steps of discussion in academic and research community; they are discussed on the Scientific and Technical Council and approved on the meeting of the university's Academic Council.

The themes are included into catalogues of university's research projects and presented to the business media for the investment. PhD students take advantage of service support to promote research results to the real sector of economics.

Since 2016, apart from state educational grants, PhD studies are offered on a fee basis, as well as at the expense of enterprises. Thus the themes of research will address the industry problems more and enterprises will use the research results. These results are introduced on the enterprises and allow to advance technological aspects of the industry.

### **2.1.6 Follow-up of PhD students and graduates**

PhD students have free access to laboratories and information resources, including subscription databases.

All PhD students study courses, including compulsory subjects and elective courses corresponding to the direction of research. They are given credits after successfully accomplishing the courses and passing exams.

Each university has internal documents and regulations that regulate the research work of PhD students on the thesis and give methodological instructions how to design the thesis.

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<sup>21</sup> [Higher Education in Kazakhstan, OECD, 2017](#)

All PhD students are required to keep the university's internal regulations and the Code of Ethics for students. These documents are developed by each institution independently and are posted on the university's website.

Each thesis is tested before the defense on the anti-plagiarism program in the Republican Center, which excludes the borrowing of scientific results. A PhD thesis can be written and defended in Kazakh, Russian or English language upon a PhD candidate's choice. To this time the project partner universities do not have thesis defenses in English.

Universities have their systems of monitoring and control of academic and scientific achievements of PhD students. Each PhD student is assigned to a department, the head of which, together with the scientific supervisor, monitors the dynamics of the PhD student's research work.

Twice a year a PhD student submits a report on the conducted research work at the referred department or the Department of Postgraduate Education.

The results of the training of PhD students are examined by the Scientific and Technical Council and the Academic Council of the university.

To solve the problem of interaction between students and administration KAZGUU University created and implemented a unique Community Service Center by analogy with the Service Centers of the Ministry of Information and Communication of the Republic of Kazakhstan. The conceptual idea of this Center is that students do not have to understand administrative management issues in order to write an application on their problems, and they should not seek the relevant profile unit (accounting, office of the registrar, internship office, academic department, etc.). Instead a student should be able to come to the Center, describe his/her problem or issue, and the staff of the Center (consultants) independently determine the form of address and addressee. For the convenience of providing such a service, the Center's activities are settled through modern online recording technologies and electronic queue. All applications of doctoral students are sent to the university units in accordance with the activity profile of the electronic document management system "Documentolog", indicating the deadline for implementation. The student also receives the result of his/her application in the Community Service Center.

PhD students are financed with full access to educational, methodical and information resources and research equipment of universities. In addition, PhD students are paid all expenses for foreign research internships and publication of articles.

During studies a PhD student receives a scholarship around 250 Euros a month. Financing is provided from the state budget. Students who pay for their education do not get the scholarship.

A foreign internship is an obligatory part of the PhD degree programs. In choosing a foreign consultant his/her research profile, scientific achievements and experience in the given field are taken into account. As a rule, foreign internship is held at a university where the foreign consultant works, which allows to a PhD student to conduct a part of the research on modern equipment with the consultant's supervision.

Financing of the foreign internship of a PhD student is carried out by the university at the expense of state funds. In addition, PhD students are eligible on a competitive basis to participate in a program of academic mobility, financed from the state budget of the Republic of Kazakhstan or Erasmus projects. This funding involves covering of all costs for conducting research and studying modules in partner universities for 1 semester. For example, PhD students of M. Auezov South Kazakhstan State University passed 1 semester at the University of Pisa (Italy), Latvian Agricultural University, Ghent University (Belgium), University of Padova (Italy).

After the defense the majority of graduates continue or go into teaching relevant to the field of thesis research. In 2011-2015 the number of PhDs among the faculty increased by 2,3

times, while the number of Professional PhD degree holders decreased by 2 times at the same period.<sup>22</sup>

The majority of higher education institutions have Alumni associations, which ensure the ties of the university and the public, deal with sponsorship and development of partnership with the industry and business fields.

## 2.2 IQA and EQA mechanisms of Cycle 3

### 2.2.1 Internal QA (mechanisms inside the HEI)

**Table 4. M.Auezov South Kazakhstan State University**

ESG Part 1			
	Yes	No	Explain
Do HEI have a policy to guarantee internally quality of the degrees delivered?	+		The policy of internal quality assurance of degree programs is realized through their expertise, analysis of the quality of educational materials, student progress and consumers' satisfaction.
If yes, is it made public and part of its strategic management?	+		The internal quality assurance policy is available for all participants of the educational process: faculty, employers and students participate in the development and expertise of a study program. The results of inspections are discussed collectively. This policy is an integral part of the university's quality management system.
If yes, do they have appropriate structure and processes?			The university developed methodological recommendations for the development and evaluation of a modular degree program that describe the main stages in the development of a modular study program, the requirements for its content and structure, the procedure for its approval and expertise.
Are the pedagogical methods and methods of delivery assessed?	+		The university monitors the quality of the study processes by means of a planned reciprocal visiting of classes of the faculty with the registration of the visit and the recording of the analysis.
Does the university assess the supervision of the director of thesis?	+		The activities of scientific supervisors are evaluated through timely bringing the PhD students to the defense of the thesis.
Does the PhD student assess the supervision of his/her director during his/her thesis?	+		During the preparation of the thesis, a PhD student can apply for a change of scientific supervisor in the case of his/her unsatisfactory work on counseling in the performance of

<sup>22</sup> [The National Report on the state and development of the system of education of the Republic of Kazakhstan, 2015](#)

			dissertation tasks.
Does the university assess the success rates at the doctorate?	+		The university periodically monitors the career progress of graduates.
Are the criteria for the assessment made public?	+		The university uses a point-rating letter system of knowledge assessment, which is well known by faculty and students.
Is assessment carried out by an external examiner?	+		The university periodically runs independent institutional and specialized accreditation and state attestation.
Is there a procedure for students' appeals?	+		Procedures for filing an appeal as during the entrance exams and during midterm and final control are included.
Are there regulations for student admission?	+		The admission of students in PhD studies is carried out according to the Standard rules of admission for training in organization of education realizing professional training programs of postgraduate education, approved by the Decree of the Government of the Republic of Kazakhstan dated January 19, 2012 № 109, and the internal quality management system procedure "Management of the process of selection of applicants. Identification and traceability".
Are there regulations for student progression?	+		Students progress evaluation is carried out according to the internal quality management system procedure "Management of the process of conducting of current progress control, midterm and final attestation"
How is the competence of teachers assessed?	+		A recruitment commission with the participation of heads of departments determines the level of competence of faculty on the basis of job descriptions that specify the duties and powers of employees.
Are there fair and transparent procedures for the recruitment of staff?	+		The admission of lecturers is carried out according to the rules of competitive substitution of posts of scientific and pedagogical staff of higher education institutions, as well as the university procedure "Staff Management".
Do the HEI collect analyses and use relevant information for the management of Cycle 3?	+		The information system is introduced at the university for the collection and analysis of data on student progress. The data are analyzed and discussed at collegial meetings.
Do the HEI publish clear, accurate and objective		+	The information about study programs published on the university's website is not

information on Cycle 3?			sufficient for their full evaluation.
Are the Cycle 3 programs well monitored?		+	Due to the fact that the university has not enough long-term experience in the implementation of PhD programs, it is required to refine the mechanism of their monitoring.
Are the Cycle 3 programs reviewed and modified?	+		Study programs periodically undergo audit for relevance and modernity, as well as for compliance with the level of education, the continuity of the levels of education, the correspondence of goals and results of training to the direction of training specialists and the requirements of the labor market, the harmonization of competencies/learning outcomes with the Dublin descriptors and the National Qualifications Framework.
Can the PhD students make their own evaluation of skills acquired throughout their thesis?	+		The evaluation of acquired skills can be checked by students through the effectiveness of the research: the compilation of research methodology, the possession of experimental research skills, the ability to write an article, the preparation of an application for an invention.

**Table 5. KAZGUU University**

<b>ESG Part 1</b>				
		<b>Yes</b>	<b>No</b>	<b>Explain</b>
1	Does HEI have a policy to guarantee internal quality of the degrees delivered?	+		The University has some policy papers regulating issues related to quality of academic programs. For instance, Policy of Academic Integrity, Regulations on Quality Assurance Committee, Academic Policy on Writing a Dissertation, The Code of Conduct.
2	If yes, is it made public and part of its strategic management?	+		All University policy papers are uploaded to the official website of the University.
3	If yes, do they have appropriate structure and processes?	+		IQA mechanism involves administration staff, program coordinators, faculty, doctoral students, and the registrar and consists of two stages including: (1) University Academic Quality Committee. The work of this Committee is arranged by Quality Assurance Manager, who is directly reporting to the Rector of the university. The scope of functions of the Committee is presented below:

			<ul style="list-style-type: none"> <li>- to develop and implement quality assurance systems and procedures across the full range of the Department of Postgraduate Education, the Higher School of Law;</li> <li>- to monitor the implementation of quality assurance procedures and processes university-wide;</li> <li>- to undertake such reviews and audits that are necessary to safeguard the integrity and quality of the university's activities;</li> <li>- to provide the information and analysis necessary to support decision-making at the university level and within the academic departments;</li> <li>- to advise the academic units on the quality implications of proposals, policies and strategic plans.</li> </ul> <p>(2) Academic Quality Committees working on the level of departments (i.e. Higher School of Law and the Department of Postgraduate Education).</p>
4	Are the pedagogical methods and methods of delivery assessed?	+	<p>On the regular basis once in a semester the University Academic Quality Committee together with the registrar conducts surveys to evaluate teaching and learning process. Two types of on-line survey via educational portal PLATONUS are arranged for:</p> <p>(1) PhD students. This survey is aimed to obtain students evaluation of the faculty and is hold after completion of each academic course. The survey strictly follows the principles of confidentiality that are ensured by the registrar. The survey is conducted on the basis of the Questionnaire of the Assessment of Quality of Work of the Teacher that contains questions primarily focused on: quality of classes (lectures, seminars); literacy degree; extensive knowledge and preparedness of faculty; availability of materials and understanding of them by students; creative approach towards the classes; public speaking skills; content of the classes; appearance, manners, inner culture; being late for the classes and failures of classes by the faculty members.</p> <p>(2) Faculty. This survey is targeted to explore faculty's perception of academic programs.</p> <p>In addition, after each course every faculty member provides self-evaluation report by filling in the Course Management Form. Within this Form it is required to evaluate the</p>

				<p>outcomes of the course, students' performance, course grades, any difficulties encountered in the teaching process, as well as make suggestions for further improvement of the course.</p> <p><i>Recommendations:</i>  <i>The elaboration of surveys targeted to assess faculty's pedagogies and methodology has to be improved through designing questions assessing various dimensions of teaching skills. In addition, the process of improvement based on survey findings should be systematic.</i></p>
5	Does the university assess the supervision of the director of thesis		+	
6	Does the PhD student assess the supervision of his/her director during his/her thesis writing?		+	
7	Does the university assess the success rate at the doctorate?	+		<p>The Postgraduate Education Department regularly monitors PhD students' progress mostly by reviewing their GPA.</p> <p><i>Recommendations:</i>  <i>To assess students' success it will be useful to design a database, where relevant information about students' achievements will be stored. The information itself can be divided into some categories, such as paper publishing, conference speech delivery, additional funding or scholarship, book chapter, involvement into a project.</i></p>
8	Are the criteria for the assessment made public?		+	
9	Is assessment carried out by an external examiner?		+	The doctorate success is monitored by the staff of the Postgraduate Education Department.
10	Is there a procedure for students' appeals?	+		Students can write an appeal after examinations as well as a dissertation defense. Review Board Committees are created to resolve controversial issues related to examination grades or the decision of the Dissertation Committee.
11	Are there regulations for student admission?	+		The admission and candidates selection procedures are described in the Academic Policy of the University that is uploaded on the official website of the University.
12	Are there regulations for student progression?		+	However PhD students who are working on the thesis have to present reports on the results of the research at the end of each

				semester. Since 2016 such a preliminary research results reporting is kept public when supervisor and representatives from the Academy of Fundamental and Applied Sciences as well as Law Departments of the University can ask questions and give comments or recommendations.
13	How is the competence of teachers assessed?			Overall, faculty of KAZGUU University is recruited on a competitive base. At the end of each academic semester the University arranges Attestation of the faculty to assess their work. The Attestation consists of two levels – Graduate school level and university level. The faculty is assessed according to the following criteria: academic work, research results (publications, conference participation), contribution to public life of the university. In addition, the Attestation Committee arranges interviews with the faculty, if there are any questions related to a faculty member’s incompetence. In addition, faculty is assessed by students at the end of each course via a survey.
14	Are there fair and transparent procedures for the recruitment of staff?	+		To be recruited staff and faculty undergo the University Recruitment Committee that evaluates a candidate’s education and work experience level. Moreover, a candidate has to take a test designed to assess his or her knowledge of the subject and skills related to successful performing of the work.
15	Does the HEI collect analyses and use relevant information for the management of Cycle 3?	Partially		<p>It is worth mentioning the four types of data collected to assess PhD programs: assessment of faculty by students, assessment of PhD programs by faculty, students’ achievement (GPA), PhD graduates’ employability. However, it is not enough to see the full picture of the doctorate program.</p> <p><u>Recommendations:</u>  <i>To work out additional tools to assess:</i>  1. The PhD program curriculum from students’ perspective;  2. Supervision and co-supervision;  3. Dissertation evaluation via arranging doctoral review by attracting external or internal independent examiner who will not be a member of the Dissertation Committee;  4. Doctoral research support provided by university.</p>
16	Does the HEI publish clear, accurate and objective information on	+		All the policies related to the program regularly updated and uploaded into the official site of the University. In addition

	Cycle 3?			during the recruitment process printed leaflets on admission requirements, academic program, and others are distributed to potential candidates and those who are interested to apply. The information specific to the recruited students is placed in the electronic system PLATONUS.
17	Are the Cycle 3 programs well monitored?		+	The University policy papers do not specify the assessment criteria of PhD programs. Academic program evaluation is usually limited to monitoring taking place at the end of an academic semester and related to faculty assessment and student achievement.  <i>Recommendations:</i> <i>To elaborate a policy describing systematic evaluation of all doctoral programs on a regular cycle.</i>
18	Are the Cycle 3 programs reviewed and modified?	+		The programs are modified regularly on the bases of the faculty and students' comments and recommendations.
19	Can the PhD students make their own evaluation of skills acquired throughout their thesis?		+	There is no survey conducted to gain students' perceptions about their own development. Such kind of information is usually partially elicited from the survey on faculty's teaching skills where a student can comment somehow about gaining any knowledge or skills. It will be better to initiate such a practice to see how students themselves assess their own progress.

## 2.2.2 External QA (mechanisms outside the HEI)

External quality assurance of PhD programs is conducted by national and foreign accreditation bodies, which are listed in the National Register of accreditation bodies compiled by the Ministry. A higher education institution is free to choose an accreditation agency and files an application independently. The cost of the accreditation procedure is taken by the university itself.

The accreditation procedure of PhD programs is conducted according to the standards and criteria of specialized (program) accreditation of higher and postgraduate education study programs. As a rule, there are no separate accreditation standards for PhD level.

According to the Law "On Education" of the Republic of Kazakhstan a specialized accreditation is an assessment of quality of individual study programs offered by an educational institution (Art.1, para 42). Thus, in contrast to institutional accreditation, which is directed at a comprehensive assessment of the whole institution, a specialized accreditation is directed at a comprehensive assessment of a particular study program.

The methodology of accreditation is consistent and follows a model generally applied in the European Higher Education Area and international practice in the field of quality assurance:

- ✓ Self-assessment of a study program and writing a report
- ✓ An external review (site visit) for fact-finding
- ✓ An external review report
- ✓ Decision-making by the independent Accreditation Council

✓ Post-accreditation monitoring of accredited study programs.

The process of program accreditation (the full cycle of all procedures) can take 1-1,5 years. The composition of an expert panel includes national experts from academic field, international experts, student and employer experts. Academic experts for assessment of PhD programs have degrees not less than a Doctor of Sciences, PhD or Professional PhD, extensive teaching experience in higher education institutions and design of PhD programs.

External review reports with the composition of an expert panel, as well as decisions on accreditation are published in an open access on the QA agency's website.

In case of a positive decision the program can be accredited for full term (5 years or 7 years (IAAR - in case of a successful re-accreditation of a study program) or conditional term (1 year, 3 years). In case of a negative decision a study program is considered as not accredited. The periodicity of accreditation is defined by the validity term of the previous accreditation.

In the period 2013-2016 two national agencies accredited 163 PhD programs. Among them IQAA accredited in 2013 – 1, 2014 – 40, 2015 – 21, 2016 – 26 PhD programs. IAAR accredited in 2013 – 3, 2014 - 36, 2015 – 21, 2016 – 15 PhD program.<sup>23</sup>

Ranking of PhD programs according to different indicators and ranking of HEIs by the directions of PhD studies is practiced (IAAR).<sup>24</sup>

## **Chapter 3 – Main challenges of Cycle 3 Programs and its QA**

### **3.1 At national policy level**

Improving the quality of doctoral education is one of the priorities of the state policy of Kazakhstan in the field of education. In the State Program for the Development of Education and Science of the Republic of Kazakhstan for 2016-2019, approved by the Decree of the President of the Republic of Kazakhstan of March 1, 2016, one of the main tasks of the education system is improving the quality of study programs of Cycle 3 and strengthening the requirements for the scientific component of PhD training.

Paying special attention to the training of researchers, the Ministry of Education and Science of the Republic of Kazakhstan has consistently increased the number of budget places for PhD studies from 500 in 2014 to 1500 in 2017.

An important direction in the development of doctoral studies is the increase in the number of specialties that, on the one hand, will cover all research areas more fully, and on the other hand, correspond to the current level of development of science in the country and abroad. In addition, the training of personnel in doctoral studies from 2017 will be carried out in partnership between the state and employers.

Challenges:

- A need to considerably increase state grant places for PhD students;
- Development of separate standards for the accreditation of PhD programs;
- Development of a mechanism to stimulate graduates of doctoral studies for employment in research organizations and enterprises (social packages, bonuses):
- A need for analysis of the low level of thesis defense and the decision to eliminate this shortcoming is required;
- There are certain difficulties for introducing the research results into the industry environment. This is due to the insufficient innovative potential of the economy and the weak interest of domestic enterprises in the introduction of innovations.

### **3.2 For HEIs (filled in questionnaires are enclosed, Annex 2)**

<sup>23</sup> IAAR's website <http://www.iaar.kz/ru/accreditation-ru/otchet-vek>

<sup>24</sup> IAAR's website <http://www.iaar.kz/ru/rejting/rejting-2016#справочник-независимый-рейтинг-вузов-рк—2016>

**1 The objectives of the Cycle 3 Programs:** ensuring the quality of education by providing mandatory requirements for the level of training of doctoral students and educational activities of higher education institutions, increasing the objectivity and informative evaluation of training doctoral students and the quality of study programs; training of PhDs possessing leadership qualities and skills of logical analysis of assigned tasks, able to work in an international team, and engage in organizational and managerial activities.

**2 How is Cycle 3 Program articulated with Master Programs:** Prerequisites for doctoral studies are the main disciplines of the master's program. Scientific results obtained in the course of the master's thesis are the basis for scientific research of doctoral students.

**3 How is Cycle 3 Program articulated with research strategies and activities?**

PhD students of M.Auezov South Kazakhstan State University conduct research in the mainstream of the strategic plan for the development of the innovative-oriented university for 2015-2020 in the direction of "Advanced research and commercialization of research results". Doctoral students are involved in the implementation of funded scientific projects, carry out part of the research on the project topic and upon completion of the work conduct tests of the experimental results obtained under industrial conditions and then, when they are confirmed, they are introduced into production. The main scientific results are necessarily published in rating scientific journals in Kazakhstan and in the countries of near and far abroad. The doctoral program includes foreign scientific internships and the involvement of professors from foreign partner universities as co-supervisors of a doctoral dissertation.

**4 Describe how Cycle 3 is organized:**

- there are no difficulties connected with the admission of students; doctoral students, as a rule, have a corresponding basic education;
- there are no difficulties associated with attracting and motivating qualified personnel;
- other difficulties in the preparation of doctoral candidates: a small teaching load of the teaching staff, calculated for the scientific supervision of doctoral students, which does not allow them to give sufficient time; insufficient time period for the scientific internship; inadequate PhD students' knowledge of professional English; high cost of publications in journals included in the database Scopus and Thomson Reuters; restrictions on the introduction of the results of thesis in industry.

**5 Is there any follow up system of the PhD graduates?** Yes, the employment of graduates and their work is monitored by both the department and the Center for Postgraduate Education. The majority of doctoral students, after defending dissertations and approval in the Committee for Control under the Ministry, remain working at the university as a research assistant or faculty member, but there are also doctoral students - representatives of industrial enterprises from the management team who, in preparing their doctoral dissertation, carry out targeted research on the problems of their enterprise and then, after protection, they introduce the developed method or technology into the existing production.

**6 Can you explain if there are any mechanisms (internal or external) to guarantee quality assurance of Cycle 3 programs?**

At the end of each semester the doctoral students undergo certification, i.e. provide an extended report on the implementation of the theoretical training program and on the intermediate results of their research in the form of presentations and answers to questions. Attestation is carried out in 2 stages - first at the meeting of the department, and then at the Scientific and Technical Council (M.Auezov South Kazakhstan State University). During the attestation at the meeting of the department, scientific articles prepared for publication (their effectiveness, breadth of known literary references and their own research results) are reviewed and recommendations for their improvement are given. The results of scientific internships of doctoral candidates are also discussed at the meeting of the department.

The distinctive feature of the theoretical training courses of doctoral studies is the inclusion

in their content of the latest achievements in the field of the chemical technology of inorganic substances, which will allow the doctoral students to master modern knowledge in this field and apply them in the performance of a doctoral dissertation (M.Auezov South Kazakhstan State University).

### **3.3 For PhD candidates (filled in questionnaires are enclosed, Annex 2)**

Admission to the doctoral program in most cases is aimed at acquiring new skills and competencies, and also with a degree that opens up wider career opportunities both in the professional sphere, in the university and in the public service.

The majority of respondents noted the transparency of doctoral programs and understanding of their structure.

All doctoral students noted the high level of support provided by the university and faculty in acquiring a PhD program.

After the completion of the programs, the graduates' expectations are related to professional career growth and a higher level of wages.

PhD students' wishes are associated with a decrease in the number of control points, equipping the laboratory base, increasing the duration of foreign internships.

### **3.4 For the socio-economic world (filled in questionnaires are enclosed, Annex 2)**

There is an imbalance in the employment of graduates of doctoral studies: most PhD doctors work in universities, and are engaged in a greater degree of educational activity. The proportion of PhD doctors working in production is insignificant, although some businesses note the need for PhD doctors as researchers of technological development of production.

Enterprises note that doctoral programs meet their requirements, since most large enterprises participate in the development of programs and the formulation of competences. In addition, in a number of cases doctoral students conduct experiments at enterprises during research practice, which makes it possible to assess the level of knowledge obtained.

However, enterprises participate in the implementation of study programs, only by providing bases for practice and experiments. Representatives of enterprises do not have the opportunity to teach, since there is a restriction that involves only faculty with a research degree.

The enterprises note the following positive aspects of the programs – doctoral theses are always relevant and always these works end with experienced tests of the proposed new technology or technological regimes. In a number of cases, theses have rationalization solutions that are further used by enterprises.

## **Chapter 4 - Good practice examples**

1. A significant international component is provided in Kazakhstani doctoral studies programs. This is reflected in the presence of a foreign consultant and a compulsory foreign internship. The state provides funding for the invitation of a scientific consultant to work with a doctoral student at the place of study, and also covers the costs of a foreign doctoral internship. Thus, doctoral students have the opportunity to undergo training in leading universities and scientific centers in the US, Japan, Germany, France, China, Malaysia and other countries.

The presence of two scientific consultants (national and foreign) allows to provide a PhD student with fundamental training in the chosen field, as well as the possibility of using the latest developments in the field of science in their scientific research.

One of the most important elements in the training of doctoral students is the academic mobility of doctoral students, which is funded by the state. During one academic period, doctoral students have the opportunity to conduct research in partner universities.

Currently, many Kazakhstani universities are developing programs of double doctoral degrees with leading foreign universities. For example, in 2017-2018, M.Auezov South

Kazakhstan State University started the preparation of doctoral students on the specialty "Mathematics" and "Informatics" with the University of Putra (Malaysia), in 2018-2019, the specialty "Technology of Processing Industries" with the University of Padova (Italy).

2. An important attention is given to organizing the practice of doctoral students. The following types of internships are provided in PhD programs: pedagogical, scientific research, and also foreign internship. Results of all types of internships are discussed at the meeting of the academic department, the report defense is carried out in front of the commission.

3. In most technical universities of Kazakhstan, doctoral students are executors of scientific projects funded by the Ministry of Education and Science of the Republic of Kazakhstan (grant projects). Thus, practical implementation of research results is provided.