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# Conditions and Prospects for the Provision of Agriculture with Qualified Personnel

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**Abstract:** This article examines in detail the current state of the higher education system in the country's agricultural sector, the potential of trained personnel in the field of higher, postgraduate and postgraduate education.

**Keywords:** highly qualified staff, bachelor, master, postgraduate education, agricultural colleges, associate degree, doctor of philosophy (PhD), doctor of science (DSc).

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Science is an important field that determines the present and future of any state. Strengthening the economic potential of our country is directly related to the effective implementation of advanced scientific developments and achievements of scientific and technological development. In a developed system of economic relations, the development of science and science must be based on mutual integration, complementing each other and improving on the basis of the practical results of science. In sectors of the economy, this process is manifested in different stages and forms. The presence of a consumer of scientific innovations in industries such as industry, energy, high opportunities for implementation, efficiency are considered as a key factor in the rapid development of scientific supply. However, the long-term return of scientific research in the agricultural sector of the economy, the time required for its manifestation, the extreme sensitivity of external factors, especially natural factors, high risk, negatively affect the development of science in the sector, limiting the interests of professionals and investors. As a result, the development of the network will always feel the need for incentive support from the state. These circumstances, in turn, have an impact on the system of training qualified scientific personnel.

The concept of qualified personnel is interpreted in the scientific literature on the basis of various approaches. In particular, the concept of qualified personnel is given in the following tariffs.

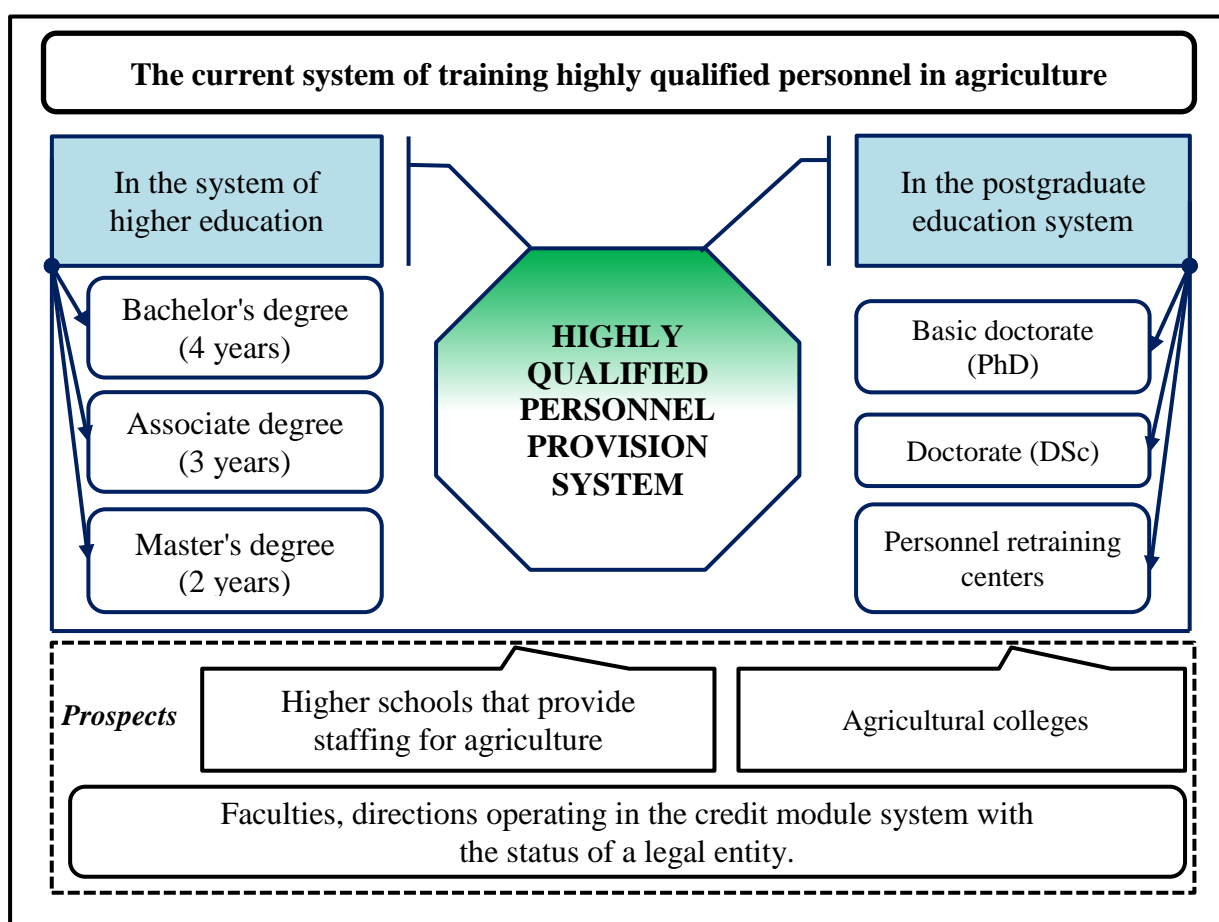
The academic encyclopedia describes "Qualified personnel - persons with relevant knowledge and experience" [1], while K.Y. Maslov believes that qualified personnel is the main resource of production and their knowledge and experience is a guarantee of effective operation [2]. N. Gluneh, the founder of "IT Group", acknowledged that qualified personnel is not only the high quality of services provided, but also an integral part of the success of the whole company [3]. Regarding the issue of qualified personnel in agriculture, S. Kentsuken said that "the main source of agricultural enterprises is labor resources, the quality and efficiency of which depends on business results, financial stability. The development of agricultural enterprises is very sensitive to the skills of employees, the level of knowledge, motivation, the ability to solve social and economic problems" [4].

Therefore, it is important to constantly improve their knowledge, to solve the basic problems of staffing through the training of highly qualified personnel. Scientific potential is a set of resources and opportunities in the field of science and science in any system, which allows

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for the effective implementation of existing forms of governance.

If we pay attention to the current state of the system of training highly qualified personnel in the agricultural sector, as a result of educational reforms, it has gone through several stages. In particular, in 1991-1995, the system of 5-year higher education was introduced, and in 1995, the system of education in the form of 4-year bachelor's and 2-year master's degree was introduced. A quarter of a century later, modern educational systems began to be introduced in the agricultural sector. In particular, the Resolution of the President of the Republic of Uzbekistan dated August 19, 2019 No PP-4421 “On measures to further improve the activities of the Tashkent State Agrarian University” [5]. with the introduction of educational programs for the training of associate degree, i.e. 3-year education system, integrated with the bachelor's degree in higher education in the training of highly qualified personnel in agriculture (Fig.1).



**1-Fig. The system of providing the agricultural sector with highly qualified personnel in the country**

In general, if we analyze the system of providing the agricultural sector with highly qualified personnel and the number of students, as of November 1, 2018 in the Republic of Uzbekistan (excluding higher military educational institutions) there are 78 higher education institutions and 20 branches. There are 10 institutions of higher education that train highly qualified personnel. In particular, the Tashkent State Agrarian University and its Andijan, Termez, Nukus branches, the Tashkent Institute of Irrigation and Agricultural Mechanization Engineers and its Bukhara and Karshi branches, the Samarkand Institute of Veterinary

Medicine and its Nukus and Tashkent branches operate. This makes it possible to cover the entire territory of the country in the provision of the agricultural sector with cards. In particular, if we analyze the distribution of students admitted in the 2018/2019 academic year by region, a total of 108,745 students in the country, in particular 12,524 were admitted in the field of agriculture and water management. 18,700 of them are receiving state grants and 90,045 are studying on a contract basis. Among the regions, the highest rate is in the city of Tashkent - 34,479 people (29,082 contracts and 5,397 state grants), in particular, the lowest rate in agriculture and water management is in the Syrdarya region - 2,705 people (29,082 contracts and 5,397 state grants) (Table 1).

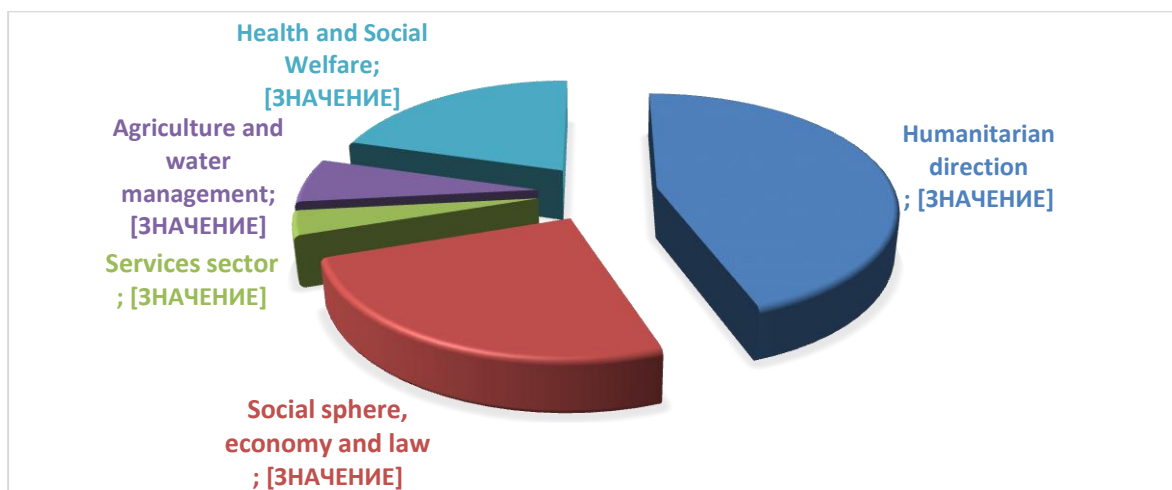
**Table 1 Distribution of students admitted in the 2018/2019 academic year by regions [6]**

Name of administrative territories	Admitted students				
	The total	From this		including higher education in agriculture and water management.	
		On contractual basis	On the basis of state grants	On the basis of the contract	On the basis of state grants
The Republic of Karakalpakstan	6767	5385	1382	426	339
Andijan region	5529	4661	868	348	294
Bukhara region	6581	5409	1172	415	341
Jizzakh region	4788	3903	885	302	246
Kashkadarya region	5072	4056	1016	320	256
Namangan region	3358	2559	799	212	161
Navoi region	5741	4736	1005	362	298
Samarkand region	9870	8071	1799	622	508
Surkhandarya region	5485	4490	995	346	283
Syrdarya region	2705	2246	459	170	141
Tashkent region	4662	4151	511	294	262
Fergana region	9318	7733	1585	587	487
Khorezm region	4390	3563	827	277	224
Tashkent city	34479	29082	5397	2172	1832
<b>The total</b>	<b>108745</b>	<b>90045</b>	<b>18700</b>	<b>6851</b>	<b>5673</b>

Of the total 5,725 students admitted to the master's program for the 2018/2019 academic year, 27.2 percent (1,555) were admitted on the basis of state grants, and 72.8 percent (4,170) were admitted on the basis of payment contracts. It is noteworthy that by the Decree of the President of the Republic of Uzbekistan dated June 17, 2019 No PP-4359 in the 2018/2019 academic year, 53.6% (4131) out of 7695 students were admitted on the basis of state grants, 46.4% (3564) on the basis of payment contracts that is, 2.6 times more students were admitted on the basis of a state grant than last year. In particular, a total of 462 people were employed in agriculture and water management, of which 451 or 97.8% were admitted on a contract basis from the state budget, or 2.2% on a contract basis. This indicates that special attention is paid to the training of qualified personnel for the agricultural sector.

If we pay attention to the analysis of the number of students studying for a master's degree in the study period, as of 01.01.2019, the total number of students studying for a master's degree was 11,647, of which 34.9% (4064) in the humanities, 19.8% (2306) ) in the social sphere,

economy and law, 21.7% (2527 people) in the production and technical sphere, 4.9% (531 people) in the field of agriculture and water management, 16.0% (1863 people) in the field of health and social in the supply sector, 2.7 percent (315) are trained in the services sector (Fig-2).



**2-Fig. Distribution of students studying for a master's degree in higher education by field of study, %**

Another key step in providing the agricultural sector with highly qualified personnel is the postgraduate education system. This stage of education has also gone through several stages. In particular, in 1991-2012, a two-tier system of awarding academic degrees existed in practice, while in 2013-2017 it was transformed into a one-tier system. By the Decree of the President of the Republic of Uzbekistan No. PF-4958 of February 16, 2017, from July 1, 2017, the defense of a two-level, i.e. dissertation, postgraduate education and the defense of a basic doctorate and dissertation, which provides for the award of the degree of Doctor of Philosophy (PhD) in the relevant field of science and introduced a doctoral system that provides for the award of a doctorate (PhD) degree in a related field of science.

During the last 2 years (01.07.2017-01.07.2019) under the new system, a total of 2638 researchers were awarded degrees, including 1016 Doctors of Science (DSc) and 1622 Doctors of Philosophy (PhD), in particular in agriculture and water management. There were 162 Doctors of Science (DSc) and 186 Doctors of Philosophy (PhD) in the field (Table 2).

**Table 2 The status of the award of academic degrees by the Higher Attestation Commission under the Cabinet of Ministers (Between 01.07.2017-01.07.2019)**

Indicators	The total	Including			
		DSc		PhD	
		Total quantity	Share, %	Total quantity	Share, %
Number of certified at the scientific degree.	2638	1016	38,5	1622	61,5
Hence in the field of agriculture and water management	428	192	44,9	236	55,1

Based on the above, it was noted that the system of providing the agricultural sector with highly qualified personnel has reached a new level as a result of research we can formulate the following conclusions.

- Special attention is paid to the master's degree, which is considered as the first step in the training of scientific personnel, which creates the basis for the mobilization of existing talents of educated youth through the training on a grand basis. In particular, the introduction of almost full state grant-based education in agriculture and water management universities serves to attract more talented young people;
- In our country, new mechanisms based on modern, innovative methods are entering the system of training highly qualified personnel. In particular, one of the first higher education institutions to provide the agricultural sector with highly qualified personnel was the form of associate degree;
- Reforms in the system of postgraduate education to support talented young people, the reshaping of the teacher-student system and the development of science and contributes to the introduction of the practice of gradual improvement of science.

At the same time, considering the analysis of the current situation in our country and the experience of developed countries, we consider it appropriate to pay special attention to the following aspects in providing agriculture and water management with highly qualified personnel. Including:

- Training of personnel with modern knowledge on the application of innovative resource-saving technologies in agriculture, the introduction of “Smart agriculture” and digitalized agricultural technologies;
- Increasing the initiative and financial interest of professors, teachers, researchers and students in the creation and introduction of innovative technologies;
- Modernization of the educational and laboratory base, the reflection in the science programs of tasks aimed at the formation of knowledge in the field of modern production processes, high-performance and resource-efficient advanced technologies in the field;
- The widespread introduction of new teaching technologies that direct students to innovative and innovative thinking, including mechanisms that allow students to do independent research;
- creation of an integrated system of training for agriculture and its branches. Ensuring mutual integration between agricultural universities, in particular, the establishment of a mechanism for the exchange of practical experience and knowledge between the three largest universities in the agricultural sector (Tashkent State Agrarian University, TIAME National Research University, Samarkand Institute of Veterinary Medicine (SIVM));
- It is expedient to create a system of scientific research of current issues between the Samarkand Institute of Veterinary Medicine (SIVM) and Tashkent State Agrarian University in the form of "one subject and two researchers" of researchers studying in the postgraduate education system.

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