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ANALYSIS AND FORECASTING OF DEMAND FOR SKILLED LABOUR IN THE KYRGYZ REPUBLIC

Summary

Introduction

In 2024, the Ministry of Labor, Social Security, and Migration of the Kyrgyz Republic (as the coordinating agency), the Ministry of Education and Science of the Kyrgyz Republic, and the National Statistical Committee of the Kyrgyz Republic, with the assistance of the DARYA project ("Dialogue and Action for Resourceful Youth in Central Asia") implemented by the European Training Foundation[1], conducted an analysis and forecast of the demand for skilled labor in the Kyrgyz Republic.

The analysis was conducted in accordance with the order "On the approval of the methodology for analyzing the demand for skilled labor and its application for developing recommendations for vocational education systems" (hereinafter referred to as the order), issued by the Ministry of Labor and Social Protection of the Kyrgyz Republic (order #141), the Ministry of Education and Science of the Kyrgyz Republic (Order # 4924/1) and the National Statistics Committee of the Kyrgyz Republic (Order #46) dated August 23, 2023, as well as on the basis of the "Methodology for analyzing and forecasting the demand for skilled labor" (hereinafter referred to as the methodology).

The analysis aims to assess the current workforce and forecast future labor resources in the Kyrgyz Republic. The purpose of the analysis is to create a reliable basis for forecasting the demand for skilled labor. This basis will serve as a foundation for the Ministry of Education of the Kyrgyz Republic and the Ministry of Science, Higher Education, and Innovation of the Kyrgyz Republic in training personnel in accordance with the needs of the labor market, both in the short and medium term.

The analysis and forecasting of demand for skilled labor were conducted based on the following main data sources:

1. Results of a survey of employers by economic sector in all regions of the Kyrgyz Republic.
2. Analysis of the ratio of unemployed persons who applied to the employment service and vacancies offered by employers. An important source of information on the supply of personnel was the number of skilled workers by profession registered with employment centers during the year preceding the survey.
3. Tracking of graduates of vocational educational institutions of all levels (lyceums, colleges, and universities). The professional and qualification structure of graduates of lyceums, colleges, and universities was analyzed. When comparing the supply and demand for skilled personnel, only the proportion of graduates who entered the labor market in the year of graduation was taken into account as supply. This made it possible to develop recommendations for the production of skilled personnel for the vocational education system. A comparison of data on graduates from lyceums, colleges, and universities with the number of people employed in the labor market, the number of job seekers, and the level of demand for professions from employers made it possible to identify professions with a high risk of labor shortages or surpluses.
4. Data from the National Statistical Committee of the Kyrgyz Republic.
5. Information from the Ministry of Economy and Commerce of the Kyrgyz Republic (on regional economies).

The employer survey was conducted at the national level and in all sectors of the economy (types of activity). The survey sample was formed by the National Statistical Committee of the Kyrgyz Republic in cooperation with the Ministry of Labor, Social Security, and Migration of the Kyrgyz Republic. The survey covered both legal entities and individual entrepreneurs. The survey sample consisted of 3,005 legal entities and 1,002 individuals.

[1] https://www.etf.europa.eu/en/what-we-do/darya-dialogue-and-action-resourceful-youth-central-asia

1. Analysis of the professional and qualification structure of the employed workforce

Regional employment dynamics by economic sector

The most significant growth between 2018 and 2023 is observed in the Jalal-Abad region in the field of water supply, sanitation, waste treatment, and secondary raw materials (100%), as well as in the same sector in the Osh (100%), Issyk-Kul (60%) regions and in the Osh city (80%). Significant growth was also recorded in the Talas region in the hotel and restaurant sectors (86.67%) and financial intermediation and insurance (73.33%). Overall, at the end of the period, the highest employment growth rates were recorded in the Naryn region (5.35%), in the Osh city (5.09%), in the Jalal-Abad region (4.85%), and in Bishkek (4.45%). Negative growth in employment was recorded in the real estate sector (-20%) in Osh, in the Batken region in other service activities (-15%), as well as in the agriculture, forestry, and fishing sectors (-12.89%) and mining (-12.49%) in the Jalal-Abad region. Overall, the lowest employment growth rates were recorded in Osh (1.10%), Chui (1.88%) and Talas (2.76%) regions.

It should be noted that there is a significant gap between regions in the water supply, waste treatment, and secondary raw materials sectors. Thus, in the Jalal-Abad and Osh regions, the growth rate is 100%, and in Osh city, it is 80%, while in the Batken region, this indicator is negative (-10%), which is one of the lowest values. There is also a significant difference in the Talas region (-7.14%) and the Naryn region (4%). The highest ratios for each type of activity at the national level (the ratio of the total number of people employed in the republic according to data from the National Statistical Committee in 2023 to the workforce in the employer survey sample) are observed in the following sectors repair of motor vehicles and motorcycles (2006); agriculture, forestry, and fishing (170); and construction (114). The lowest ratios are recorded in the sectors of water supply, sanitation, waste treatment, and recovery of secondary raw materials; professional, scientific, and technical activities; and administrative and support activities (all at 4%).

Calculation of the total number of employees and demand for expansion for each type of activity

It is worth noting a sharp decline in demand for the above-mentioned personnel over the year in the following areas: agriculture, forestry, and fishing (-5,530) and mining (-1,352). A significant decline is also observed in the areas of administrative and support activities (-647), professional, technical, and scientific activities (-595), and real estate operations (-444). The largest increase in demand was recorded in construction, where the annual increase is 22,562. There is also a high demand for personnel in education - 11,283 people per year, in the repair of cars and motorcycles - 10,139, and in hotels and restaurants, where the number of employees needed is growing by 8,816 people annually.

The professions with the highest projected demand in the future include managers, with an expected employment rate of 227,052 people across the country. Also among the most sought-after specialists are security specialists (81,986 people) and accountants (57,563 people). In the coming years, drivers with categories "B" and "C" licenses will also be in high demand. In the middle of the list of professions with potential demand are specialists such as web programmers (6,941 people), repair mechanics (6,871 people), welders (6,661 people), plumbers (6,404 people), and software managed machine operators (6,287 people). These professions remain important for many industries, including manufacturing, construction, and information technology. Professions that are less and less in demand in the labor market include computer support service operators (1,753 people), system administrators (1,285 people), and website administrators (748 people).

Analysis and forecast of replacement demand by occupation

The highest staff turnover is observed in the car and motorcycle repair sector, where there is virtually no replacement for employees who have left in almost all professions: for every seven employees who leave, only one is hired. Significant turnover is also characteristic of the transport and cargo storage sector. For example, in the profession of cargo and baggage handler there are 53 resignations and only two new employees, and in the profession of crane operator, there were ten resignations and no new hires. Overall, for this sector, there are only 47 new hires for every 117 employees who left. A similar situation is observed in the information and communications sector, where only 30% of employees who left are replaced. For example, in the journalism profession, there were 27 layoffs and only seven new employees. In addition, high turnover continues in the real estate sector (50% replacement rate), and a similar situation is observed in the construction sector.

The lowest level of staff turnover is recorded in the health and social services sector, where only about 20% of vacancies remain unfilled. However, this indicator varies across different professions. For example, for every 1,007 nurses who left, 925 new ones were hired; for every 210 paramedics who left, 181 new ones were hired; and for every 459 technical workers who left, 447 new ones were hired. At the same time, in the dental profession, there are only 104 new employees for every 726 who leave, and in the security specialist profession, there are 43 new employees for every 73 who leave. The arts, entertainment, and recreation sector also saw relatively low turnover: for example, there were 39 departures and 29 new hires for choir or ensemble artists, and 65 departures and 48 new hires for waiters. As a result, there were 77 new hires for every 104 departures.

Thus, the highest turnover is recorded in the following sectors: information and communications (-24%), repair of motor vehicles and motorcycles (-18.8%), and electricity, gas, steam, and air conditioning supply (-17.1% of unfilled positions). The lowest turnover was observed in the following sectors: professional, technical, and scientific activities (-1.6%), health care and social services (-2.1%), and water supply, sewage, waste treatment, and secondary raw materials (-2.7% of unfilled positions).

The greatest shortage of skilled personnel is observed among testers of electrical machines, apparatus, and devices, as well as tire fitters - 100% of workers in these professions are assessed as not fully qualified. In addition, 57% of specialists in the manufacture of semi-finished meat products need to improve their qualifications. A similar situation is observed in the profession of synthetic material cladding installer (50%) and in the field of real estate appraisal and management (50%).

Occupations such as air conditioner repair and maintenance technicians (25%), web developers (25%), general machine operators (25%), waiters (22%), and cable splicers (22%) are in the middle range in terms of skill shortages. The lowest level of skills shortage (11%) is observed in such professions as fashion designer, dairy product production line operator, cutter, nail master, and carpenter and furniture maker. The most acute shortage of personnel is in such professions as sign language interpreter (400% - there are four vacancies for every employee), plastic products manufacturer (383%), stone polisher (314%), and tile setter (300%). The lowest staff shortages are in the following professions: electrical equipment maintenance technician (51%), architect (51%), massage therapist (53%), veterinarian (53%), and information technology security specialist (55%), as well as in the field of publishing and editing (54%).

Employee skills

As part of the survey, employers were given the opportunity to assess the level of a number of employee skills.

The results of the study indicate a high level of employee competence in various aspects of professional activity. More than 60% of employers rate their work qualities as completely satisfactory, another 30% expressed the opinion "rather satisfied," while only about 3% of respondents reported complete dissatisfaction. Skills such as technical skills, the ability to work in a team, and effective and purposeful communication are particularly highly valued. The ability to learn and develop professionally, the ability to ensure the quality of work results, and the ability to manage a team effectively are also considered significant.

Employee training

The survey also included questions about employee training in the following areas (the employer provides or finances training):

- occupational health and safety;
- ensuring compliance with customer requirements;
- foreign languages;
- use of ICT;
- administration and management;
- use of new production techniques;
- environmental protection;
- accounting and finance.

The greatest attention is paid to training in occupational health and safety, with around half of employers providing training in this area. Training aimed at ensuring compliance with customer requirements covers 32% of employees, while training in new production techniques covers 23%. The lowest rates are observed in areas such as foreign language learning, information and communication technology (ICT) use, and management, where the level of training or training funding is less than 10%. The survey results show that

employee training is usually carried out through various channels. The main sources are corporate training based at enterprises and private courses, as well as, to a certain extent, the formal education system and courses offered by the Skills Development Fund. At the same time, there is a significant difference in the content and quality of educational programs, which directly affects their effectiveness. Training conducted at enterprises covers 60 to 100% of employees and, as a rule, is more specialized. Training in areas such as occupational health and safety, customer compliance, and environmental protection is conducted at the enterprise in almost 100% of cases. This is because these topics require close links to the company's internal processes and specific requirements, which makes on-the-job training the most effective. However, such training does not always cover all the necessary aspects, in particular the development of personal and social skills.

Private courses, in turn, offer a more individualized approach, taking into account the needs and limitations of employees, and are also focused on current labor market trends. For example, private education providers play a key role in accounting and finance training, with about 50% of employees taking their courses. A significant number of employees (about 30%) also receive training in areas such as ICT use, foreign languages, and management through private courses.

The smallest share of training is provided by the formal education system and the Skills Development Fund courses, as they are less flexible in adapting the learning process to the individual needs of learners.

Equipment of enterprises

With regard to the condition of equipment at enterprises, significant differences were identified in the responses of respondents by region. In particular, in Osh and Batken regions, 40% of equipment is assessed as completely modern, while in other regions this figure does not exceed 10%. The most unfavorable situation is observed in the Naryn and Talas regions, where the equipment is mostly outdated. At the same time, at the national level, about 80% of the equipment is assessed as modern. The identified regional differences emphasize the need to develop and implement targeted programs for the modernization and renewal of production equipment.

Employees with disabilities

According to respondents, the employment of persons with disabilities in Kyrgyzstan is characterized by marked territorial differences. In the capital, Bishkek, thanks to more favorable economic and social conditions, the share of employed persons with disabilities is 17%, which significantly exceeds the figures for other regions. This level is more than twice as high as in the Talas region, which ranks second with a rate of 7%. The Chui region, on the other hand, has the lowest employment rate among people with disabilities, which may indicate more limited resources and opportunities for their professional integration. The national average is 6.7%, reflecting the existing difficulties in employing people with disabilities. Nevertheless, the available data show that people with disabilities can have high professional skills in various fields, as well as the ability to be full members of a team and make a significant contribution to work processes. The survey results underscore the importance of integrating them into the work environment, which contributes to overall productivity growth and the formation of an inclusive work team.

The largest share of employees with disabilities falls into the second group, accounting for more than half of the total number of such employees both at the national level and in most regions. At the same time, special attention should be paid to regional differences. For example, the Jalal-Abad region has the highest percentage of workers with first-group disabilities - 58% - while in the Talas region, this figure is zero. The city of Osh and the Chui region also have a high percentage of employees with first-group disabilities - about 50%. These data may reflect the specifics of regional conditions or the characteristics of the industries in which such employees are in demand.

2. Analysis of the supply of skilled personnel

Analysis of the professional and qualification structure of job seekers

This section presents an analysis of the professional and qualification structure of persons who have applied to employment agencies in order to find work. The methodology includes an analysis of the ratio of vacancies to the number of unemployed, which makes it possible to identify the demand for specialists. The necessary data was provided by the territorial employment agencies of the Ministry of Labor, Social Security, and Migration of the Kyrgyz Republic.

In 2023, the labor market situation in the Kyrgyz Republic was characterized by a stable unemployment rate of 4.1%. At the same time, regional analysis revealed significant regional and professional imbalances in the structure of employment and the level of demand for labor resources.

At the end of 2023, the overall unemployment rate in the Osh city was 2.1%, with the rate among men (1.8%) lower than among women (2.7%). There were 4,838 people registered with employment services, of whom 61% were officially recognized as unemployed. The structure of the unemployed by level of education showed a predominance of persons with basic general education (36.6%), followed by persons with higher education (30.6%), then those with secondary vocational education (18.1%) and initial vocational education (4.1%).

Similar trends were observed in other regions of the country. Thus, in the Chui region, the unemployment rate was 4.1%, in the Jalal-Abad region – 8.2%, in the Talas region – 2.0%, in the Naryn region – 5.1%, in Batken region – 5.9%, in Osh region – 1.4% and in Issyk-Kul region – 5.1%. In these regions, the unemployed with basic and secondary vocational education prevailed, while the share of university graduates among the unemployed was about 25-30%.

An analysis of the professional structure of registered unemployed persons revealed significant imbalances between supply and demand in the labor market. In the city of Osh, the most acute shortage was among seamstresses, with about 58 vacancies per seamstress. There was also high demand for ironers, packers, and electricians. At the same time, there was a surplus of economists (56 applicants per vacancy), dishwashers (55 applicants per vacancy), lawyers, auto electricians, and cooks—there were between 23 and 56 applicants per vacancy in these professions.

A similar pattern of labor shortages and surpluses was observed in other regions. In the Chui region, employers experienced a shortage of specialists employed in the garment industry - cutters (15), packers (10.5), as well as skilled workers, especially car mechanics, furniture makers, and construction specialists, while there was a surplus among workers in the financial sector (26.5 applicants per vacancy), economists (43 applicants per vacancy), and technicians (33 applicants per vacancy).

In the Jalal-Abad region, with a surplus of unskilled workers, there was an acute problem of employment for construction specialists such as fitters, plasterers, and car mechanics. At the same time, there was significant demand for professions such as waiters, packers, maids, cowherds, ironers, florists, and bakers. For example, there were 41.3 vacancies per waiter, which indicates a significant shortage. At the same time, there was a surplus of farmers (40 applicants per vacancy) and confectioners (28 applicants per vacancy).

In the Talas region, there was a significant shortage of salespeople (56 vacancies per applicant), social workers (34 vacancies per applicant), and promoters (17 vacancies per applicant). At the same time, there was an oversupply in the labor market among pharmacists and lawyers: the number of applicants significantly exceeded the demand from employers. The oversupply ratio was 5.5 for pharmacists and 7.3 for lawyers.

In the Naryn region, it is particularly noteworthy that despite the shortage of teaching staff, schools, and preschools in the country, teachers and educators in the Naryn region remain outside the labor market. The largest number of people who applied for jobs were teachers, educators, and instructors of all specialties - a total of 104 people. At the same time, there was a significant surplus of personnel in the following professions: economist, lawyer, primary school teacher, carpenter, and nurse. These professions require higher or secondary specialized education, and most of them are trained in the region. Among the professions requiring professional training, there was an acute shortage in the healthcare sector: for example, there were an average of 9.7 vacancies per doctor. A significant shortage of personnel was observed mainly among low-skilled and unskilled professions.

The labor market in the Osh region saw significant demand for teachers, educators, and instructors of all profiles, drivers, workers and handymen, as well as nurses. At the same time, there was limited, "piecework" demand for narrow-profile specialists whose professional training requires special knowledge and skills: stoker-burner, logoscope operator, underground electrician, etc.

There was a significant shortage of personnel in such professions as farmers, stokers, and watchmen - for each registered unemployed person in these fields, there were an average of 23 vacancies. At the same time, professions with a surplus of personnel included agronomists (39 applicants per vacancy), salespeople (38.7 applicants per vacancy), kitchen workers (31 applicants per vacancy), and civil servants (24 applicants per vacancy).

In the Issyk-Kul region, the situation was more balanced, but there was still demand for skilled workers in the region. In the region, significant demand and a shortage of personnel were noted mainly for low-skilled and unskilled professions: nanny (28 vacancies per applicant), salesperson, livestock breeder, worker, handyman, farmer, cleaner, kitchen worker, janitor, maid. Among the professions requiring vocational training, there was an acute shortage of doctors, specialists and inspectors, social workers, seamstresses, cooks, waiters, electric and gas welders, and drivers. At the same time, there was a surplus of personnel in the following professions: accountant, teacher (including primary school teachers), economist, lecturer (at universities), lawyer, engineer, nurse, and tractor driver. In general, the labor market in the Issyk-Kul region is focused on trade, repair and construction work, services, tourism, agriculture and processing, garment manufacturing, and transportation.

An analysis of the Batken region, based on data on registered unemployed persons and reported vacancies, showed that the largest number of in-demand professions were in light industry and services. The greatest shortage was observed in the following working professions: kitchen workers, security guards, and welders. For these professions, the ratio of vacancies to the number of unemployed was 2, which meant that there were two vacancies for every worker. For other professions (according to data from the regional employment service), there was a balance between supply and demand for specialists.

According to data from Bishkek employment service, the greatest demand from employers was for the following professions: teachers and lecturers of all specialties - 184 vacancies, managers in various fields - 177, seamstresses - 174, drivers - 164, unskilled workers - 91, as well as a number of other specialties. Analysis of supply and demand by professional group revealed a shortage and surplus of personnel in the labor market. The ratio of vacancies to the number of unemployed by profession showed that there was continued demand for specialists in banking, doctors (all profiles), managers, and social workers for qualifications requiring higher professional education. At the same time, there was a significant surplus of specialists such as economists, linguists, journalists, accountants, and others.

Among the qualifications requiring secondary vocational education, the ratio of vacancies to the number of unemployed by profession showed demand for massage therapists (medical massage), as well as managers (of various profiles), marketers, and construction technicians. At the same time, there was a surplus of personnel in the labor market for the following professions: economist, commodity expert, technician, and midwife.

Among skilled workers, the following professions were most in demand: general machine operator, waiter, cutter, knitter, hairdresser, manicurist, and others. The analysis showed that the greatest demand was for skilled workers.

Among low-skilled jobs, the most in demand were washers, sorters, packers, and loaders. This may be due to the fact that low-skilled labor is usually low-paid and, accordingly, less attractive to most unemployed people. It should be noted that today the shortage of low-skilled labor is compensated for by migrant workers from countries such as Pakistan, Bangladesh, and India. They are mainly employed in construction, road building, services, and garment manufacturing.

At the same time, among the vacancies advertised by employers, there was no demand for specific highly skilled specialists, such as information systems operators, logistics specialists, and others. This may be due to the fact that employers prefer to train narrow-profile personnel themselves or invite the necessary specialists from abroad.

Overall, the economy of Bishkek is developing dynamically. Enterprises from virtually all sectors operate in the capital. The largest of these specialize in metalworking and mechanical engineering, light and food industries, energy, and construction. The service market, hotel and restaurant business, digital economy, and transport and logistics services are actively developing.

Thus, an analysis of the labor market in the Kyrgyz Republic for 2023 revealed significant structural imbalances caused by both regional and professional characteristics. Against the backdrop of overall economic growth and the functioning of enterprises in various industries, including mechanical engineering, metalworking, light and food industries, as well as the development of the service sector, there is still a shortage of workers and teaching staff in a number of regions. At the same time, the surplus of specialists with higher education in the financial, legal, and administrative spheres requires the implementation of measures to adapt qualified personnel to the needs of the labor market.

Table 1: Top 5 labor surpluses and shortages by region in the Kyrgyz Republic (2023)

Excess staff	Indicator (number of applicants per vacancy)	Labor shortage	Indicator (number of vacancies per specialist)
Batken region			
No data	No data	Kitchen worker	2
No data	No data	Welder	2
No data	No data	Security guard	2
No data	No data	Laboratory assistant	2
No data	No data	Teacher (educator)	1.9
Jalal-Abad region			
Farmer	40	Waiter	41
Confectioner	28	Ironer	26
Auto mechanic	19	Packager	18.6
Installer	15	Scooter	16
Plasterer	14.3	Maid	15
Issyk-Kul region			
Tractor driver	12	Waiter	43
Economist	8.8	Nanny	27
Accountant	8.3	Farmer	23
Ecologist	8	Salesperson	22.6
Lawyer	5.7	Clerk	20
Naryn region			
Accountant	15	Veterinary Treatment Operator	30
Economist	12	Livestock farmer	28
Lawyer	12	Separator operator	11
Primary school teacher	9.5	Doctor	9.7
Carpenter	7.5	Office cleaner	5
Osh region			
Agronomist	39	Security guard (watchman)	39
Salesperson	38	Production furnace stoker	23
Kitchen worker	31	Farmer	23
Civil servant	24	Dentist	11
Electrician	17.3	Sewing equipment operator	10
Talas region			
Lawyer	7	Salesperson	56
Pharmacist	5.5	Social worker	34.5
Electrician	4.4	Promoter	17
Teacher (various subjects)	3.5	Agronomist	8
Programmer	3	Pastry chef, cook	8
Chuy region			
Economist	43	Sorter	26
Technician	33	Closure operator	15
Accountant	17.5	Milkmaid	11
Tractor driver	14	Packager	10.5

Financier	9	Auto mechanic, furniture maker, metal cutter	10
Bishkek			
Commodity expert	27	Cleaner, general machine operator	15
Linguist	22	Cutter	14
Cashier	20	Sorter	13
Technician (all profiles)	17	Packer-packer	12.8
Engineer (all profiles)	15.9	Knitwear knitter, fabric	10
Osh			
Economist	56	Seamstress	58.4
Washer	55	Packer	35
Auto electrician	32	Ironer	27
Lawyer	28	Manager	12
Cook	23	Electrical technician	10

In order to achieve a sustainable balance between labor supply and demand, it is advisable to develop regional programs for vocational training, retraining, and skills upgrading tailored to the needs of specific industries and regions. Particular attention should be paid to increasing labor mobility, developing employment infrastructure, and promoting blue-collar professions, which will improve the efficiency of the labor market and reduce structural unemployment.

3. Analysis of the professional and qualification structure of vocational education graduates and their position in the labor market in the year of graduation

According to demographic statistics, most of the young people with excess labor force live in four regions of the Kyrgyz Republic - Osh, Jalal-Abad, and Chui regions, as well as in Bishkek, where a significant number of young people are concentrated. More than 70% of the country's youth are concentrated in these regions.

One solution to the problem of labor surplus is to ensure youth employment by involving them in vocational education and training in skills that are in demand in the labor market. In this context, education becomes an important tool for solving the problem of unemployment and contributes to the integration of young people into the labor market.

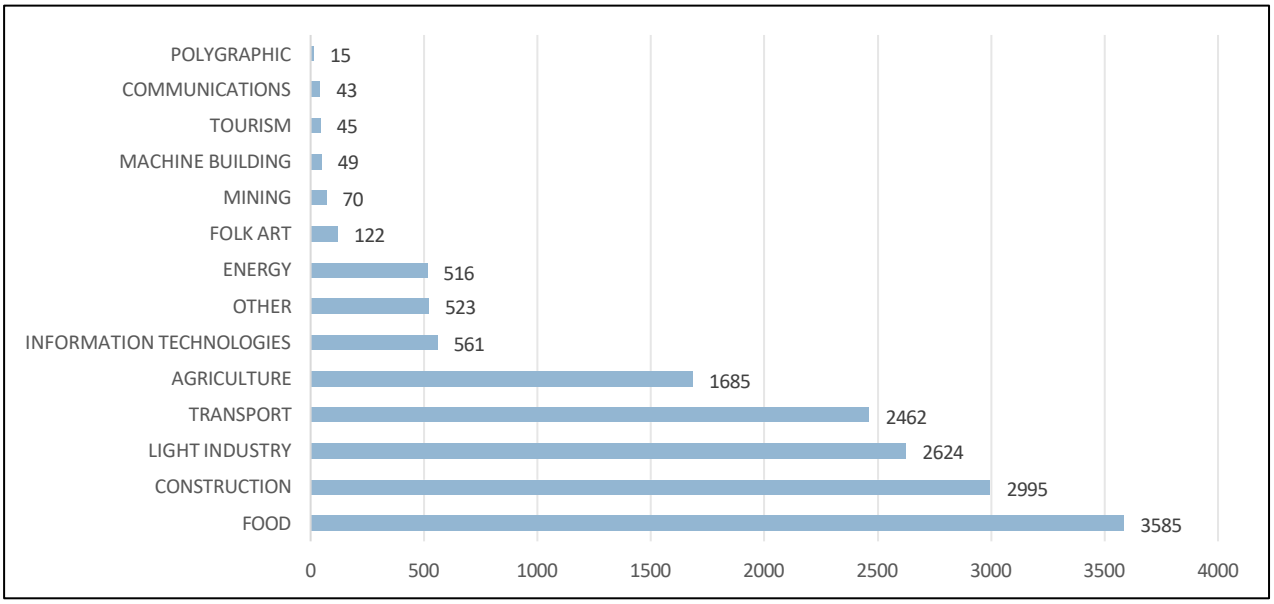
The vocational education system in Kyrgyzstan is experiencing an "inverted pyramid" phenomenon, whereby the number of students enrolled in higher vocational education programs far exceeds the number of students enrolled in vocational programs. The number of pupils and students at all levels of vocational education is growing. Between 2018 and 2022, the increase was 10.2% in the initial vocational education and training system (IVET), 18.2% in the secondary vocational education and training system (SVET), and 38% in the higher vocational education and training system (HVET).

This situation leads to a shortage of skilled workers in the labor market. High demand for labor is observed in key sectors such as construction, agriculture, manufacturing and light industry, logistics, and transport. Despite the growth in the number of students in the higher professional education system, there is a shortage of qualified engineers, teachers, doctors, and other sought-after specialists with higher education in the country. This points to existing problems with the quality of training.

In total, 15,303 students graduated from the higher vocational education system in 2022. Regionally, the largest number of graduates was observed in Bishkek - 24.1% of the total number of graduates in the republic, Chui region - 15.5%, Osh region -15.1%, and Jalal-Abad region - 13.5%.

The distribution of graduates by economic sector shows that the largest number of graduates are in the food industry, construction, light industry, and transport.

Graph 1: Graduates by economic sector in the IVET system, 2022



Source: Ministry of Education and Science of the Kyrgyz Republic

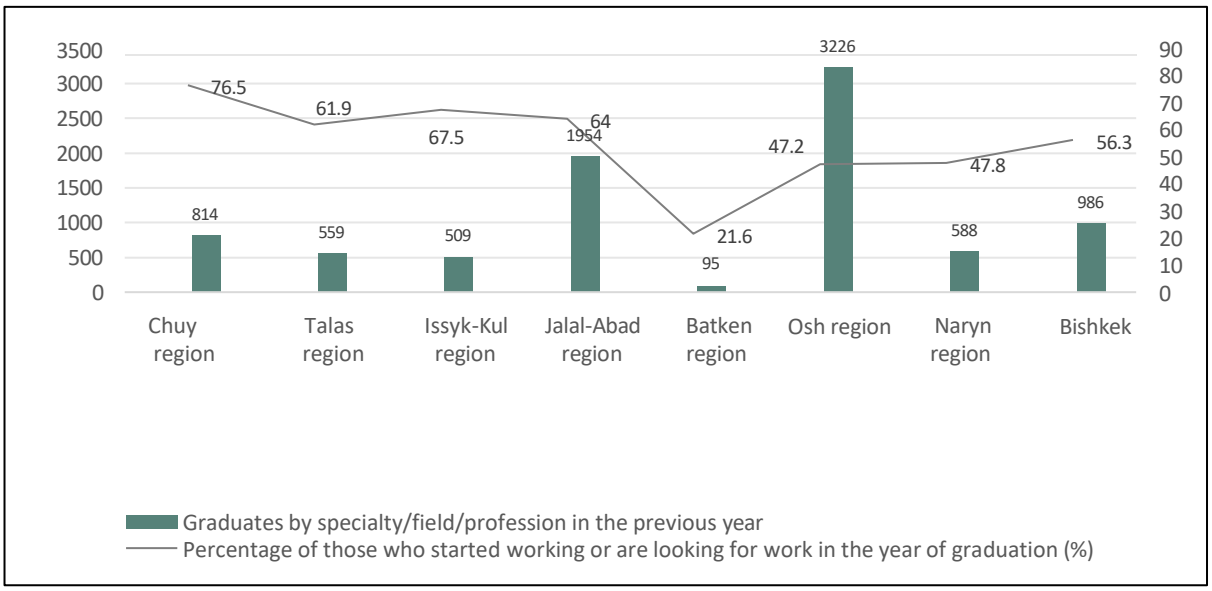
At the same time, the following characteristic feature can be observed: in many specialties, such as bricklayer, reinforced concrete structure assembler, welder, communications network and systems specialist, network administrator, repair mechanic, seamstress-trouser maker, jewelry designer, rural construction master, teacher-educator, and some others, there were no IVET graduates in any region. This practically means that in 2022, not a single specialist in these professions was trained at the republic level.

In addition, for a number of professions, young specialists were trained in only one region. For example: electrician for the emergency response team (40 specialists) - in Bishkek; general machine operator (23 specialists) - in the Osh region; cook-waiter (79 specialists) - in Issyk-Kul region; repair and construction work foreman (18 specialists) - in Bishkek; clothing technology (10 specialists) - in Chuy region, etc.

It should be noted that this feature is not based on labor market analysis, as the current active development of the construction sector, light industry (garment industry), education and digitalization is creating high demand for relevant specialists in all regions.

In 2022, 8,731 young specialists were trained in the republic's vocational education system. Their employment rate across all specialties was 56.5%.

Graph 2: Secondary vocational education graduates and employment rate by region

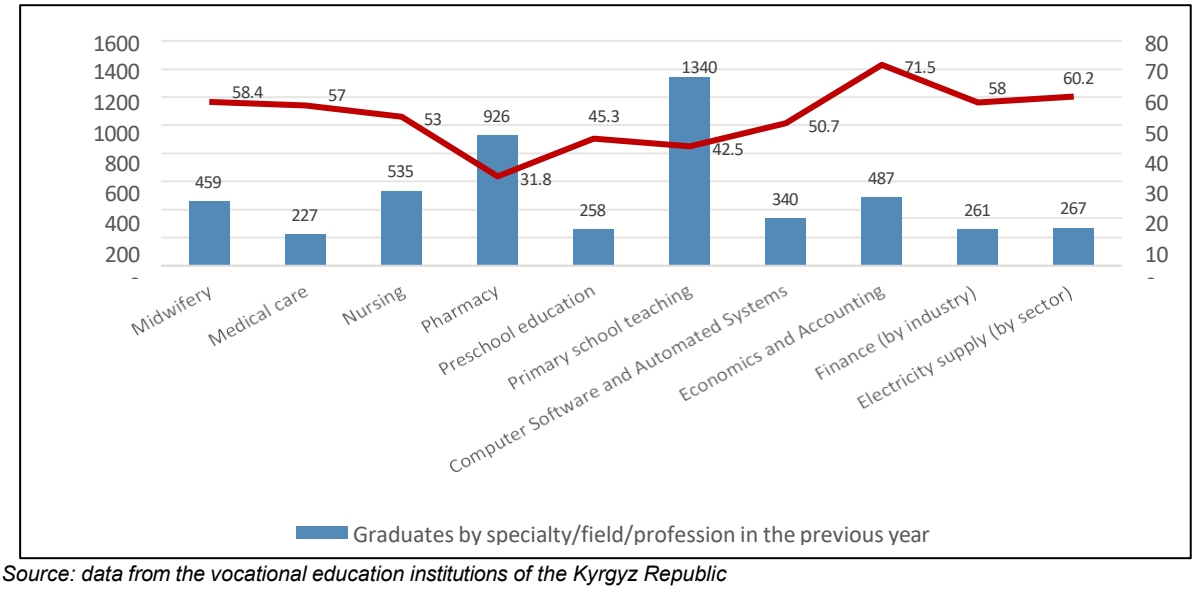


Source: data from the vocational education institutions of the Kyrgyz Republic

The largest number of graduates is observed in the Osh region, with the share of young specialists who started work accounting for less than half - 47.2% of the total number of graduates. A high level of employment was recorded in the Chuy region.

In 2022, the largest number of graduates by specialty was in the following areas: pedagogy (including teaching in primary grades) - 1,340 young specialists, pharmacy - 926, nursing - 535, and others.

Graph 3: Graduates with secondary vocational education and employment rate by specialty



Source: data from the vocational education institutions of the Kyrgyz Republic

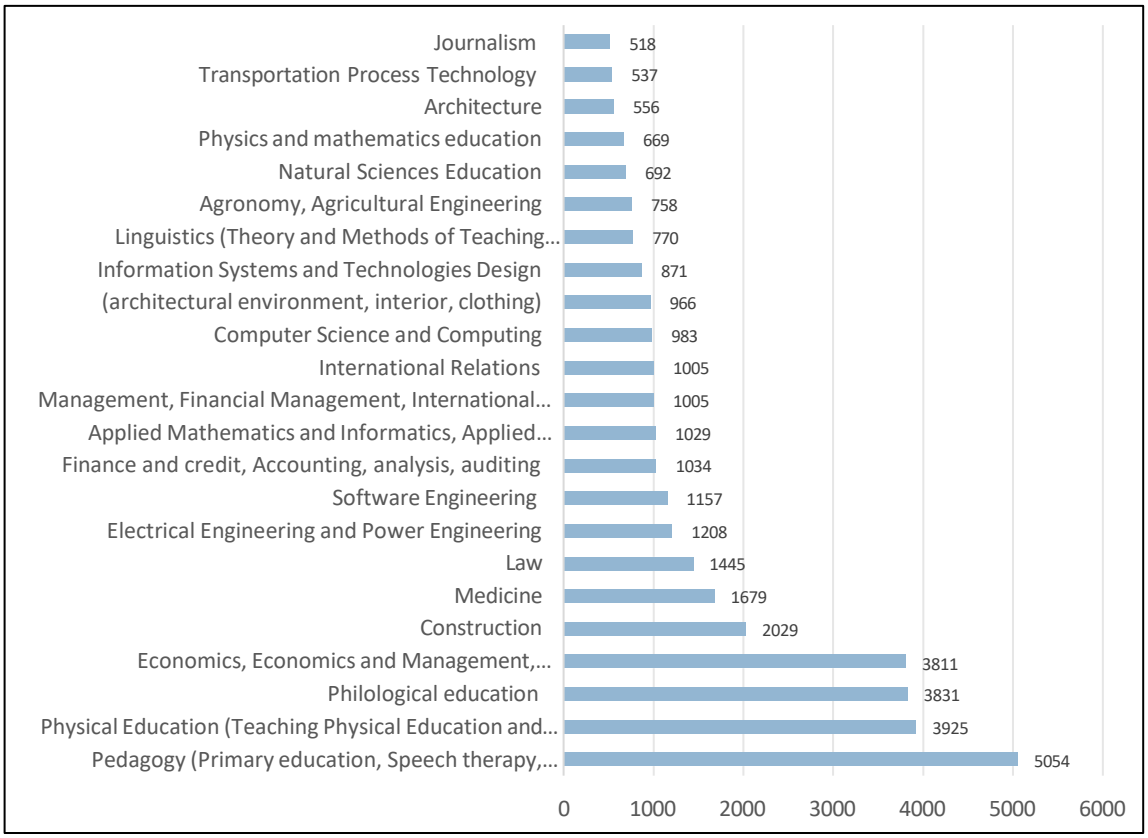
It should be noted that the specialty "Pedagogy (teaching in primary schools)" traditionally has a high number of students - 4,233. At the same time, the low level of employment may indicate that graduates of vocational schools continue their education at universities in this field or experience difficulties in finding employment, despite a significant shortage of teachers in the education system.

The highest employment rate is observed in the field of "Economics and Accounting" - 4,233 (71.5%), and the lowest in the specialty "Pharmacy" - 31.8%. In general, it should be noted that graduates of SPUZs often continue their education at universities, which is especially true for graduates of medical fields.

According to data from the National Statistical Committee of the Kyrgyz Republic, there are 61 higher education institutions, with a total student population of 227,582 in 2022 and 35,093 graduates. Traditionally, the largest number of higher education institutions are concentrated in Bishkek - 44.

According to data provided by higher education institutions as part of the study, the largest number of students is observed in the following specialties.

Graph 4: University majors with the largest number of students

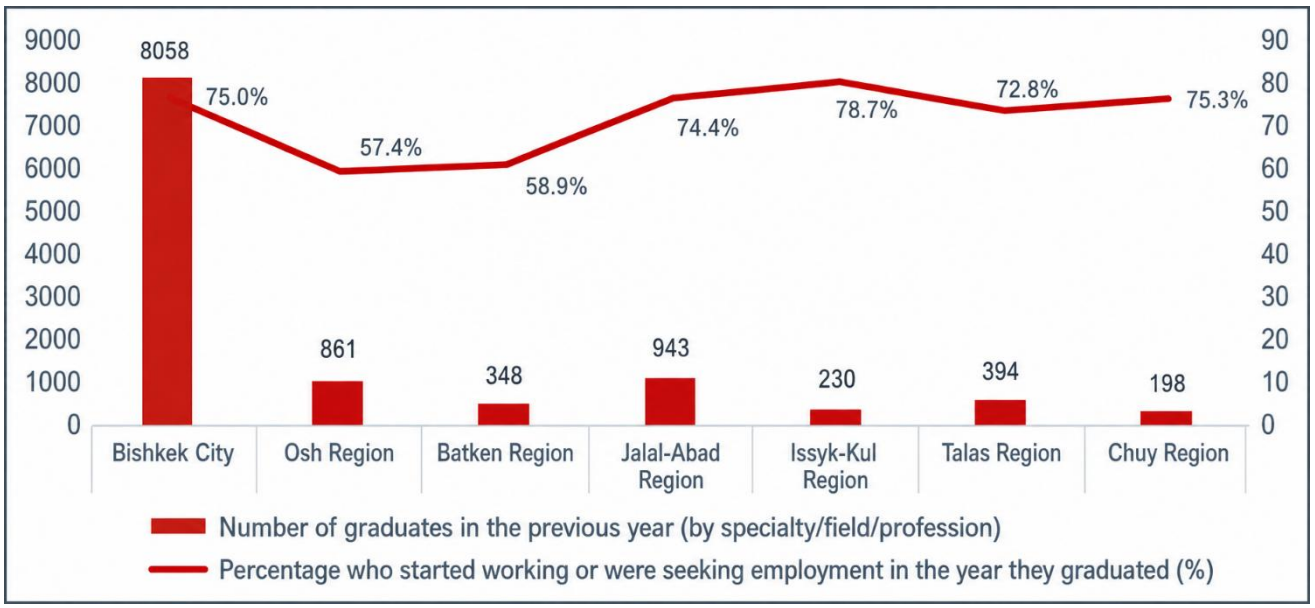


Source: According to data from higher education institutions of the Kyrgyz Republic

According to the data presented, the following specialties are most in demand among students: pedagogy, physical education, philological education, and economics.

The following graph shows the number of HVET graduates by region of Kyrgyzstan in 2022 and the proportion of those who started working or were looking for work immediately after graduation. The largest number of graduates was recorded in the city of Bishkek (8,058 people), while in other regions the figure is significantly lower. At the same time, the highest employment rate is observed in the Issyk-Kul region (78.7%), and the lowest in the Osh region (57.4%).

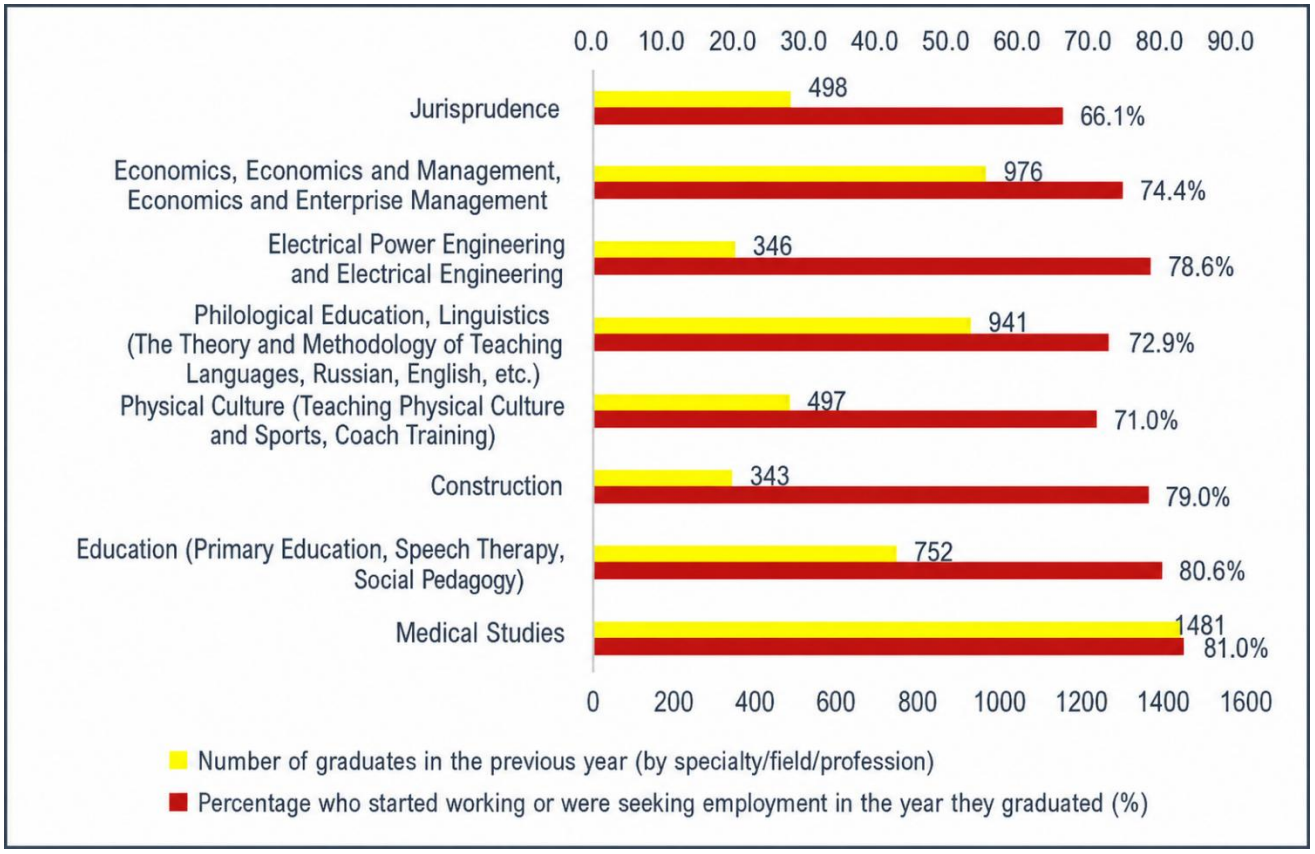
Graph 5: HVET's graduates and the percentage of those who started working by region in 2022



Source: data from higher education institutions of the Kyrgyz Republic

Graduates by specialty with the highest rates, as well as the percentage of those employed or looking for work in the year of graduation, are shown in the graph.

Graph 6: Graduates and the percentage of those who started working in their specialty



Source: data from higher education institutions of the Kyrgyz Republic

The largest number of graduates was recorded in such specialties as "Medicine", "Economics", and "Philological Education", including "Linguistics". At the same time, the highest employment rate is observed among graduates in the following fields: "Medicine", "Pedagogy", "Construction" and "Electrical Power Engineering and Electrical Engineering". It should be noted that the indicator "percentage of graduates who started working or were looking for work in the year of graduation" does not reflect the exact number of

employed specialists, which makes it difficult to objectively assess the real situation on the labor market.

General comments and conclusions

1. According to the methodology, the analysis of graduate employment is based on the ratio of those who have started work or are actively seeking employment to the total number of graduates in each specialty. It is important to note that the mere fact of seeking employment cannot be considered employment. In this regard, the indicators obtained should be interpreted taking into account this feature of the methodological approach.
2. The lack of a clear distinction between the names of some specialties creates uncertainty when calculating the number of graduates. For example, this applies to specialties such as "organization of educational activities", "special preschool education" and "preschool education", "remedial pedagogy in primary education", "teaching in primary grades" and "pedagogy in primary grades".
3. The main difference between higher vocational education and training (HVET) and initial vocational education and training (IVET) and secondary vocational education and training (SVET) is the scale of training. HVET trains specialists for the national level, providing broader employment opportunities, regardless of the region of residence and study. At the same time, IVET and SVET are focused on training personnel who are in demand in specific regions, taking into account local economic needs and the characteristics of the regional labor market.
4. An analysis of the situation by region shows that employment rates vary significantly depending on territorial characteristics. In a number of areas, there is increased demand for workers, specialists, engineers, and technical staff. In other regions, on the contrary, there is a shortage of educational institutions or appropriate infrastructure, which affects the employment opportunities of young specialists.
5. Specialties that are in short supply and do not require mass training, but are characterized by a limited number of graduates, demonstrate a high level of employment. An example of such a specialty is "Mine surveying".

4. Recommendations

Recommendations for the introduction of new educational programs

This study has shown that the labor market of the Kyrgyz Republic is in need of new professions for which the education system does not currently train the necessary specialists. This is confirmed by the following regulatory acts:

- Decree of the Cabinet of Ministers of the Kyrgyz Republic #252 of May 16, 2023, "On the Approval of the List of Professions for which Training is Provided in Initial Vocational Education Institutions" (a total of 159 professions, up to five specialties per profession);
- Decree of the Government of the Kyrgyz Republic #415 of August 21, 2019, "On the Approval of the List of Specialties and the Number of Budgetary Places for the Admission of Students to Secondary Vocational Education Institutions for the 2019-2020 Academic Year" (a total of 80 areas of training);
- Order of the Ministry of Education and Science of the Kyrgyz Republic #1179/1 of September 15, 2025, "On the Approval of State Educational Standards for Higher Vocational Education" (a total of 450 areas of training).

Based on the analysis conducted by region, professions that are not included in any of the listed regulatory legal acts have been identified.

Regions of the Kyrgyz Republic	New professions
Jalal-Abad region	• Cartographer / GIS specialist; • SMM specialist; • Security specialist.
Issyk-Kul region	• Flaw detector; • Sign language interpreter.
Naryn region	• SMM specialist; • Art restorer; • Cartographer/GIS specialist.
Osh region	• Sign language interpreter; • Entomologist; • Tire fitter; • Security specialist; • Cartographer/GIS specialist.
Talas region	• SMM specialist; • Cartographer/GIS specialist.
Chuy region	• SMM specialist; • Metal caster and smelter; • Plastic products manufacturing technician; • Drawer; • Press operator.
Bishkek	• SMM specialist; • Film editor in printing production; • Plastic products manufacturing technician; • Cartographer/GIS specialist; • Orthopedic technician (orthopedic prostheses).
Osh	• SMM specialist; • Entomologist; • Tire fitter; • Safety specialist; • Plastic products manufacturing technician.

The analysis showed that the most in-demand professions in all regions of the republic are SMM specialist and GIS specialist. This is due to the digitalization of the economy and the active use of digital platforms

and Internet resources by the population.

Based on the information presented, the following solutions can be proposed to the Ministry of Education and Science of the Kyrgyz Republic:

- introduce new educational programs in the identified specialties or expand existing ones to include these areas;
- determine the level of software for which new specialties should be introduced;
- refrain from introducing new programs and expanding existing ones if the identified specialties are already covered by existing programs under other names;
- include the identified specialties in the relevant regulatory acts (list of professions).

Recommendations for including soft skills in training

The results of this study emphasize the importance of developing not only professional skills but also soft skills. In this regard, recommendations have been developed for integrating soft skills into personnel training at all levels of the vocational education system.

It is proposed to introduce skills in six key areas:

- communication and collaboration;
- lifelong learning;
- self-management;
- digital literacy;
- financial literacy;
- employment.

In international practice, these skills are not taught as separate topics or within separate subjects, but are integrated into the process of teaching professional competencies using appropriate teaching materials and methods.

5. Final conclusions

An analysis of the labor market shows that despite the low unemployment rate (4.1%), there are still significant structural and regional imbalances between labor supply and demand in Kyrgyzstan.

The most in-demand skilled occupations are: seamstresses, waiters, drivers, electricians, packers, cooks, and welders. At the same time, there is a surplus of specialists with higher education in the fields of economics, law, accounting, and public service. Thus, there is a low level of quantitative unemployment and a high level of qualitative unemployment, where job seekers cannot find work in their field, and employers cannot find employees with the necessary skills. The shortage is particularly acute in low-skilled mass professions, which are unpopular among local job seekers, leading to the recruitment of migrant workers (from Pakistan, Bangladesh, India).

The regions with the most severe shortages are Jalal-Abad, Osh, Talas, and Issyk-Kul regions and Osh city, where there are 15-58 vacancies per applicant in certain professions, indicating an extremely weak labor supply. Chuy region and Bishkek city demonstrate a relatively balanced labor market, but with high competition among specialists with higher education, especially for positions in the office, administrative, and public sectors. The lowest unemployment rates were observed in the Osh (1.4%) and Talas (2.0%) regions, but this does not mean that there are no problems: these regions also have an imbalance in the structure of professions. The current situation requires the development of regional programs to stimulate employment and the migration of labor resources within the country.

Against the backdrop of a high percentage of young people aged 15-35 (more than 70% live in Bishkek, Chuy, Osh, and Jalal-Abad regions), the following trends can be observed:

- ✓ limited employment opportunities in their place of residence;
- ✓ a lack of vocational training in high-demand sectors (construction, garment manufacturing, ICT, medicine, education);
- ✓ an imbalance between the number of trained specialists and the needs of employers.

This pushes young people towards:

- ✓ labor migration;
- ✓ further education without a guarantee of employment;
- ✓ working outside their profession or in the informal sector.

The education system does not meet the modern requirements of the economy

The methodology for assessing employment (which includes those who are employed and those who are looking for work in the first six months after graduation) and the vagueness of the names of specialties make objective analysis difficult. Nevertheless, the following summary can be made.

The vocational education system in Kyrgyzstan demonstrates an inefficient distribution of students across levels of training. The higher vocational education system continues to grow rapidly (+38% for 2018–2022), while initial vocational education and secondary vocational education are growing at a more moderate pace. As a result, an "inverted pyramid" is forming, with the number of university students exceeding the number of college and vocational school students by several times. This leads to an oversaturation of the labor market with specialists with higher education (economics, law, international relations), which affects the employment of young specialists: there is a large gap between the number of graduates and the level of employment, especially in the humanities and socio-economic disciplines.

Existing vocational school and college programs do not always meet market needs and require updating. In secondary vocational education, the share of graduates who started working in the year of graduation is 56.5%, which indicates either

- ✓ either the low relevance of training;
- ✓ either a focus on continuing education in higher education, especially in medicine and pedagogy.

In the IVET system, the majority of graduates are cooks, welders, seamstresses, and tractor drivers. However, there are no graduates in many key professions (network specialists, jewelers, etc.). Many professions are only taught in one area, which creates local bottlenecks and a shortage of specialists at the regional level.

None of the education systems (IVET, SVET and HVET) covers a whole range of new, digital, and applied professions that are in demand in the modern market: SMM specialists, GIS/GISC specialists, defectoscopists, restoration artists, etc. This shortage is particularly acute in regions where such specialties are either completely absent or are not included in the approved lists of programs. This indicates the low adaptability of educational institutions to the dynamics of labor demand.

The need for training and retraining

Institutions for retraining and professional development are underdeveloped - only a small percentage of workers receive additional training, especially in ICT, languages, and management. About 60-100% of employees receive training within their companies, especially in occupational health and safety, safety engineering, and customer compliance. Less attention is paid to ICT, foreign languages, finance, and management, with coverage of less than 10% despite the growing need for these skills. Private courses play a key role in training accountants, IT specialists, and managers, but the formal education system is not flexible enough.

Key contradictions in the youth training and employment system

Thus, the training system in Kyrgyzstan operates on inertia, without relying on an analysis of current and future labor market needs. The Kyrgyz labor market is undergoing active transformation: there is a growing demand for workers and applied professions, as well as for personnel with specialized skills. At the same time, the surplus of personnel with higher education in traditional fields (economics, law) requires a restructuring of the specialist training system to better adapt it to the real needs of the economy.

Comparison of the education system and the needs of the labor market of the Kyrgyz Republic (for 2022–2025)

Parameter	Education system	Labor market needs	Observed gap/problem	Possible solution
Levels of training	Prevalence of higher education - 227,000 students compared to 33,000 in non-higher education and 108,000 in secondary vocational education	High demand for workers and mid-level specialists	Imbalance - "inverted pyramid" of education	Redistribution of state orders, promotion of vocational schools and secondary vocational schools
Blue-collar professions (IVET)	No training available for some professions	High demand: builders, welders, electricians, tractor drivers, seamstresses, cooks	Lack of geographical coverage	Introduction of mobile programs, new training programs in the regions, partnerships with employers, dual training
SVET (medical, pedagogical, economic fields)	Highest number of graduates: education, pharmacy, nursing	High demand for teachers and nurses, but also a shortage of accountants, agronomists, technicians	Lack of geographical coverage	Introduction of mobile programs, new training programs in the regions, partnerships with employers, dual training
HVET	Largest number of graduates: economics, philology, pedagogy	Engineers, doctors, IT specialists, teachers, and energy specialists are in demand	Overproductio n of humanities graduates, economists, lawyers. Shortage of technical	Strengthening practice- oriented training. Redistribution of students to STEM fields

			personnel	
Alignment of training with regional needs	Centralization: main educational institutions in Bishkek, Osh	Shortage of personnel in the regions, especially in construction, agriculture, and logistics	Regional imbalance	Strengthening regional colleges and lyceums, dual education
Flexibility and updating of professions	Lists of professions/specialties are updated slowly	New professions are emerging: merchandiser, targetologist, data analyst, drone operator, etc.	Education lags behind the market by 3-5 years	Rapid adaptation of educational standards, introduction of modular and flexible programs
Communication with employers	Limited, fragmented	Employers complain about poor training	The gap between theory and practice	Expansion of dual education, development of professional standards
Employment monitoring system	Also includes job seekers	Does not reflect the actual level of employment		Revision of methodology. Introduction of a unified monitoring methodology with follow-up after 6 and 12 months at all levels of vocational education

Recommendations based on the model

1. Update the list of professions every 2 years with the participation of the Ministry of Education, the Ministry of Science and Higher Education, the Ministry of Labor and Social Protection, the Ministry of Economy, and business.
2. Update the national classification of occupations, positions, and pay grades, taking into account new occupations that have appeared on the labor market.
3. Reform the system of state orders for training personnel in line with actual demand.
4. Develop digital competencies at all levels of training.
5. Create regional educational hubs (in Jalal-Abad, Naryn, Talas).
6. Introduce a system of long-term monitoring of graduates at all levels of vocational education with uniform standards and transparent methodology (6, 12, 24 months after graduation).
7. Develop a system for introducing new educational programs in line with changes in the country's economic needs.
8. Encourage regional educational institutions to respond flexibly to the demands of the regional economy.
9. Develop mechanisms to strengthen ties between educational institutions and employers.
10. Promote the active development of retraining courses.
11. Develop infrastructure for the employment of people with disabilities.

6. Forecasting labor market needs for 2026–2030.

Based on the analysis, we can offer a forecast of labor market needs until 2030. The methodological approach to forecasting includes: analysis of graduate and employment dynamics for 2018–2022, analysis of strategic development programs for the Kyrgyz Republic, and the main drivers of change in labor demand.

Key drivers of change in labor demand until 2030.

Factor	Expected impact
Demographic structure (growth of young people aged 15-35)	Increase in labor supply
Digitalization of public services and business	Increased demand for IT, analysts, technicians Demand for IT specialists, data engineers, cybersecurity specialists, and digital platforms.
Priority sectors of the economy (according to policy documents until 2030). Development of construction and logistics hubs.	Growth in demand for builders, electricians, and logisticians. Personnel are needed to provide logistics and cargo handling services related to infrastructure and railway construction, as well as lawyers specializing in railway law and logistics contracts, IT specialists in railway accounting and logistics systems, environmentalists, and industrial safety specialists.
Industrialization and growth of high value-added manufacturing. Development of manufacturing industry and technology clusters.	There is a need for engineers, technologists, and workers with skills in operating equipment and automated lines. There will be demand for specialists in garment manufacturing.
Strengthening of the agro-industrial sector.	Increased demand for agronomists, agricultural engineers, specialists in processing, storage technologies, and logistics of agricultural products.
Energy. Introduction of green technologies.	Demand for specialists in sustainable development and eco-auditors. Demand for specialists in green technologies and renewable energy engineers.
Growth of the service sector. Tourism.	Demand for specialists in the hotel business, service, hotel managers, tour guides, IT in tourism, chefs, waiters.
The continuing trend of labor migration	Shortage of engineers, doctors, and teachers in the regions. Influx of low-skilled labor from developing countries.
New professions and flexible forms of employment	Development of freelancing, remote work, and platform-based employment (via digital platforms). Many young professionals will work for the global market while remaining in the Kyrgyz Republic.
Urbanization and housing/infrastructure construction	Rapid increase in construction activity. Demand for urban planners, builders, architects, engineers, designers.
Increased role of education	Increased demands on the education system. Expansion of educational opportunities. Demand for high-quality teachers, educators, mentors in the IVET and SVET, and educational program developers. Growth in the importance of flexible forms of training and retraining.
International integration, globalization	Strengthening the position of the Kyrgyz Republic as a transit and service platform

By comparing the data according to the proposed forecasting methodology, it is possible to identify the key professions that will be in demand by 2030.

Forecast of the most in-demand professions by 2030

##	Profession	Skills/knowledge/requirements	Cities/regions with the highest demand
1	**Logistics / transportation / transport and railway management specialists**	Experience in logistics, knowledge of railway networks, multimodal schemes, route planning, IT systems, supply chain management.	Chuy region, Bishkek, Naryn region and regions near transit routes (borders, transshipment points).
2	**Process engineers / industrial production and automation specialists**	Knowledge of automation, robotics, AI, ability to work with industrial machinery, quality control, production process design.	Industrial centers, processing clusters (Osh city, Osh Region, Chuy region, Issyk-Kul region), trade and export zones
3	**High-level skilled workers (welders, excavator and loader operators, reinforced concrete installers, frame assemblers, concrete workers)**	Practical skills, understanding of safety regulations, ability to work with machinery and equipment.	In regions where large-scale construction and infrastructure projects are underway.
4	**IT/big data / cybersecurity specialists**	Programming, data analytics, data protection, cloud solutions. English language skills. Ability to adapt to rapidly changing technologies.	Bishkek, regional centers with internet access and infrastructure, possibly co-working centers and technology parks.
5	**Green energy and sustainable development specialists / environmentalists**	Knowledge of renewable energy sources (solar, wind, hydroelectric), energy-efficient technologies, engineering, environmental standards, sustainable construction.	Mountainous areas, hydroelectric power plants, regions with renewable energy potential, border and rural regions.
6	**Specialists in the agro-industrial complex/agricultural product processing**	Management, storage and processing technologies, agricultural machinery, agricultural engineers, product logistics, export and quality standards.	Regions with developed agro- industry: Osh region, Batken region, Talas region, Chuy region, Jalal-Abad region, Naryn region
7	**Healthcare and social services professionals (doctors, nursing staff, public health specialists)**	Increased educational requirements, specialization, telemedicine, prevention skills, knowledge of modern diseases, healthcare management.	The entire republic, especially remote and rural areas where there is a shortage of personnel.
8	**Teachers, educators, training/retraining specialists**	Increased requirements for education. Skills in distance learning, digital pedagogy, specialized training (logistics, IT, green technologies, tourism and services), language skills.	The entire republic, especially remote and rural areas where there is a shortage of personnel.
9	**Service and tourism specialists**	Tour services, tourism marketing, hotel management, guides, foreign languages, digital marketing.	Regions with tourism potential, Bishkek and Osh as transport hubs
10	**Specialists in public administration, project planning and monitoring**	Ability to work with projects, grants, investments, knowledge of standards, regulations, sustainable development, transparency.	Central authorities, regional administrations, cross-border cooperation projects.