

# EXECUTIVE SUMMARY

**ANALYSIS OF THE VOCATIONAL EDUCATION  
AND TRAINING SYSTEM IN DONETSK OBLAST**



The analytical report “Analysis of the Vocational Education and Training System in Donetsk Oblast ” was produced within the UN Recovery and Peacebuilding Programme.

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**The issue of reforming Vocational Education and Training (VET) is a problem of national importance. It has become particularly acute in the eastern part of Ukraine, where the armed conflict continues and some areas of Donetsk and Luhansk Oblasts remain not under the control of the government of Ukraine.**

**This analytical report was prepared using information from the legal acts of the central and regional authorities, scientific papers on the subject, statistical data from appropriate services, the results of interviews and personal visits to a number of VET Institutions in Donetsk Oblast, and the results of a questionnaire of participants of educational courses (students, teachers, and supervisors of on-the-job training, and management) at oblast VET institutions.**

## **ECONOMIC AND SOCIO-DEMOGRAPHIC BACKGROUND OF THE DONETSK OBLAST VET SYSTEM'S FORMATION AND DEVELOPMENT**

Before the events of 2014, Donetsk Oblast was a powerful industrial region of Ukraine, which accounted for 13% of the country's gross regional product, 20% of its industrial product and almost 25% of the country's exports. Its main developmental characteristic was the high share of the real sector in its economy, in particular, heavy industry. The leading positions in heavy industry were held by metallurgical production (40-45%) and the production of various raw materials, including coal. Due to the specific structure of the industry, and the location of certain types of resources, large companies dominated in Donetsk Oblast, where a significant portion of the economically active population was employed. The needs for training workers for those companies determined the number, specialization, and territorial localization of the Donetsk Oblast VET Institutions.

The situation changed substantially after the events of 2014. In just the first year of the armed conflict in the eastern part of Ukraine, the physical volume of the gross regional product of Donetsk Oblast dropped by 33%. The structure of the industry was partially changed. While maintaining a leading role of metallurgical production, the share of food products, beverages, and tobacco products, as well as engineering, dropped sharply. Since a significant part of industrial enterprises and social infrastructure facilities were located in the territories no longer under government control, it led to a complete breach of economic bonds, a dramatic reduction in output of certain products, and a redistribution of the economic potential between different centres in the region. Today, almost 75% of industrial production is concentrated in four cities in the region: Mariupol, Kramatorsk, Pokrovsk, and Avdiyivka. Sloviansk, Kostiantynivka, Myrnohrad, Selydove, Bakhmut, and Toretsk have suffered from changes to the local industrial sector's structure, unprofitable state mines, the loss of markets for products, and significant losses of economic potential. The changing structure of the region's economy and imbalances in the distribution of economic potential has led to a shift in demand for workers.

Socio-demographic and resettlement factors have also significantly affected the VET network in the region. Despite the fact that Donetsk Oblast had the largest population in Ukraine over the years, the highest density and urbanization, and the most developed network of urban settlements, its demographic indicators were among the worst in the country. The main reason for the fall in the oblast's population has been and remains the its ageing population – a reduction of the share of children in the population against an increase in the share of persons of older age groups. A better demographic situation before the events of 2014 was seen in large cities, villages with industrial facilities and high wages, and in the villages near Donetsk and Mariupol. Today, there is not enough information to objectively determine the demographic levels. The absolute number of births has dropped significantly, but the reason for that is not so much a fall in the birth rate, but the exclusion of the non-government-controlled territories from population records. A drop in the number of secondary school graduates that are potential applicants to VET Institutions is the negative consequence of the deteriorating demographic situation in the late 1990s. However, in the coming years, a gradual increase in the population share aged 15-19 should be expected because of the increasing birth rate from the mid-2000s.

A similar situation is seen in the dynamics of the network of general and vocational schools and institutions of higher education, as well as the number of teachers and students: Their number had dropped significantly since the beginning of the armed conflict. However, there was a certain increase in the number of institutions in 2017 and 2018, primarily in secondary and post-secondary education, following their re-registration in government-controlled areas. The number of 9th-grade graduates grew by 6% in 2015-2018, which can be considered as a positive sign in the context of the probable growth in the numbers of VET students.

The labour market plays an extremely important role in the development of the VET system in Donetsk Oblast. On the one hand, it is a "consumer" of the graduates of the VET Institutions. On the other, its features determine the directions and specialties of the worker training, the volume of state and regional orders for training, and so on.

The total number of the economically active persons in the region is over 860,000. The level of economic activity of the population varies from 58% for people aged 15-70, to almost 70% for people of working age.

The employment structure of the population is a reflection of the specifics of the economic development of the region and a significant factor affecting the formation of labour demand. The number of people employed in various spheres of economic activity in 2013-2018 dropped by almost 2.7 times, from 1.97 million to 741,000 persons. However, the distribution of the employed population in the main sectors of the economy has not undergone dramatic changes in recent years. The bulk of the region's population is employed in the service sector (60%). The real sector of the economy employs 40% of the



able-bodied population. This is practically consistent with the average nationwide index of 36.8%. The main areas of employment in Donetsk Oblast are industry (27.3%), the wholesale and retail trades, vehicle repair (21%), transportation, warehousing (7.9%), public administration and defence (7.1%), and education (7%)

The share of employees is about 63.5% of the total employed population. The largest share is employed in industry - 40.2%. It is also high in public administration and defence (11.1%), education (10.7%), and transportation (9.4%). The share of employees is insignificant for other types of economic activity, in trade, and even in agriculture, in particular. This is an important factor when formulating a regional order for training workers and interacting with employers signing training agreements.

Among the indicators of the labour market, the size and structure of unemployment in the region are most affected by the development of vocational education. Prior to the events of 2014, Donetsk Oblast was characterized by relatively low unemployment rates and higher incomes than the average for the country. The situation has changed in recent years. According to formal data, there were 120,600 unemployed people in Donetsk Oblast in 2018, which is 14.5% of the population aged 15-70. This is 1.6 times higher than the national average. The reasons for this are the deterioration of the economic situation and, as a result, mass layoffs. According to official figures, the number of redundant workers reported by Employment Centres was 26,900 in 2014, 26,100 in 2015, 31,000 in 2017, and 5,600 in 2018. Internally Displaced Persons (IDPs) have also placed additional pressure on the labour market.

Among the sectors, the highest unemployment rates are observed in industry (16.7%), the wholesale and retail trades (12.3%), in public administration and defence (9.4%), and agriculture (7.8%). In general, the number and proportion of unemployment vary according to the sector. Among the occupational groups, the highest unemployment rates are for "trade and service workers" (16.6%), "processing equipment maintenance, operation and control, assembly of equipment and machinery technicians" (17.8%), "skilled tool workers" and "the simplest occupations and persons without a trade" (by 12.3%).

The number of unemployed persons registered during the year also varies greatly depending on the region. In fact, each of the cities and districts has their own "pain points" in the labour market. Thus, the largest number of unemployed people in agriculture is registered at the Velyka Novosilka District Employment Centre (1,063 persons), in the mining industry with the Myrnohrad and Pokrovsk City Employment Centres, and in construction with the Slovyansk City Employment Centre. VET Institutions that train workers for the specific sectors where unemployment is high have been opened in the cities of Sloviansk, Myrnohrad, and Pokrovsk.

Similar to the rest of the country, the problem of unemployment among young people remains acute for Donetsk Oblast. The situation has improved somewhat over the last two to three years, but the share of unemployed persons among people under 35 was still 36.6% in 2018. The unresolved issue of youth employment is one of the factors that impacts the number of students at the VET Institutions.

Unemployed persons with higher education predominate – their share is almost 55%. The share of unemployed persons with vocational education is also quite high (37%). In fact, their share has grown in recent years. The distribution of unemployed persons with a vocational education varies greatly depending on the region: from 17-31% at the Mariupol, Toretsk and Kramatorsk City Employment Centres, and up to 58-69% at the Selydove, Oleksandrivske, Velyka Novosilka, and Nikolsk District Employment Centres.

The ratio between the number of registered unemployed persons and the number of vacancies is an important indicator of the labour market. An analysis of the indicator shows that the situation in the labour market in Donetsk Oblast has been gradually improving. The number of jobseekers per vacancy, although there are significant annual fluctuations, has shown a steady tendency to drop overall. In January-February 2019, the number of jobseekers per vacancy was seven persons. It was 12 persons in the same period in 2017. The average number of jobseekers per vacancy in 2018 was 14. Sectoral variations in the number of jobseekers per vacancy were quite significant in late 2018: it was almost 46 persons in agriculture, to approximately five persons in trade, and six persons in the mining industry and quarry development. Significant differences in the number of jobseekers per vacancy is observed among occupational groups. For example, the figure is 54 for the occupational group "skilled agriculture and forestry, fish farming and fishing workers", 47 for the group "legislators, senior civil servants, leaders, managers," and 11 for the group "trade and service workers."

The City and District Employment Centres are working to resolve the issue of unemployment. A significant number of unemployed persons obtain employment through the provision of relevant job training, retraining, and advanced training. In total, over 2,500 people were trained and retrained through the Employment Centres in 2017-2018. During the period, almost 50,000 persons received training.

Consequently, while the situation in the labour market of Donetsk Oblast is very dynamic and multi-vector, the severity of the problems is gradually dropping. Still, occupational, regional, and other disparities remain significant, and these have to be considered in the preparation of the regional order for labour training in the VET Institutions system.

## THE VET SYSTEM OF DONETSK OBLAST

Vocational education and training in Donetsk Oblast is characterized by the presence of an extensive network of state-owned technical and vocational institutions, as well as those under other forms of ownership. For the most part, the formation of this network was influenced many factors, the main ones being the structure of the economy, the population size, urbanization, and demographic and migration processes in the region. Between 100 and 140 VET institutions have been active in the region at various times, which was 11% to 12.5% of the total number of such educational institutions in Ukraine.

The situation dramatically changed after the government lost control of parts of Donetsk Oblast. The number of VET Institutions in the region and the number of students in them almost halved - 111 VET institutions were active in the oblast in 2013, while there were only 44 were in 2014 (see Table 1). It should be noted that, unlike higher education institutions, which were almost all re-registered in areas under the control of the Cabinet of Ministers of Ukraine, all of the VET institutions located in the non-government controlled territories are still there today. This is an additional indication of the level of conscientiousness of teachers, supervisors of on-the-job training, as well as students and their parents. In general, the majority of VET Institutions in Donetsk Oblast (64) are still located on non-government controlled territory due to a great number of large cities being located along the contact line.

**Table 1.** Activity of vocational education of Donetsk oblast

Year	Number of institutions at the end of the year, units	Number of students, thousand persons	Admitted students, thousand persons	Graduations, qualified workers, thousand persons
1995	142	65.7	33.1	27.8
2010	112	42.0	27.8	24.4
2013	111	36.2	20.3	21.2
2014	44	13.8	7.1	7.8
2015	47	13.0	7.5	6.7
2017	45	11.4	6.0	6.2
2018	44	10.6	6.7	6.3

In 2018-2019, there were 38 regular VET Institutions in Donetsk Oblast, as well as several institutions that are structural subdivisions of institutions of higher education, or other structural units (colleges, technical schools, special institutions of various public agencies) that can provide training for workers. These are, for example, Velyko-Anadol Forestry College, Mariupol college SHEI "Priazovsk State Technical University," the Special Emergency Rescue Unit of the Main Department of

the Civil Service of Ukraine for Emergencies in Donetsk Oblast, LLC "Mariupol Training Centre for Marine Staff", LLC " for "Water transport Training Centre", as well as the Donetsk National Technical University," and the State Higher Education Institution "Donetsk Centre for Vocational Education of the State Employment Service."

The number of students in VET institutions is falling in parallel with the number of these institutions. However, as the number of students is dropping faster than the number of VET Institutions, they are becoming underpopulated. While the average number of students in a vocational institution was 326 persons in 2013, it was only 220 persons in 2018. The reasons for that are the widespread worsening of the demographic situation and a fall in the number of secondary school graduates who opt to obtain a vocational education. In Ukraine, only about 16% of 9th-grade graduates enter VET institutions. A similar situation is observed in Donetsk Oblast, which is evidence of the diminishing prestige of vocational education.

Most VET institutions are comprehensive by sector and educational specialization, i.e., they train workers of various occupations. The specialized category includes agricultural (9), construction (3), mining (2), and other VET institutions. However, in most cases, clearly defined specializations have become less rigidly specialized in recent years. There are many examples where construction (Kostiantynivskyi Occupational Lyceum) or metallurgical (State "Kramatorsk High Metallurgical Vocational School") VET institutions actually training chefs, hairdressers, and manicurists. This situation has become an echo of the 1990s, when the training of new occupations helped VET Institutions "survive" under the difficult conditions of a market economy. Because of that, the VET institutions of Donetsk Oblast can be considered specialized only conditionally, based on either their name or departmental subordination.

Workers in Donetsk Oblast are trained for 16 sectors, covering over 110 labour occupations. The list of training areas mainly aligns with the economic structure that existed before 2014. The main areas of training are: 1) mining; 2) metallurgical production; 3) general occupations in electrotechnical production; 4) occupations common to all sectors of the economy; 5) railway transport; 6) road transport; 7) construction, installation and maintenance operations; 8) agriculture; 9) public catering; 10) trade and commerce; and 11) services. A certain number of occupations is included in each training area. At the same time, the variation among these is very large. Thus, "Mining" includes nine occupations (underground electrical technician, electric equipment maintenance technician, underground miner, excavator operator, etc.), "general occupations of electrical engineering production" includes 20 occupations (turner, maintenance technician, electric/gas welder, wheeled vehicle maintenance technician, etc.). In contrast, areas such as "sewing production" and "Manufacture of artistic and jewellery products" include only three and one occupations, respectively. Labour personnel are trained in the above-mentioned areas of economic activity by

traditional VET institutions and the State-Owned "Donetsk Centre for Vocational Education and Training of the State Employment Service."

Specialized state and non-state-owned institutions train workers for the following occupations: firefighter and rescuer, driver, sailor, rescue sailor, and logger.

The sectoral (industrial) and territorial concentration of directions and occupations of worker training in the region also have their own specifics. The most common at VET institutions is worker training for the following areas: "public catering" (22 VET institutions), "general occupations for electrical machinery" (20 VET institutions), "occupations common to all industries" (19 VET institutions) and "road transport" (16 VET Institutions). However, workers are trained in the field of metallurgy, the production of artistic items and jewellery, forestry in only one or two VET institutions. And a review of the primary data on the number of graduates showed that even among license holders for particular occupations, not all VET institutions provide the required training. Thus, the training of workers for public catering is supposed to be provided by 22 VET institutions, however, it was actually done by only 18 VET institutions in 2017-2018.

Similar imbalances can also be observed in the division of labour occupations. In order to expand employment opportunities for their graduates, almost all VET institutions in Donetsk Oblast practice training for a combination, of usually two, and sometimes even three workers' occupations. Examples of such combinations are "wheeled vehicles maintenance technician / driver of category "C" vehicles", "tractor operator for agricultural (forestry) production / agricultural machines and equipment maintenance technician / driver of category "C" vehicle," "waiter / bartender / buffet attendant," "Assistant diesel locomotive operator / assistant electric locomotive operator / rolling stock maintenance technician," etc. Training for such combined occupations is provided in a variety of Donetsk Oblast's VET institutions. Thus, electric/gas and electric welders are trained at nine VET institutions, wheeled vehicle maintenance technicians (in various combinations) at 13 VET institutions, cooks and chefs at 16 VET institutions. In recent years, due to the specifics of the labour market and other factors of a socio-economic nature, certain labour occupations have not been in any demand, and VET institutions cannot admit students for full-time education.

These features of worker training can be observed in cities as well. Thus, actual training of workers in the areas of "public catering" is provided in 12 settlements in the region, and "general occupations for electrical production," "general occupations for all branches of the economy," "motor transport," "agriculture" "construction, installation and maintenance" at nine settlements. Also, the training of workers for metallurgical production is only provided in Mariupol; that for production of artistic and jewellery products only in Sloviansk; and that for forestry only in Hrafske, Volnovakha district. Cooks and pastry chefs are trained in 12 towns (Mariupol,

Velyka Novosilka, Selydove, Bilytske, Kostiantynivka, Kramatorsk, Toretsk, Sloviansk, Bakhmut, Mirnohrad, Krasnohorivka, and Soledar); hairdressers-stylists, in six towns (Mariupol, Siversk, Kramatorsk, Sloviansk, Bakhmut and Kostiantynivka); and crane operators for metallurgical production, riggers, converter steelworker assistants, cold rolling point operator only in the city of Mariupol.

The discrepancy between the number of VET institutions and the number of settlements where the workforce can receive training indicates there is the duplication of training for the same occupations in different educational institutions in some cities. This applies to most mass occupations. Thus, cooks/pastry chefs in Mariupol are trained by the state-owned "Mariupol Centre for Vocational Education," by the Mariupol Vocational Lyceum of Construction, the Mariupol Vocational Lyceum of Services and Trade; in Kramatorsk by the state-owned "Kramatorsk High Vocational Metallurgical School," by the Kramatorsk High Vocational School and by the state-owned "Kramatorsk High Vocational Trade and Culinary College." In fact, the state-owned "Kramatorsk High Vocational Metallurgical School" does not train any workers for metallurgical production at all. However, it does train hairdressers, manicurists, cashiers, cooks, or chefs. Such cases are not unique, which raises questions about the cost-effectiveness of keeping VET institutions for that particular specialization.

A review of the number and dynamics of VET institution graduates of Donetsk Oblast reveals the presence of certain trends that have emerged recently under the influence of the development of the labour market and the economy of the region. Over 55% of VET institution graduates come under such sectors as "public catering," "general occupations of electrotechnical production," "Automobile transport," and "Services." The following occupations were leading in terms of the number of graduates in 2017-2018: "cook, pastry chef" (almost 650 persons), "wheeled vehicles maintenance technician," "Hairdresser/hair stylist" (430 persons), "Tractor driver, vehicle maintenance technician, Category "C" driver" (over 300 persons), and "Electric/gas welder, gas welder" (over 220 persons). The number of graduates in 2013-2018 grew in the tertiary sector of the economy. However, the reduction of the number of graduates exceeded 45% in the sectors of the economy traditionally dominant in Donetsk Oblast, such as "metallurgical production" and "railway transport." This situation is explained, in the first place, by changes in the structure of the region's economy in recent years, as well as transformations in the job preferences of modern young people. Today, young people are not really attracted to working in mines, quarries, and large industrial companies.

The regional distribution of VET institution graduates is closely linked to the demography of the settlements where these educational institutions are located. Generally, the largest number of graduates of labour occupations in 2017-2018 was observed in Mariupol (almost 1,000 persons), Kramatorsk (704 persons), Sloviansk (350 persons), Kostiantynivka (245 persons), and Bakhmut (257 persons). These towns account for

over 64% of the total number of graduates of VET institutions in Donetsk Oblast. In Avdiivka, Rodynske, Bilytske, Siversk, Hirnyk, Krasnohorivka, and Soledar, the number of graduates is under 50 persons. In total, their share of the total number of graduates is only 5.6%, while their share of the number of VET institutions is almost 18%.

The cities that have several VET Institutions are characterized by a large number of graduates and a wide range of occupations. Thus, in Mariupol workers are trained for all sectors except for the mining industry. In turn, Mariupol is the only city where workers are trained for metallurgical production. The cities of Rodynske, Bilozerske, Mirnohrad, and Pokrovsk remain the main centres where workers are trained for the mining industry. Workers are trained for railway transport only in Sloviansk, Mariupol, and Lyman. Similar regional differences can be noted in the worker output distribution of the occupations that employ the most workers. Thus, almost 100% of underground electrical technicians and underground machine operators are trained in Myrnohrad, Pokrovsk, and Bilozerske; 100% of the crane operators for metallurgical production are trained in Mariupol; the majority of the machine tool operators of a wide profile are trained in Mariupol and Kramatorsk, and assistant locomotive operators are trained in Mariupol, Lyman, and Sloviansk.

The review of VET institutions activities in Donetsk Oblast highlighted the following specifics of the workforce training structure. 1) the number of licenses for training that VET institutions hold for training workers, and the number of occupations for which actual training is currently provided are highly inconsistent. 2) in most cases, workers are trained for integrated occupations, such as "cook/pastry chef". 3) these integrated working occupations are close to each other, although there may also be some exceptions. 4) the range of training for occupations of national importance is rather limited (six out of 24). 5) due to the specifics of the labour market and other factors, individual occupations are not in demand and VET Institutions are unable to attract an adequate number of students to supply the appropriate number of workers. 6) there is duplication, often unjustified, of the training for occupations in various educational institutions in one city. 7) in recent years the number of graduates for the tertiary sector (cooks, hairdressers/hair stylists) has grown, and their number simultaneously dropped for the traditional sectors of the region. 8), the regional distribution of graduates of VET institutions is closely linked to the demography of the towns where these educational institutions are located, therefore over 64% of graduates are trained in the cities of Mariupol, Kramatorsk, Sloviansk, Kostiantynivka, and Bakhmut. 9) the number of graduates of the Vocational Institutions located in Avdiivka, Rodynske, Bilytske, Siversk, Hirnyk, Krasnohorivka, and Soledar is under 50. 10) the training system for skilled workers is confusing, given the fact that worker training is also provided by pre-secondary institutions. At the same time, higher VET institutions, in turn, can provide training for junior specialists.

The VET institutions of Donetsk Oblast differ significantly by their specialization, number of students, graduates,

learning infrastructure, and so on. In order to identify similarities or distinctions in their development, as well as to formulate proposals to optimize the network of VET Institutions, they were grouped as part of a cluster analysis. Twelve formal statistical indicators for each Vocational institution (2013-2018) were used as the information base for the grouping exercise. These showed different aspects of the institutions' development, from the total number of students to the graduate employment rate. The dynamics of the number of students and graduates were also taken into account.

The results of the cluster analysis for Donetsk Oblast produced five groups (types) of VET institutions. This analysis of typifying features helped build a unique rating for the different groups of VET institutions in Donetsk Oblast. The "troubled" category included 13 of the region's VET Institutions (Mariupol Vocational Agrarian Lyceum, Sloviansk Vocational Machine Building Lyceum, Rodynske Vocational Lyceum, the state-owned "Druzhkivka Vocational College," Avdiivka Vocational School, Oleksandrivka Vocational Agrarian Lyceum, the Soledar Vocational School, the state-owned "Bilytske Vocational Lyceum, Hirnyk Vocational School, Mariupol Vocational Lyceum, Kostiantynivka Vocational Lyceum, Siversk Vocational Lyceum, and Krasnohvardiisk Vocational School), whose outlook is is questionable.

The VET system in Donetsk Oblast has undergone changes over the last two to three years that are a response to decisions taken at the state level in to reform the subject areas of educational activity. This involves the introduction of a dual form of training, the creation of centres for vocational education, training centres, and centres of excellence, and the optimization of the VET institution network.

In accordance with Decree of the Ministry of Education and Science of Ukraine No. 473 dated 15.05.2018 "On expanding the list of (areas of) vocational education to introduce components of dual training," such components were introduced at nine VET institutions in Donetsk Oblast (15 worker occupations are covered). It is planned to expand the list of VET institutions and working occupations for which a dual form of education will be introduced in 2019-2020. According to a circular letter from the training and methodical centre of vocational education in Donetsk Oblast No. 5, dated 03.01.2019, five VET Institutions in the region agreed to introduce dual education from the new academic year. However, a review of the dual form curricula for training workers shows that they differ little from the traditional ones.

Another innovation in the VET system in the region was the creation of educational and practical centres. In accordance with the Decree of the Ministry of Education and Science of Ukraine No. 206 dated 27.02.2018, it is planned to establish two training centres in Donetsk Oblast in 2018. The first centre was opened on the basis of the state-owned "Kramatorsk Centre of Vocational Education" for the worker occupations "electric welder for manual welding, electric welder for automatic and



semi-automatic welding machines, and welder". The second one was opened at the Mariupol Higher Metallurgical Vocational College for the occupations "electrician of lighting and lighting networks, electric equipment maintenance technician, and electrician of power networks and electric equipment."

Currently, the establishment of centres of excellence in the regions of Ukraine is under consideration. These would be multifunctional modern institutions capable of providing high-quality services in the field of training qualified personnel on the basis of modern technologies. The host institutions will be selected competitively. The Training and Methodological Centre for Vocational Education in Donetsk Oblast proposes creating centres of excellence based at the Mariupol Higher Vocational Metallurgical School and the state-owned "Kramatorsk Centre for Vocational Education."

Proposals to optimize the network of VET institutions in the region were approved by Oblast State Administration back in 2017. It was planned to halve their number, from about 40 to 21 in 2018-2020. The plan was partially completed, but the process stalled.

An important indicator of the VET system's effectiveness is the match between the workforce training areas and number of graduates with the needs of the region's labour market.

Despite the fact that the information on available job vacancies provided by the employment service is rather unreliable, it does demonstrate that there exists an imbalance between the needs of the workforce in the region and the areas of training and number of graduates of VET institutions.

According to Donetsk Oblast Employment Service as of 31.12.2018, the largest number of registered vacancies (top 20 by occupation) are among the following labour occupations: food salesperson (135 vacancies), non-food salesperson (49), sales consultant (30), motor vehicle driver (22), cook (15), mineworker (12), and electrical equipment maintenance technician (12). It should be noted that although there are vacancies for each of these occupations, there are also many unemployed people with the appropriate qualifications. For example, there are 152 unemployed cooks for 15 cook vacancies, and 415 unemployed drivers for 22 driver vacancies. Even larger mismatches are observed at the level of individual employment centres. Thus, the Kramatorsk City Employment Centre has registered just one cook vacancy, whereas VET institutions trained 113 persons for the occupation in 2018.

According to a survey of primary employer companies, the total requirement for workers in 2019 is estimated at almost 6,500 persons. The largest number of vacancies are open for such occupations as maintenance technician, turner, electrical equipment maintenance technician, underground electric equipment maintenance technician, underground machine operator, and mineworker. The distribution of vacancies of these and some other occupations

in terms of cities and companies suggests that, first, the real sector of the economy can fill only 15-20% of the vacancies, second, the bulk of vacancies are offered by big industrial companies, mine management, and individual mines; third, the majority of individual vacancies are filed by only two or three companies, and fourth, the labour personnel, for example, for mining and metallurgy, are trained in the cities where there is the greatest need for such specialists. The needs of primary employer companies for service, catering, and commerce workers are much lower, and the small business executives who mostly employed such workers were never interviewed.

A comparative analysis of the number and structure of vacancies as of 2019 against the number of graduates of the VET institutions makes it possible to determine the tentative match of the curricula with labour market needs. Thus, the number of vacancies in the mining industry significantly exceeds the number of appropriate graduates. The situation is the opposite in railroad transport and in the construction industry: the number of graduates is almost double that of the vacancies. There is an approximate parity between the number of graduates and the probable number of vacancies in agriculture and in metallurgy. A similar situation can be observed at the level of individual occupations. A substantial excess of demand over supply has developed in labour occupations such as "underground miner, underground electrical technician" and "electric technician." At the same time, supply significantly exceeds demand in the training of cooks and painters. However, this situation is explained by the fact that the number of vacancies has only been determined for primary employer companies.

The main issues with the development of the VET system of Donetsk Oblast were determined by a comprehensive analysis, involving a review of the changes that occurred there in recent years, visits to 10 VET institutions in the region, interviews with their leaders, and surveys of students, teachers, and supervisors of on-the-job training. Some of the surveys are of a general nature, while others are related to issues within individual VET institutions. Issues identified included:

1. Outdated infrastructure, which prevents the provision of quality training to workers in the light of modern requirements. VET institutions that are at a particular disadvantage are those that train workers for the mining industry, as well as turners, wheeled vehicle maintenance technicians, tractor drivers, and so on. According to the findings of the survey, almost one-third of teachers and supervisors of on-the-job training gave the infrastructure of their VET institutions 5-6 points out of 10, another 50% gave 7-8 points. Updating infrastructure is one of the priorities for improving the performance of VET institutions.
2. Lack of proper conditions for students to study, live, and enjoy recreation. Most educational buildings and workshops are in need of renovation, heat insulation, window replacements, etc. Roofs are in poor shape at several VET institutions, including the state-owned



"Bakhmut Centre for Vocational Education" and the state-owned "Kramatorsk Higher Occupational Metallurgical School." Student dormitories also need renovation. Most of them were built a long time ago and don't meet modern living condition standards for young people.

3. A falling number of students and graduates, which is due to several factors. This accelerated the build-up of small-scale VET institutions. The number of graduates in some of them dropped to the point where their continued existence is in question. The number of graduates is under 50 at almost 20% of VET institutions in the oblast. Many VET institutions licensed for 6-8 specialties, actually train and produce workers for only 2-3 occupations.
4. The unresolved issue of employment and wages for students during their apprenticeship. Apprentices receive 50% of their wages at large companies, in accordance with existing arrangements. Another 50% goes to the VET institutions, which allows them to at least partially support their current needs. In fact, small- and medium-sized businesses, where cooks, chefs, hairdressers, manicurists, and sometimes vehicle maintenance technicians work after graduation do not pay anything to apprentices.
5. Duplication of the same training at various VET institutions, often located in one city. First of all, this concerns popular occupations such as "cook, pastry chef," "hairdresser, manicurist," "food vendor," and "wheeled vehicle maintenance technician." In fact, students are trained in these occupations without any regard to the real needs of the labour market. This situation has resulted, on the one hand, in the desire of students to study those occupations. On the other, it has led to the desire of VET institutions to "survive" in difficult economic conditions by training workers for any occupation, whether or not it is in demand.
6. Violation of the educational specialization of many VET institutions, when cooks, hairdressers, manicurists, vendors, etc. are trained in construction, metallurgical, engineering, and agricultural institutions. Thus, only about 44% of graduates of the state-owned "Bakhmut Vocational Agrarian Lyceum" are trained in agricultural occupations, while this number is 48% of graduates at the Oleksandrivka Vocational Agrarian Lyceum and 60% at the Velyka Novosilka Lyceum. Only 14% of graduates of the Kostiantynivka Vocational Construction Lyceum trained for construction occupations. However, almost 40% of the graduates of the Kramatorsk Higher Trade and Culinary College actually trained for construction occupations (tile worker).
7. The imbalance between the development of the labour market and the educational services market, which leads to an over-saturation of the labour market with skilled workers of certain occupations and shortages of others. A review of labour market vacancies shows almost no need for all the cooks and hairdressers that are been trained in such abundance at several VET institutions in the oblast.
8. Filling the dual form of learning with actual content. There are issues with the use of the dual form of learning for training mining occupations, as the training schedule calls for just 2 or 3 days at the VET institutions, while the rest is spent in practice, which is not a suitable schedule for mines. Standardization is required for VET institutions to partner with employers, especially with small- and medium-sized companies where students work as apprentices, as well as to involve them in the process of training workers, participating in the development of standards, assessing knowledge acquired, etc.
9. Unemployment of graduates, including those who study under contract with companies. According to the formal data, the level of employment of VET institution graduates in Donetsk Oblast was about 71% in 2017-2018. The share of employed graduates from the category of those who signed agreements with companies is even lower (63%). This once again indicates that there is an issue with the employment of graduates, even if they have entered into an agreement. There are many cases where graduates, having received training for a certain occupation, deliberately refuse to work in mines or at specific companies.
10. The mismatch of education schedules and curricula with the reality in the market. It would be most effective to have an apprenticeship in the summer for working occupations, in particular for cooks, partly for builders, tractor drivers, for some other occupations.
11. Unresolved issues of financing for VET institutions, the development of a regional order for the training of workers, and the transfer of ownership of educational institutions' property. Currently, VET institutions are financed from the regional budget and budgets of cities of regional subordination, but the property of these institutions is still under the ownership of the state, namely the Ministry of Education and Science of Ukraine. The ownership transfer process is constrained by unresolved issues within the regulatory and legislative framework, and by the regional authorities' inhibiting of the process. According to the results of the questionnaire survey, only 11.6% of teachers and 15.9% of managers of VET institutions are fully satisfied with the existing funding system.
12. Paternalism and unwillingness to change among individual leaders, teachers, and supervisors of on-the-job training. The results of the survey confirm these attitudes are prevalent among the staff of VET institutions. Almost 50% of instructors and supervisors of on-the-job training, as well as 44% of VET Institution managers, believe that VET institutions

should be funded exclusively from the state budget. A similar situation exists with regard to upgrading infrastructure. Over 38% of VET institution managers and almost 37% of teachers and supervisors of on-the-job training believe that their institutions should be upgraded exclusively at the expense of the state budget. A specific indicator of readiness for change is the attitude of the leaders of VET institutions, teachers and supervisors of on-the-job training towards the establishment of centres of vocational education. Only 28% of teachers and 26% of managers of VET institutions feel positive about the process (21.5% are neutral). Many respondents (41.4% of managers) indicate that they might be needed, but would not contribute to solving the problems of VET institutions.

13. The diminishing prestige of vocational education now observed in many regions of Ukraine. Modern young people aim for standards of living that significantly differ from those of their parents. Today, working in mines or at large companies in difficult environmental conditions is currently not attractive to young people. Low wages, a lack of job security, opportunities to find work abroad, and other factors reinforce this unwillingness.

## WAYS TO REFORM THE REGION'S VET SYSTEM

A general system of measures for reforming vocational education in the region has been developed that takes into account existing issues with its development, and includes mechanisms that would operate at both the national and regional levels.

At the national level, it is necessary to adopt a Law of Ukraine "On vocational education" to standardize the procedure for transferring ownership of the property of the VET institutions to the regions (cities), to speed up the process of approving new standards for worker occupations on the basis of a competence approach, to resolve the issue of remuneration for apprentices who work for small businesses, and to provide certain preferences to VET institutions of Donetsk Oblast in the allocation of financial resources (58 million euros) to upgrade infrastructure, purchase equipment, etc. under the project "EU4Skills".

At the regional level, the most important tasks are:

1. To align the real needs of the labour market with the curricula of the region's VET institutions, based on an improved methodology for determining workforce vacancies. At present there is an excess of vacancies over the number of graduates in the mining industry and in electrical production, and a certain surplus of trained workers in the service and catering sector. The dynamic with the number of graduates is the opposite. However, it is difficult to objectively assess how the curricula match the needs of the labour market because of shortcomings in the vacancies methodology.

2. To improve the mechanisms of employment for graduates, first of all, through the signing of agreements with companies that would guarantee employment. Resolving this issue is important both to ensure the proper functioning of the institutions and to create a positive image of vocational education. Almost 30% of vocational students who participated in the survey believe that job security is an important mechanism for increasing the attractiveness of VET institutions.
3. To encourage employers to participate in training workers. It is important to involve in the process not only large companies but also representatives of small- and medium-sized businesses, small companies, possibly NGOs and business associations. At the regional level, within the framework of socially responsible business, it is necessary to develop a system of preferences for SMEs in relation to employment and apprentice remuneration.
4. To stimulate VET institutions to further introduce the dual form of training, and file a request with the Ministry of Education and Science of Ukraine to amend the working curricula, in particular educational schedules, which will enable students who are trained for the occupation of tractor driver, cook, chef, plasterer to take practical training in the summer period. That will significantly improve the quality of the learning process and the acquisition of appropriate occupational competencies by students.
5. To create conditions that would attract young supervisors of on-the-job training, who are able to work with modern equipment, to work at the VET institutions. They are the ones who are able to provide a new quality of training and to make practical training more fun and attractive for students. The resolution adopted by the Ministry of Education and Science of Ukraine currently allows the use of up to 15% of the financial revenues of VET institutions from the students' apprenticeship to remunerate supervisors of on-the-job training.
6. To upgrade the infrastructure through various sources of financing - state, regional, private, as well as with the VET Institutions' own funds. The financial capabilities of individual VET institutions allow them to purchase, for example, used cars that can be used to study motor vehicle technology.
7. To find a solution for recovering ownership of the Pokrovsk Vocational Lyceum's dormitory, which would significantly improve the living conditions of students, since that institution will be used to establish a centre for vocational education in the future.
8. To update curricula and training methods. About 30% of the teachers and 34% of the managers of VET institutions who participated in the survey indicated the need for a radical update of the curricula. In their view, updating the curricula is the main mechanism for reforming the system of vocational education.

The preparation of new curricula designed to train various categories of graduates, adults, etc., is also an important task. They should be adaptable to the rapid changes in the labour market, and designed for different categories of the population. It is advisable to hold appropriate seminars with the Ministry of Education and Science of Ukraine to provide methodical assistance to VET institution managers on that issue.

9. To expand the list of occupations that are trained at the region's VET institutions. These are the occupations that meet the requirements for high-tech production, in particular, installer of transparent and ventilated facades, assembler of process pipelines, construction plumbing technician, roof builder, floor laying worker, construction rigger, construction carpenter, façade worker, electric equipment technician, lifting machine operator, mechanic of technical systems in buildings, communications network installer, industrial robot operator, assistant steelmaker for converter production (converter), steelmaker for converter production (converter), farm worker, rural tourism worker, operator of telecommunication services, installer/assembler of aluminium constructions, installer/assembler of metal and plastic constructions, installer of thermal insulation for buildings, etc.
10. To expand the scale of creation of centres of vocational education, training centres, and centres of excellence. After the optimization of VET institutions is completed, it is advisable to create the Pokrovsk Vocational Education Centre for the mining industry. Further development of educational centres and centres of excellence requires the infrastructure to be upgraded. Given the existing infrastructure, it is expedient to create a training and practice centre for the occupation "Cook, pastry chef" at the "Kostiantynivka Higher Vocational School," after its accession to the Kostiantynivka Vocational Construction Lyceum.
11. To align the areas of training of labour personnel and educational specialization of VET institutions, and to eliminate duplications of occupations at several VET institutions in one city. Technical and vocational lyceums and agricultural specialization schools should provide personnel training for agricultural production; metallurgy, for metallurgical production; and construction, for the area of construction and renovation. For example, it would be appropriate to concentrate the training of cooks and pastry chefs in Kramatorsk at the state-owned "Kramatorsk Higher Trade and Culinary School," and instead of training cooks, to resume the training of machine operators, turners or other specialists for the needs of metallurgy and engineering in the Kramatorsk Higher Vocational Metallurgical School. Similar curriculum changes should be made in the VET institutions of Mariupol and Bakhmut. A proper structure of training for working occupations should be developed within 2-3 years after the optimization of the VET institutions network.

12. To activate and diversify work on increasing the prestige of vocational education. The public, including the majority of parents, have developed a negative image of VET institutions as those in which there is a low level of education, where no one studies as they should, where only bottom school graduates enter, where certain types of behaviours of young people are shaped. Currently, the word "bursa" (seminary) is used by students to refer to VET institutions, although most of them do not even know what this word actually means.

According to the results of the survey, the opinions of students, teachers, and supervisors of on-the-job training regarding steps to enhance the attractiveness of studying at the VET Institutions are somewhat different. Thus, in the opinion of students, the main measures that would help increase the attractiveness of VET are job security (30.7%) and updating the curriculum (26.2%). According to the teachers and managers of VET Institutions, high wages (48% and 40.2%) and a demonstration of the benefits of working occupations (22.9% and 29% respectively) would help increase the attractiveness of VET.

The process of optimizing the VET institution network in the region is the most painful of the measures to reform the VET system of Donetsk Oblast. The complexity of its implementation is due to the fact that this optimization affects the social interests of a large population: teachers, supervisors of on-the-job training, and support staff. It is clear that the staff of VET Institutions are not supportive of these efforts, as evidenced by the results of the questionnaire. Only about 10% of teachers, supervisors of on-the-job training and managers of VET institutions indicated in their questionnaires that optimizing the network is an important component for reforming vocational education and training. However, the optimization of the VET institutions network, based on state positions and the need to provide high-quality vocational education, is likely to be inevitable.

A set of proposals for optimizing the VET Institutions network was formed following a review of the development of the VET system in the region, the identification of its key problems, an assessment of the labour market, the results of a cluster analysis, and the assessment of responses to questionnaires from students, teachers, and supervisors of on-the-job training of VET institutions infrastructure, living conditions in dormitories, the level of education services, and the duplication of the curriculum. This does not entail the complete closure of VET institutions – the facilities and production workshops can be used after they have been integrated.

These proposals for the optimization of the VET institutions of Donetsk Oblast are somewhat different from those developed by Donetsk Oblast State Administration. The administration is primarily concerned with integrating several VET institutions in Mariupol, and keeping as separate units the state-owned "Kramatorsk Higher Trade and Culinary School" and the state-owned "Sloviansk Vocational Agrarian Lyceum." The former VET institution could develop successfully if it focused on training cooks and pastry chefs, who are currently trained by several other non-specialised

institutions in Kramatorsk. Today, it seems inappropriate to merge the state-owned "Sloviansk Vocational Agrarian Lyceum" with the state-owned "Bakhmut Vocational Agrarian Lyceum." Given the fact that it is planned to merge the latter with the Siversk Vocational Lyceum," a merger like that will help to significantly increase the territorial accessibility of agrarian VET Institutions for students. In general, as a result of optimization, the number of traditional VET Institutions should be reduced from 38 to 19 (Table 2).

**Table 2. Proposals for Optimizing the VET Institution Network of Donetsk Oblast in the Medium-Term**

**Proposals for VET Institution Network Optimization**

Merge the Debaltseve Vocational School, Chasiv-Yar Vocational School, and the Soledar Vocational Lyceum with the Bakhmut Center for Vocational Education

Merge the Kostiantynivka Vocational Construction Lyceum with the state-owned "Kostiantynivka Higher Vocational School"

Merge the Slavic Vocational Engineering Lyceum with the Sloviansk P.F. Krivonos Multiprofile Regional Centre for Vocational Education

Merge the Avdiivka Vocational School, the Mining and Technical Lyceum, the Krasnohorivka Higher Vocational School with the Kurakhove Vocational Lyceum

Merge the Toretsk Vocational Mining Lyceum with the Toretsk Vocational Lyceum

Merge the Mariupol Vocational Services Lyceum, Mariupol Vocational Services and Trade Lyceum with the state-owned "Mariupol Centre for Vocational Education"

Merge the Mariupol Vocational Construction Lyceum with Mariupol Vocational Engineering Lyceum

Merge the Mariupol Vocational Lyceum, the Mariupol Agrarian Lyceum with the Mariupol Vocational Autotransport Lyceum

Merge the Rodynske Vocational Lyceum, the Bilytske Vocational Lyceum, the Myrnohrad Vocational Mining Lyceum and the Bilozersk Vocational Lyceum with the Pokrovsk Vocational Lyceum

Merge the state-owned "Druzhkivka Vocational Lyceum with the state-owned "Kramatorsk High Vocational Metallurgical School"

Merge the Siversk Vocational Agricultural Lyceum with the state-owned "Bakhmut Vocational Agricultural Lyceum"

Merge the Volnovakha Vocational Lyceum with Velyka Novosilka Vocational Lyceum

Merge the state-owned "Interregional higher Vocational Construction School of Kramatorsk" with the state-owned VET institution "Kramatorsk Centre of Technical and Vocational Education"

Merge the Lyman Vocational School with the Slovyansk P.F. Krivonos Multiprofile Regional Centre for Vocational Education

Regarding the continuation of the establishment of educational and practice centres, it is advisable to create one at the Velyka Novosilka Vocational Lyceum for the occupation "Tractor driver/mechanic, agricultural machinery mechanic," and at the Kostiantynivka Higher Vocational School for the occupation "Cook. Pastry Chef." It is realistic to establish the Pokrovsk Vocational Center at the Pokrovsk Vocational Lyceum (after the merger).

The most probable candidates as bases for centres of excellence in the near future are the Mariupol Higher Vocational Metallurgical College and the Kramatorsk Higher Vocational School. In the longer term, they are the state-owned "Kostiantynivka Higher Vocational School" and the Pokrovsk Vocational Lyceum (mining occupations).

The reform of the VET system in Donetsk Oblast is a complex task, the solution of which requires the consolidated efforts of the authorities, business, and education stakeholders.





