https://doi.org/10.58225/tim.2025-2-188-193

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Məqalə redaksiyaya daxil olub 14.03.2024
The article was received by editorial board on 14.03.2024
Статья принята к печати 14.03.2024

CONSEQUENCES OF LABOR SHORTAGE İN THE CONSTRUCTİON SECTOR İN AZERBAİJAN

Abstract

The construction sector is one of the most important sectors that supports the economic development of a country. The construction sector is the engine of growth for a country and creates a flow of services and goods together with other sectors. The contribution of the construction sector to the economy worldwide is approximately 8-10%. The construction sector generally promotes economic growth in a country, provides employment to the masses and acts as a link between the economy and other industries.

Efficiency in the construction sector can be defined as the organization of material, machinery-equipment and labor efficiency in order to complete the structure in the most optimum way. Increasing construction efficiency saves costs and also increases the income of companies. The increase in the income obtained provides an additional flow to the economy and creates a link with all other industries as a part of the construction industry business processes.

Keywords: *construction sector, workforce, human resources, construction in Azerbaijan.*

I. INTRODUCTION

The construction sector has very low productivity growth rates compared to other industries. The main reasons for the low productivity in the sector are listed as re-construction, incomplete supervision, deficiencies in project drawings, lack of materials, workers not having sufficient knowledge and equipment, inadequate communication and inadequate management. Since construction projects have a unique and complex structure, the measures to be taken to improve performance are generally defined as troublesome processes. However, companies' awareness on this issue is increasing and various investments are being made to determine the reasons for the decrease in productivity.

Efficiency in construction generally means labor productivity, which refers to the units of work placed or produced per man-hour. Increasing labor productivity in construction projects can shorten activity times, reduce personnel costs, and reduce fixed project costs by shortening the total project duration. Due to these features, labor productivity in construction projects is one of the most measured types of productivity. Therefore, labor productivity needs to be analyzed correctly.

Labor productivity, in other words, labor efficiency, is calculated using man-hour values, which are defined as the time a worker works in hours for one unit of production in a work item. Productivity can be measured for a single worker or for an activity performed by more than one worker. Labor productivity ignores the actual cost of labor and takes into account the number of hours required to produce an output. Labor productivity is expressed as follows (Equation 1):

$$\text{Labor Productivity} = \frac{Production\ Quantity}{Amount\ of\ Workforce} = \frac{unit\ price}{man-hour} \quad (1)$$

Work analysis techniques are used in the analysis of labor productivity. The first element of work analysis is work measurement. Work measurement is defined as "the application of techniques prepared to determine the time required for a qualified worker to do a defined job at a determined working speed". The aim of work measurement is to determine the process of the job to be done, to inform the management levels, to ensure effective work, to increase efficiency, to make necessary activities more economical by getting rid of unnecessary activities by determining ineffective time and to improve working conditions.

Many benefits are provided from work measurement. The labor cost of the product produced is determined with work measurement. The workloads of workers working in teams can be balanced. The number of jobs a worker can handle can be determined with work measurement. The necessary data to prevent time loss caused by the worker is provided with work measurement. Thanks to work measurement, it is possible to determine the performance of employees. When the standard production of a person is determined, his/her performance during the time he/she works can also be monitored.

In manufacturing in the construction sector; The applicability of work measurement techniques is more difficult than in fabricated production due to reasons such as the fact that some productions are specific to the project, the physical conditions in which the productions take place vary, the production technique used to carry out the production, the material, the team, the machinery-equipment status and the working time and conditions of each project vary according to the project. However, despite these difficulties, the man-hour values found with these techniques are important in terms of cost and planning elements in the sector. The most appropriate work measurement techniques in the construction sector are direct measurement (time study) and activity sampling.

II.THE PROBLEM STATEMENT

The construction sector is one of the sectors that the public and private sectors focus on together. It is one of the sectors that has an important place due to its direct stimulation of the country's economy and its intense relationship with other sectors. The sector not only provides the infrastructure of the goods and services to be used in production, but also uses these goods and services in production [6]. However, since the construction sector is a labor-intensive sector, both its employment generation power and its share in the GDP reinforce its important role in the economy. Since the construction sector has a stimulating role in socio-economic terms, countries that have experienced economic depression prioritize investments in the construction sector, thus aiming to pull the economy out of stagnation and achieve a growth trend [7]. The sector is called the "locomotive of the economy" within the sector due to the many sub-sectors that are dependent on it and the demand for the goods and services produced by these sectors. Therefore, every application that takes place within the sector directly affects many sub-sectors that are dependent on it [5].

In Azerbaijan, the shortage of workers in the construction sector is not only creating certain problems in the construction sector, but also in its relationship with other sectors. The main reasons for the shortage of workers are:

- High risks and workers staying away from this sector
- Insufficient financial resources
- Insufficient experience of workers
- Insufficient orientation of workers to this sector due to safety issues
- Lack of awareness about modern technological equipment
- We can note the lack of high level of professional and specialized training.

The shortage of workers in the construction sector leads to loss of financial resources, delay in work periods, and indirectly harms other sectors [2,4].

III.MAIN PART

The construction sector is one of the most important sectors of the economy of any country. Capital construction creates a large number of jobs and consumes the products of many industries. The place of any industry in the national economic complex and its role in social production is determined by the impact of the final results of its activities on the economic and social development of the country and its connections with other sectors. If we approach this from this point of view, we will see that the development of construction contributes to the development of other sectors, including the production of building materials, the machine-building industry, metallurgy and metalworking, petrochemicals, glass production, woodworking, etc. The development of the construction sector leads to economic growth in the country and the creation of the necessary conditions for solving many social problems [1]. The development of the construction sector can be a very important element not only for the diversification of the Azerbaijani economy, but also for ensuring the balanced development of the regions of our republic. The leading role in the expansion of any production (through the construction and commissioning of new production facilities, reconstruction, modernization and technical re-equipment of existing production facilities) is played by construction enterprises. Providing the population with housing, improving its quality and comfort, and solving a number of problems related to the reconstruction and repair of the operated housing stock and cultural and social facilities is possible only with the participation of construction enterprises [3]. The development of the construction sector largely depends on investment attractiveness. The development of a development strategy for construction enterprises in Azerbaijan makes it necessary to study the features of forming a promising investment policy. This policy allows for the development of technologies for the strategic management of construction enterprises, creating conditions for stimulating investment and construction processes in the industry. In modern conditions, the development of the construction sector is determined by the volume of investments directed from both the state and the private sector. Each construction company seeks to have a competitive advantage in the market that allows it to attract investment sources more profitably. Attracting investments leads to the creation of new jobs in this area, an increase in added value and total profit in this area.

The volume of capital investments allocated to the Azerbaijani economy over the past 20 years has exceeded 100 billion manats. As a result, significant changes have been achieved in the structure of the country's economy, large-scale socio-cultural facilities have been put into operation, and large-scale infrastructure projects have been implemented.

Industrial districts and technoparks have been created in the Nakhchivan Autonomous Republic, as well as in Sumgayit, Ganja, Mingachevir, Neftchala, Masalli and other cities and districts, intensive work has been carried out to put large chemical, mechanical engineering, and light industry facilities into operation, and special attention has been paid to the application of innovative technologies.

In recent years, in order to further increase the transit potential, including the activity of the Europe-Caucasus-Asia transport corridor, the construction projects of the Baku-Tbilisi-Kars railway, the Alat International Sea Trade Port, the North-South, East-West transport corridors, have been successfully continued, all of which are of great importance for increasing the political position and economic power of Azerbaijan in the international arena [8].

Legislative changes have been implemented that have a positive impact on the acceleration of construction work in the republic. The “Rules for granting construction permits for some construction facilities and permits for the operation of construction facilities”, approved by the decree of the President of the country Ilham Aliyev dated December 28, 2018, have been amended. Thus, if such documents cannot be obtained through the Electronic Government Information System, their issuance is required from the relevant state body (institution) upon request with the consent of the applicant or is provided by the applicant.

In general, in recent years, reform measures have been of great importance in the direction of the transition to a digital economy by conducting all procedures in the field of obtaining permits for the construction and operation of construction facilities, connecting to electricity supply

networks, registering property, and conducting all procedures in the field of public procurement electronically.

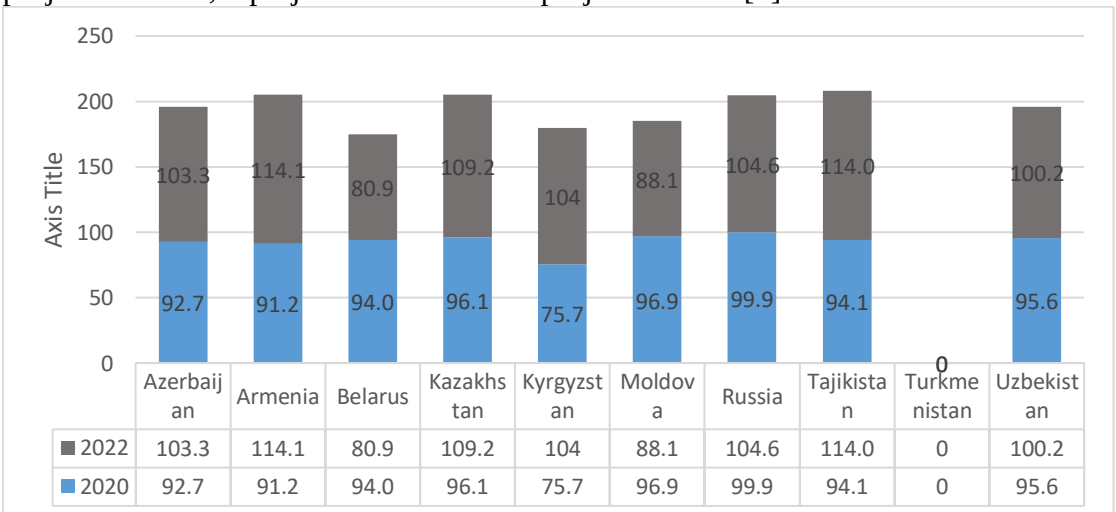
In connection with obtaining permits for construction, connecting to electricity supply networks, and registering property, all application and registration procedures have been implemented online in a single system in a proactive mode based on the "One Window" principle. As a result of the launch of electronic application systems, the contact between the entrepreneur and the official has been minimized, and an opportunity has been created to obtain permit documents in a more operational and transparent manner.

Based on the relevant data of the State Statistics Committee, we can note that as a result of the implementation of the implemented projects, 9 billion manats of the more than 10 billion manats allocated to fixed capital last year were spent directly on construction and installation works. In the total value of funds allocated to fixed capital, funds of enterprises and organizations accounted for 48.4 percent, budget funds for 37.3 percent, personal funds of the population for 7.8 percent, bank loans for 2.7 percent, and other funds for 3.8 percent.

In January-May of this year, out of 5 billion 858 million manats allocated to fixed capital, 327.9 million manats (5.6 percent) were spent on the construction of residential buildings. 4 billion 314 million manats or 73.6 percent of these funds were domestic funds, and 4 billion 124.3 million manats or 70.4 percent of them were spent directly on construction and installation works.

Speaking about the successful implementation of construction projects in the republic, we can say that the reconstruction and construction measures carried out in the Karabakh and East Zangezur economic regions have become consistently large-scale. In this regard, we would like to recall the work done in the last two years on the construction of road infrastructure in the liberated territories. First of all, let us note that according to the Action Plan for the implementation of the "I State Program on the Great Return to the Liberated Territories of the Republic of Azerbaijan", it is planned to implement 20 highway projects with a total length of 2264.5 kilometers and excavation and earthworks related to the construction of the International Airport in the Lachin region by 2026. Of these projects, the 28.5-kilometer Tartar-Chayli-Sugovushan-Talysh highway was built in 2020, and the 101.5-kilometer "Victory Road" was built in 2021. In 2022, the construction of a new alternative highway (22 kilometers long, with 2-3 lanes) was completed without entering the city of Lachin.

In total, 803.5 kilometers of highways, avenues and streets were built, reconstructed and repaired in Azerbaijan last year. This includes 234.3 kilometers of republican importance, 398 kilometers of local importance, and 171.2 kilometers of Baku city roads. In accordance with the Action Plan, the implementation of 12 of the projects is scheduled for completion in 2023, 2 projects in 2024, 3 projects in 2025 and 1 project in 2026 [8].



	Azerbaijan	Armenia	Belarus	Kazakhstan	Kyrgyzstan	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan
2022	103.3	114.1	80.9	109.2	104	88.1	104.6	114.0	0	100.2
2020	92.7	91.2	94.0	96.1	75.7	96.9	99.9	94.1	0	95.6

Graph 1. Indexes of fixed capital investments in the construction sector, comparison with CIS countries

Source: *https://www.stat.gov.az/source/construction/*

As can be seen from the graph, the volume of investment directed to the construction sector in Azerbaijan was 92.7% in 2020, but this figure increased to 103.3% in 2022. However, the country with the highest position among the CIS countries is Tajikistan with 114%, followed by Kazakhstan with 109.2%.

CONCLUSİON

Since the construction sector is a labor-based sector, the analysis of labor productivity is very important. Since many work items in the construction sector are labor-intensive, accurate and quick determination of productivity can help to make better estimates of both work time and labor costs, and can also be used as an indicator of increasing productivity in the sector. The increase in labor productivity in the construction sector can enable significant reductions in project costs, as it will reduce working hours and reduce personnel costs. Thanks to the deep learning algorithms that have been used in recent years, it has been observed that new approaches to labor productivity are increasing. The increase of these studies will ensure that the productivity of the labor force determined under the supervision of an employee will be automatically determined day by day and can be determined independently of the human eye and achieve instant efficiencies.

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Azərbaycanda inşaat sektorunda iş qüvvəsinin qıtlığının nəticələri

Xülasə

İnşaat sektoru bir ölkənin iqtisadi inkişafına dəstək verən ən mühüm sektorlardan biridir. Tikinti sektoru bir ölkə üçün inkişafın mühərrikidir və digər sektorlarla birlikdə xidmət və mal axını yaradır. Tikinti sektorunun dünya miqyasında iqtisadiyyata töhfəsi təxminən 8-10% təşkil

edir. Tikinti sektoru ümumiyyətlə ölkədə iqtisadi artımı təşviq edir, kütlələri məşğulluqla təmin edir və iqtisadiyyatla digər sənayelər arasında əlaqə rolunu oynayır.

Tikinti sektorunda səmərəlilik strukturu ən optimal şəkildə tamamlamaq üçün material, maşın-avadanlıq və əmək səmərəliliyinin təşkili kimi müəyyən edilə bilər. Tikinti səmərəliliyinin artırılması həm xərclərə qənaət edir, həm də şirkətlərin gəlirlərini artırır. Əldə edilən gəlirin artması iqtisadiyyata əlavə axını təmin edir və tikinti sənayesinin biznes proseslərinin tərkib hissəsi kimi bütün digər sənaye sahələri ilə əlaqə yaradır.

Açar sözlər: *tikinti sektoru, işçi qüvvəsi, insan resursları, Azərbaycanda tikinti.*