



CENTRAL ASIAN JOURNAL OF THEORETICAL AND APPLIED SCIENCES

Volume: 03 Issue: 10 | Oct 2022 ISSN: 2660-5317
<https://cajotas.centralasianstudies.org>

Reducing the Costs of the Enterprise by Optimizing the Fleet of Special Construction Equipment of Enterprises Specializing in the Execution of Land Works

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Received 9th Aug 2022, Accepted 8th Sep 2022, Online 8th Oct 2022

Annotation: *Ensuring the stability of the enterprise's activities through the selection of optimal options for construction machines used at construction facilities of construction organizations, the Prevention of idle parking of equipment, the correct formation of a technical Park based on the type of activity of construction enterprises.*

Keywords: *Land works, construction equipment Park, optimization methods, construction cost, organizational and technological solutions, optimization, modeling.*

With the development and deepening of the principles of a market economy, qualitative and quantitative changes in the structure of the main production funds of construction should be carried out in the direction of their active part - the dominant growth of machinery and equipment. For these purposes, the transition to a qualitatively new stage of industrialization of the industry and a number of technical, organizational, managerial, financial and economic changes aimed at market reform in all aspects of its activities are being carried out.

Today it is difficult to imagine a modern construction industry without modern construction techniques. The role of construction techniques in the implementation of any projects is immeasurable, and when organizing the process of construction and installation work, an important tool is considered in the installation work of construction structures of large sizes, from earthworks.

One of the urgent issues of today is to ensure the stability of the enterprise's activities through the selection of optimal options for construction machines used at construction facilities of construction organizations, the Prevention of idle parking of equipment, the correct formation of a fleet of equipment based on the type of activity of construction enterprises.

Earthworks are one of the labor-intensive processes common in construction. Cost of land works 10 of the total cost of work...It is 15%.

The main types of land affairs:

- digging transheas and kotlovans;
- re-pouring them after the construction of foundations and laying of communications;

- soften hard, rock and frozen grunts;
- leveling construction sites;
- preparation of the floor of the square, etc.k.

Earth digging can be carried out in different ways: mechanical, hydromechanical (grunt separation, amplification and placement are carried out using water); blasting; physical (with ultrasound or high-frequency currents), as well as thermal and chemical ways. Also, combined methods of grunt digging are used. In urban construction, 95% of land work is done by mechanical method.

Earthworks, together with digging, include its transportation, placement with leveling and compaction. Before performing these operations, the preparatory work associated with the preparation of the field is carried out, creating conditions for the removal of water and lowering the level of the grunt water. When performing land work by mechanical means, ground digger-carrier machines (bulldozer, autogreyder, scrapers), excavators, machines for drilling work are used. In order to correctly choose the type of machine, it is necessary to know the essence and mechanics of the processes when digging a grunt with a working body.

Today, Market relations have significantly influenced the development of mechanization of construction and installation work.

One of the most important tasks of a construction organization requires the control and operational management of the fleet of construction machines belonging to the enterprise, including the implementation of tables for the distribution of construction machines at the construction site, monitoring compliance with the conditions of their maintenance, control and regulation of relocation from one object to another. It consists in providing construction machines and their means of transport and labor, material and technical and labor resources.

Improper use and distribution of the main specialized machines and mechanisms leads to the presence of a large number of machines on the construction site, their low load and, as a result, a high cost of finished products.

For construction organizations, the issue of determining the number of necessary construction equipment for each object is relevant. If too many techniques are stored on the construction site, this leads to excessive costs. The selection of the necessary fleet to each object ensures the timely execution of the specified work of the machines.

The object of the study is the analysis of organizational and technological solutions in the improvement of the structure of construction equipment based on the analysis of modeling and construction practice, the identification of the problem, the use of theoretical approaches and information technologies to offer practical recommendations, taking into account the local conditions of the structure of construction equipment.

The subject of the study is the parameters of calendar plans and graphs that aim to reduce the duration of construction and reduce the cost of construction with the optimization of the structure of the technique when performing construction work.

To optimize the structure of construction equipment in the implementation of the land works considered as the object of the study, research was carried out on the construction and installation of the new railway line "Shovot-Karaozak", which is being carried out by Mahsus mexanizasiyalahgan yo'l stansiyasi "Uzbekistan Railways" JSC "Uztemiryolkurilmontaj", as well as the construction of the Joint Railway and highway bridge. This project is being built on the basis of the decision of the Cabinet of Ministers of the Republic of Uzbekistan dated April 3, 2021 No. 175 "on measures to implement the investment project"

construction of a new railway line Shovot-Karaozak and a joint bridge of the Railway and highway passing over Amu Darya". This project is being implemented by the International Fund for reconstruction and development for a period of 10 years, with a grace period of 4 years at an annual rate of 3% with funds of 45 million US dollars and JSC "Uzbekistan Railways", within the framework of the project:

7 new station and Raz'ezd construction;

- 4.31 million.M3 earthworks;
- Work on laying the main railway track with a length of 91.1 km;
- 22 per'ezd construction;
- Construction of 4775.4 meters long 204 artificial aqueducts;
- It is planned to build a modern bridge, which will be built on an Amu Darya with a length of 412.7 m.

When carrying out these works, it is necessary to establish the formation and distribution of a park of construction equipment suitable for the work given in the mud.

The distribution model of a fleet of construction machines can be represented by the following algorithm:

- selection of types of techniques that are distributed to objects over a certain period of time. And then for each of these selected types of techniques it is necessary to carry out that is, each type of technique must be clearly defined;
- determination of the work requirement in machine hours for each day of the period from the work schedule;
- determination of the amount of depreciation (depreciation)for this type of technique per unit of time;
- determination of the value of the working volume created per unit of time in each object by this type of technique;
- finding the optimal number of these techniques for each object; determining the need to solve the distribution problem;
- if the total number of techniques of this type is less than the optimal required amount, it will be necessary to solve the problem of distributing techniques across objects;
- finding the total loss value for each distribution option;
- selection of the option of production facilities with the lowest value of total losses in the process of using techniques.

On the basis of this developed algorithm, having studied the demand for construction equipment in the objects of construction work of construction organizations, it makes it possible to choose the optimal state of the construction machinery-mechanisms suitable for the performance of work, which is presented in the graph of the performance of work.

As a result of the optimization of the structure of construction equipment in the implementation of land works, it is aimed to ensure the high-quality implementation of objects in the specified deadlines, to minimize the cost of construction by finding optimal options for construction equipment attached to objects of construction enterprises that are part of JSC "Uzbekistan Railways".

As a result of the choice of the most optimal option of construction equipment, a reduction in construction life was achieved and a reduction in the cost of fuel and oil products to be consumed, and the cost of wages.

On the basis of these achievements, the development of the material technical base of the enterprise, the correct Organization of construction work, the reduction of the cost of construction and the Prevention of unreasonable parking of equipment were achieved.

Literature:

1. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 3, 2021 No. 175.
2. QMQ 4.02.01-04 - "land works"., Tashkent, 2004.
3. X.I. Yusupav. Tutorial "construction machines". Tashkent, taqi, 2019.
4. K.A. Antanavichyus. "Modelirovanie I optimization v upravlenii stroitelstvom". Strayizdat, 1979.
5. A.S. Menzurenka. "Sistema mashin-Osnova technicheskogo pereosnatsheniya parka stroitelnoy technical. // Mechanization stroitelstva " - 2003.