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# Ensuring the Efficiency of Complex Resource Conservation in Construction

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**ABSTRACT:** In the context of the need to intensify investment and accelerated urbanization, as well as the growth of urban construction, the relevance of integrated resource saving in construction is growing. Comprehensive resource saving in construction organizations, covering all categories of workers, should be achieved by improving the planning and organization of production, the application of innovations.

**KEYWORDS:** increased investment, accelerated urbanization, growth in urban construction, integrated resource saving in construction, improved planning and organization of production, the use of innovations.

## I. INTRODUCTION

In the Message of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to Oliy Majlis of December 28, 2018<sup>1</sup>, it was proposed to name 2019 as the “Year of Active Investments and Social Development”, which reflects the role of investment activities in the context of the modernization of the national economy. Of course, the effectiveness of investment depends largely on the construction, which is the most important fund-making industry. The quality of the investment process as a whole depends on the quality of projects, their space-planning decisions, the cost and quality of construction, the timing of the construction of buildings and structures.

In modern conditions, resource conservation is a complex problem, an effective solution of which is objectively necessary to ensure the competitiveness of domestic construction and increase return on investment. Construction and installation organizations have significant reserves of resources, where the following areas can be highlighted:

1. Improving construction planning;
2. Improving the technical level of construction production;
3. Improvement of technology and organization of production;
4. Improving construction management;
5. Improving the organization of production and labor.

*In each of the areas should take into account the factors on which it depends.*

**The first direction depends on the following factors:**

- improvement of construction planning in time (annual, quarterly, monthly plan, weekly-daily plan);
- increase the rhythm of construction production;
- improving the logistics system to provide material and technical resources;
- improvement of internal economic calculations.

**The second direction depends on the following factors:**

- improving the quality of building products and structures;
- reduction of material consumption of construction;
- reducing the cost of manual labor.

**The third direction depends on the following factors:**

- the introduction of advanced technologies;
- the introduction of integrated mechanization and automation of production;
- the introduction of a system of production and technical equipment;

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<sup>1</sup>UzA - Main.html President's. adress.html



- increasing the level of specialization, cooperation and concentration of construction;
- the introduction of a system of integrated engineering preparation of construction production;
- improvement of transport schemes for the delivery of material and technical resources (logistic methods);
- rational use of mechanization.

**The fourth direction depends on such factors:**

- informatization of the control system with the subsequent transition to digital methods.
- creation of design and construction associations (firms);

**Finally, the fifth direction is determined by the following factors:**

- introduction of grassroots effective forms and methods of management;
- improvement of the wage system;
- reduction of staff turnover;
- introduction of the scientific organization of labor;
- improvement of personnel structure and improvement of their qualifications.

The urgency of resource conservation is dictated by the fact that on January 10, 2019, the President of the Republic of Uzbekistan approved Decree No. PD-5623 "On measures to fundamentally improve the processes of urbanization"<sup>2</sup>, which envisages a number of measures to effectively solve the problem of urbanization and, in particular, proposed this Decree "To organize the Agency for Urbanization under the Ministry of Economy and Industry of the Republic of Uzbekistan (here in after - the Agency)." The main tasks of the Agency for Urbanization include the following tasks:

- implementation of a unified state policy in the regulation of urbanization;
- long-term planning of the pace, stages and results of industrialization policies;
- managing the formation of urban agglomerations, taking into account the creation of satellite cities, including social, engineering, communal and road and transport infrastructure based on the introduction of advanced, energy-saving, environmentally friendly technologies and materials;
- regulation of the integrated development of the urban system of settlement, the formation of an effective ratio of small, medium, large and large cities, taking into account world practice.

In particular, this Decree outlined in the country "the development of a State program to bring the level of urbanization in the country to 60 percent by 2030," which currently stands at 35.5%. This means that the builders are faced with a large-scale task of ensuring the growth of the volume of urban construction, which is distinguished by the complexity of the facilities, the saturation of their engineering communications, the constrained construction in the modern city.

*Ensuring the construction of facilities in the normative timeframe, a further reduction in the duration of construction and a reduction in the cost of construction are inextricably linked with the improvement of the planning of construction production.*

One of the reserves to reduce the cost of construction and installation work is the choice of effective options for the construction of both individual objects and the enterprise as a whole. The intensity of the construction of objects depends on many factors: features of the space-planning solution, geological conditions, complexity of production organization, the volume of installation and special works, etc. In order to establish possible reserves to reduce costs and put them into practice develop plans for organizational and technical measures.

Specific activities for each of these areas are developed on the basis of the specific working conditions of the organization and the real possibilities for improving its activities.

To determine the size of available reserves to reduce the cost of construction and installation work, the correct calculation of the effectiveness of organizational and technical measures is of great importance. These activities are currently calculated on the basis of averaged standards and therefore, in most cases, the result is underestimated.

The correct choice and application of the most effective forms and systems of remuneration has a significant impact on the reduction of the cost of construction and installation works. Therefore, when economic justification of the effectiveness of the use of a particular system of remuneration is very important to determine under what conditions its use ensures the greatest reduction in the cost of construction and installation work. With the introduction of incentive pay systems and employee bonus systems for over-fulfillment of work plans, the share of wages in the cost of construction and installation work increases. In construction organizations, employee reward systems for reducing certain types of production costs should be increasingly applied.

Material incentives must organically include the financial responsibility of employees and groups for the results of their work. Along with bonuses, in construction organizations the responsibility of employees for the rational use of working

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<sup>2</sup>Newspaper "Popular word" from 12 January 2019.



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time, material and financial resources of the organization should increase. The deterioration of labor and financial indicators, which lead to a decrease in labor productivity, a decrease in the volume of construction and installation work, or other omissions must be accompanied by a decrease in pay.

Based on the scale of the upcoming work, in the building complex the main directions of innovation can be the industrialization of construction, the use of quickly mounted structural elements of buildings and structures. In any case, many large Russian design and construction groups engaged in residential development can serve as an example [ 5 ].

The deepening and further development of market relations impose higher demands on the efficiency of construction. One of the most important trends in the growth of production efficiency is cost reduction and resource saving. The modern experience of developed industrial countries clearly confirms this. Increased competition and limited raw material resources, on the other, dictate the need and relevance of research in this area, on the one hand.

Confirmation of the relevance and high practical significance of the direction of research under consideration is the fact that in many EU countries in the last decade of the last century, the international movement “2 in 4” has found recognition, the content of which is to achieve a 2-fold reduction in material resources costs production while simultaneously increasing profits twice [ 1 ].

The high effectiveness of this movement in a number of countries, for example, Scandinavia, is based on the orientation of the use of new and, in particular, high technologies.

Considering the development experience of the countries of South-East Asia, it can be noted that the main task widely used in firms and corporations of the “Quality Circles” is the constant reduction of production costs. Moreover, there are examples of stable annual reduction of these costs at the level of 10-15%.

The data of production and economic activities of enterprises of the construction complex show that in recent years in the construction industry practicing builders have paid insufficient attention to reducing production costs and resource saving in general [ 4 ].

It should be noted that the “cost-based mechanism” that has developed over the years of the existence of the command-administrative system, when 3-4 times more material resources were spent on a unit of production in monetary terms, compared with indicators achieved in developed industrial countries, was one of factors of low efficiency of this system. There is no doubt that overcoming this stereotype is an important socio-economic problem, the solution of which is possible and necessary by using the advantages of market-based business methods and taking into account the specific nature of each of the sectors of the economy.

In the innovative process of the industry, direct, without adaptation to the modern conditions of Uzbekistan, the use of foreign experience in resource saving in construction, in our opinion, in many cases can lead to ineffective results due to differences in the degree of market entry and the influence of other factors such as the cost structure of construction products or the need to import expensive raw materials to use a very effective foreign resource-saving technology.

This does not mean a complete rejection of the use of advanced foreign experience. Moreover, in our opinion, the prestigious transfer of technological and technical innovations is one of the obligatory subsequent steps in solving the problem of resource saving.

Once again, it should be noted that the problem of cost reduction and resource saving cannot be solved overnight and its solution is a continuous, ongoing process. Ensuring the effectiveness of this process is the main objective of this study.

In the market conditions, the relevance of resource saving increases and at the same time the possibility of using the advantages of market-based business methods to increase the level of resource saving is revealed.

Analyzing the state of the problem under consideration, one should definitely note the presence in the domestic construction industry of a sufficiently high scientific, technical and personnel potential, which, in our opinion, is not fully demanded and disclosed. Clearly this fact can be confirmed by comparing and comparing the activities of domestic builders with the work of foreign firms engaged in construction in Uzbekistan.

A priori, it can be stated that resource conservation is one of the most important factors in the growth of competitiveness of domestic construction products.

The versatility, high importance and timeliness of solving the problem under consideration suggests that achieving a high level of resource conservation is a multi-step process, for the effective implementation of which it is necessary to identify the priority and order of tasks to be solved, taking into account the limited financial and production capabilities of construction organizations and other construction participants [ 3 ].

Special mention should be made of the significant role of activating the innovation process in construction, the development of which makes it possible to effectively address resource conservation issues at a qualitatively new level and thereby increase the competitiveness of domestic construction products.



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Note that the catalyst of this process, based on world practice, are various kinds of venture capital organizations, whose functions are to bring the latest scientific and technical developments in the economic sector, as well as to sharpen the competitive environment.

Based on the analysis performed earlier in this study, the main areas of resource saving in construction are:

## **A. At the design stage**

Improving the system of tender bidding for the implementation of design work with the simultaneous use of the system of incentives for resource saving.

## **B. At the stage of production of building materials, products and structures**

The use in enterprises of the methods of improving the intra-production economic mechanism that targets grass-roots groups and certain categories of workers to reduce production costs, while it is possible and desirable to create a “The circle of quality”.

## **C. Under construction**

Similar to the previous stage, it is necessary to use real economic methods of management, taking into account when estimating the labor of workers, specialists and employees, indicators of savings of material and other resources. An important and decisive role in solving the problem in question is played by the presence in the construction organization of internal production standards.

Thus, it should be stated that the provision of resource saving in construction is a complex problem, since cost reduction can be achieved at various stages, both in design and in construction of facilities. Irrational reduction of construction costs can lead to an increase in operating costs, overlapping achieved one-time savings. The achievement of a high level of resource saving is influenced by the features of construction products (type of construction) and regional local specificity.

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