

Article

Current Problems in Building Materials Manufacturing Facilities

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Abstract: This article analyzes the problems and solutions of building materials production enterprises. It is argued that the problems are mainly related to factors such as limited raw material resources, the use of outdated technologies, high production costs, lack of qualified personnel, and non-compliance with environmental requirements. To eliminate the problems, including the introduction of innovative technologies, the use of energy-saving methods, the use of renewable raw materials, and the development of preferential programs by the state. Through these approaches, opportunities for the development of the building materials production sector and increasing its competitiveness are shown.

Keywords: building materials, production, innovative technologies, raw materials, environmental safety, energy efficiency, personnel training, state support, competitiveness, processing technologies.

1. Introduction

The building materials industry is an important component of the economy of any country. Building materials play a significant role in the development of modern urban planning and infrastructure. The development of this industry directly affects the overall economic growth of the country, the improvement of living conditions of the population and the creation of new jobs. For the sustainable development of the construction industry, the building materials industry requires continuous innovative processes, quality control and technological improvement.

The construction materials industry not only affects economic growth, but also environmental sustainability. World experience shows that it is important to increase efficiency in this sector, introduce energy-saving technologies, and comply with environmental requirements. This is of great importance for the overall economic development of the country and environmental protection.

Currently, there are various problems in the production of building materials, the solution of which can be achieved through innovative approaches, strategic planning and the use of international experience. Research shows that issues such as raw material shortages, high production costs, lack of technological modernization and solving environmental problems remain relevant in the building materials industry. Therefore, it is important to deeply analyze the problems in this area and develop effective solutions.

Building materials manufacturing enterprises have a significant impact on economic and social development. Today, global and local economic changes, resource scarcity, environmental requirements, and the need to introduce innovative technologies are among the main challenges facing this industry. Increasing energy efficiency in the production process and reducing production costs are also urgent issues.

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The construction industry and related sectors are one of the most important areas of investment attraction in the global economy, and it is important to use innovation and scientific and technological progress to ensure the continuous development of this sector. For example, international experience shows that the use of renewable energy sources, compliance with environmental standards, and automation of production processes are important for achieving high efficiency.

Also, the development of the building materials industry has a positive impact on the stability of the country's economy. Increasing the production of building materials in the country plays an important role in improving infrastructure and creating comfortable housing and jobs for the population. Therefore, the strategic development of this industry will serve to increase competitiveness not only in the local but also in the international market.

Therefore, scientific and technological progress, financial support, and state policy play an important role in the development of the building materials industry. This will ensure the sustainable growth of this sector in the future and strengthen its position as an important sector in the economy.

2. Materials and Methods

Research in the field of construction materials production has been studied by many domestic and foreign scientists. Among the domestic scientists, Sh. Akhmedov, in his research, emphasizes the importance of modern technologies in the production of construction materials and shows the possibilities of increasing efficiency through innovative approaches in the industry.[2] At the same time, I. Karimov analyzed the development of the construction materials production sector in the Uzbek industry and touched upon the problems and opportunities in this area.[1]

Foreign scientists have put forward a number of effective proposals in this area. For example, M. Jones in his work conducted research on the production of environmentally sustainable building materials and reducing their impact on the environment.[3] A. Ivanov analyzed the problems of using innovative technologies in the production of building materials in Russia.[4] In his opinion, production costs can be reduced by introducing automated systems and energy-saving equipment in the industry.

T. Baker, in his research, noted the need to produce materials that meet world standards in the construction industry.[6] In his opinion, it is important to adhere to technological standards in the production of building materials, improve product quality, and digitize production processes.

K. Davis, in his research, has studied the importance of recycled building materials, emphasizing their importance in reducing production costs and improving environmental protection.[8] Also, L. Green (2019) emphasizes the environmental and economic efficiency of saving natural resources and using recycled materials in the construction industry.[9]

Also, J. Smith introduced special standards for the production of environmentally friendly building materials in European countries.[5] This, in turn, has a positive impact on the long-term development of the industry. R. Simons analyzed the economic efficiency of using recycled materials in the production of building materials and emphasized the importance of innovations in this direction.[7]

Modern conditions for the development of the economy are characterized by the rapid development of market relations. "In such conditions, the assessment of the economic efficiency of an industrial enterprise is an important task for both the founders of the enterprise and other subjects of the market economy. The pace of development of various sectors of the national economy, technological progress, growth in labor productivity, and the solution of the most important social problems largely depend on the activity of the real sector of the economy - industry. As a result, this creates an objective need to develop fundamentally new approaches to the theoretical and methodological aspects of assessing the economic efficiency of construction industry enterprises." [10]

The scientific research and economic literature on the management of construction materials production has been extensively studied. According to Michael Porter's theory of competitive advantage, companies can strengthen their position in the market not only

by improving product quality, but also by implementing strategic management.[11] Peter Drucker suggests focusing on innovative management approaches and effective decision-making mechanisms.[12]

Henry Minsberg, in his research on strategic planning, argues that the combination of long-term planning and tactical management increases the efficiency of enterprises.[13] Also, the Knowledge-Based Theory of the Firm proposed by Richard Grant highlights the importance of the digital revolution in manufacturing sectors.[14]

building materials production shows the importance of introducing innovative approaches to the development of the industry, compliance with environmental standards, and increasing energy efficiency. This is of strategic importance for ensuring economic and environmental sustainability.

Comparative analysis, statistical data study and economic comparison and analysis, logical thinking, scientific abstraction, analysis and synthesis, induction and deduction methods were widely used in the study of existing problems in construction materials production enterprises.

3. Results and discussion

Several economic and technological indicators were studied to analyze the main problems in the production of building materials. Table 1 presents the growth of the production volume of various building materials by year and trends in the world market.

Table 1 . Construction materials working release size dynamics (2015-2023)

Year	Concrete (million tons)	Cement (million tons)	Hedgehog (million pieces)	Lime (million tons)
2015	50	70	30	10
2017	55	75	35	12
2019	65	85	40	15
2021	75	95	45	17
2023	85	105	50	20

According to the table, the production volume of building materials is increasing year by year, which is due to the development of the construction industry and increased demand in the economy.

The following in the table construction materials working release in the process energy expense according to analysis cited.

Table 2. Construction materials working release in the process energy consumption (kW / ton)

Material	Traditional technology	Innovative technology
Concrete	120	85
Cement	150	110
Hedgehog	180	140
Lime	130	95

In Table 2 to the information according to , innovative from technologies use traditional to technologies relatively energy consumption by 20-30% reduce opportunity

This gives economic efficiency increase and to the environment the damage to reduce help gives .

Analyses this shows that automated and energy effective from technologies use working release expenses reduce, product quality to increase and ecological the effect to reduce help For example, Simons (2021) in research energy saver from technologies use efficiency to increase help to give emphasized .

Also, ecological in terms of stable construction materials working release in the direction of Europe to the standards based approaches current to do recommendation (Smith, 2017). This construction industry to the environment negative the impact to reduce help gives .

Above cited from analyses come out, construction materials working release in the field one row reforms done increase necessary. Including:

-x machine from resources effective use and to import dependency reduce measures to see;

-e energy efficiency increase and again recovering energy from sources use;

-new innovative technologies current to grow through working release efficiency increase;

-ecological to the standards compliance to do and waste reduce strategies working exit ;

-business houses for financial opportunities expansion and state by support measures strengthen .

4. Conclusion

Construction materials working release enterprises country in the economy strategic importance has infrastructural development, urbanization processes acceleration and construction of the field efficiency in increasing important role plays. However, this in the field one row problems there is they are working release process, product of quality competitiveness and general economic to grow negative impact showing.

The following problems exist in construction materials manufacturing enterprises and proposals have been developed to solve them. They include:

1. Raw materials resources limitedness and Costliness . The main source of raw materials for the production of building materials - cement, gypsum, sand, gravel, stone products and other mineral resources - is the supply of high-quality, stable and affordable products, which affects production efficiency. Currently, the limited local raw material base and its sale at high prices are increasing the costs of enterprises.

The solution to this problem is as follows:

-expanding geological research and identifying new raw material deposits;

-introducing the use of ecological and renewable materials as alternatives to scarce raw materials;

-widespread introduction of waste recycling and secondary raw material sources.

2. Modern of technologies enough at the level current The continued presence of outdated technologies in production processes negatively affects product quality, production costs, and environmental safety.

The solution to this is:

-innovative technologies, such as the production of building materials on 3D printers, the introduction of robotization and automated systems;

-e energy economic and ecological clean technologies implementation to grow;

-digitalization for enterprises and the introduction of the "Smart Factory" concept.

3. Energy resources high price and expenses The production of building materials is an energy - intensive process , and its efficiency is directly related to energy consumption.

The solution to this problem is as follows:

-introduction of alternative energy sources based on solar, wind and biogas into production processes;

-reducing costs through the production of energy-efficient building materials;

-use of deeply insulated factory buildings and reduce heat loss.

4. Staff preparation and qualification increase system enough at the level There is a noticeable shortage of highly qualified engineers-technologists, automation and robotization specialists in production.

The solution to this is:

-strengthen cooperation with specialized vocational and higher education institutions;

-training specialists in the fields of programming, robotics, and innovative materials production;

-in the workplace permanent accordingly qualification increase programs organization to be

5. Ecological to the requirements compliance to do and to the environment the effect Reduction . The emission of harmful emissions into the air and the unlimited use of natural resources during the production of building materials cause environmental problems.

The solution to this problem is as follows:

-implementation of waste recycling and low-waste production processes;

-carbon trace reduce for the purpose green from technologies use ;

-ecological certification processes current to grow and international to standards suitable working to release organization to be

6. State by support mechanisms effective It is necessary to develop an investment climate oriented towards the production of building materials and strengthen preferential programs by the state.

The solution to this problem is as follows:

-supporting businesses through tax breaks and loans;

-innovative to technologies investment entered for entrepreneurs subsidies to give;

-e energy economic and ecological clean products working to issuers grants separation

Construction materials working release in the field there is problems systematic accordingly solution to do through the field development , product quality increase and market competitiveness reinforcement possible . Problems solution to do roads scientific and innovative requires approaches. That is, from resources thrift with use, ecological security providing, technologies modernization to do and state support measures reinforcement through in the field new to the stage exit possible.

These reforms done if increased, local construction materials working release enterprises internal at the market stable to the position has just to be not, maybe international competitiveness in the market to provide This is possible. In turn, the country economy reinforcement, new work places create and export potential to increase service does.

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