



PRODUCT LIFE CYCLE MANAGEMENT AS A KEY FACTOR OF “GREEN” MANAGEMENT IN THE CONSTRUCTION INDUSTRY

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ABSTRACT

In the modern economy, the competitiveness of industrial enterprises is determined not only by production volume, but also by their environmental responsibility and resource efficiency. Although the concept of “green” management is interpreted differently in economic literature, it is fundamentally based on the synergy between economic benefit and environmental sustainability.

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Today, the transformation of industrial production requires not only technological modernization, but also a radical change in management paradigms. In this regard, the concept of “green” management is emerging as a system that integrates the strategic objectives of an enterprise with environmental safety and resource conservation.

An analysis of the scientific literature shows that “green” management is the art of minimizing negative environmental impact and maximizing economic benefit by embedding ecological thinking into all business processes of an enterprise — from the procurement of raw materials to the disposal of finished products.

Among foreign scholars, J. Elkington, in his “triple bottom line” concept, defines “green” management as a mechanism for ensuring a balance between corporate economic profit, environmental sustainability, and social responsibility. In his opinion, failure to take environmental factors into account leads to a decline in capital value in the long term [1].

In addition, economists such as S. Schaltegger and M. Wagner emphasize the concept of “eco-efficiency,” evaluating “green” management as a process of creating greater economic value while consuming fewer resources.

According to their views, environmental management is an important tool for optimizing enterprise costs [2].

Considering the economic essence of “green” management solely as “environmental protection costs” is methodologically incorrect. Its economic nature is revealed through the following fundamental factors:

while waste is regarded as a “loss” in traditional management, in “green” management it is interpreted as a secondary resource or a source of additional value. This increases the economic efficiency of the production cycle;

the growing demand for environmentally friendly construction materials gives enterprises the opportunity to set higher prices due to their ecological characteristics;

compliance with state environmental regulations significantly reduces fines and other administrative payments, thereby ensuring the financial stability of the enterprise.

The economic nature of “green” management is characterized by the following fundamental aspects:

1. Within the framework of “green” management, waste and production residues are transformed from a “harmful factor” into “secondary raw materials (assets).” This acquires particular economic value in the construction materials industry (for example, the use of thermal power plant ash in cement production).

2. According to M. Porter’s hypothesis, strict environmental standards encourage enterprises to innovate [3], which in turn increases production efficiency and fully compensates for environmental costs.

3. In modern financial markets, enterprises with high ESG (Environmental, Social, and Governance) indicators have the opportunity to attract cheaper and long-term credit resources.

The construction materials industry is one of the most resource-intensive sectors of the national economy, and the implementation of “green” management in this sector is a more complex and multifaceted process compared to other industries. In this field, the essence of the concept encompasses not only production itself, but also the entire chain — from raw material extraction to the end of a building’s operational life cycle.

For construction material enterprises, the economic essence of “green” management is closely linked with “resource profitability.” Since this sector is characterized by high consumption of natural raw materials and energy, the “green” approach serves not only as a means of environmental protection, but also as an economic mechanism for achieving market advantage through cost reduction.

1. In the context of the construction materials industry, this concept includes the following three components:

2. Rational use of natural resources and waste management;

3. Reduction of production costs through energy efficiency and expansion of market share in the “green” products segment;

4. Enhancement of brand sustainability and attractiveness to investors.

The following specific organizational and economic characteristics of “green” management in the industry can be distinguished:

1. The long life cycle of products. Unlike other consumer goods, construction materials (brick, cement, metal) are used for decades. Therefore, the task of “green” management is not only to ensure environmental efficiency during production, but also to guarantee energy savings when the product is used as part of a building.

2. Dependence on regional raw materials. Since construction materials are heavy and transportation costs are high, “local raw materials and logistics optimization” play an

important role in the “green” management system. This reduces the “carbon footprint” associated with transportation.

3.Potential for the use of secondary resources. A distinctive feature of the industry is its ability to utilize the waste of other sectors (for example, energy or metallurgy) as raw materials. This is characterized as “intersectoral ecological symbiosis.”

In conclusion, these characteristics require a reconsideration of the enterprise management mechanism. In particular, production planning should include not only financial profit, but also the indicator of “environmental profitability.” The essence of “green” management in construction material enterprises lies in reducing production costs by transforming environmental constraints into innovative opportunities.

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