

THE ROLE OF CLUSTERS IN ENSURING THE COMPETITIVENESS OF THE METALLURGICAL ENTERPRISE

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Abstract. The criteria for maintaining the competitiveness of republican industrial firms, particularly metallurgical enterprises, are examined in this paper. This analyzes the current state of the Republic of Uzbekistan's metallurgical sector, as well as its priorities, the government's initiatives for the development of the mining and metallurgical sector and related industries, project and engineering services within the copper industry cluster, and the transfer of cutting-edge technologies, innovations, and digital technologies. Implementation strategies are covered.

Key words. Competitiveness, globalization, industry, metallurgy, copper industry cluster, domestic market, foreign market, cash cost, ore, metal volume, benchmarking.

It is acknowledged that maintaining competitiveness growth is the key to accomplishing strategic objectives and enhancing Uzbekistan's political and economic influence in the international community. Today's world, which is swiftly moving along the path of globalization, is becoming more and more dependent on its capacity to successfully adapt to international competition. Since a long time ago, there has been a need for new theoretical methods to be developed in order to address the issues of competitiveness formation and development, and this requirement has necessitated the study of global experience in this area.

The peculiarities of the nation's economy at this point have created new challenges for researchers looking into issues with boosting competitiveness at the level of businesses, which are the key players in competitive relationships. Priority tasks include first identifying the elements and conditions needed to establish long-lasting competitive advantages, then selecting the appropriate methods and instruments to boost firm competitiveness. We must acknowledge that the current system of these tools is broken.

The majority of our nation's goods manufacturers are still not globally competitive. The national economy's inventive development is modest, it is becoming more dependent on foreign economic circumstances, and it is focused on energy resources. This demonstrates the need for not just better tools but also for them to be more diverse, for there to be competition in the ways in which structural changes are carried out, and for growth to be hastened.

The following crucial duties may be accomplished by taking into consideration the unique characteristics of the researched network while evaluating the enterprise's level of competitiveness:

- determining the position of the enterprise in the market;
- assessment of strategic planning perspectives;
- variety of tactical measures in management.

For major industrial businesses, the issue of developing new strategies to boost competitiveness is very important. The reason for this is that the existing level of production organization does not allow for rapid and appropriate responses to changes in the current economic environment due to the enormous quantities of production, strong material and technological basis, and relatively narrow specialty.

In particular, in accordance with the Decision of the President of the Republic of Uzbekistan Sh.M. Mirziyoev dated June 24, 2021 No. PQ-5159 "On additional measures for the development of the mining and metallurgical industry and related sectors," multi-level added value "from raw materials to finished products" It is planned to establish a scientific-technological cluster in the republic for the production of copper products and finished products with high added value¹. A number of projects are being carried out in the republic as a result of this Decision. Cathode copper produced by "Almalik KMK" JSC, in particular, serves as a raw material for final product producers who are members of the copper industrial cluster. Currently, the annual cathode copper production volume is 148,000 tons². Copper production will be increased several times over the next few years.

It is planned to increase the volume of deep processing of copper to 80% within the framework of the copper industry cluster's activities in order to produce a final product with high added value. This cluster's development priorities are as follows³:

- production of high-value copper finished products (cable and conductor products, pipes, fittings, copper powder, spare parts and chargers for electric vehicles, elements of renewable energy sources, and so on);

¹<https://lex.uz/docs/5477076>

²"Олмалик КМК" АЖ расмий сайти <https://www.agmk.uz/>

³"Олмалик КМК" АЖ расмий сайти <https://www.agmk.uz/>

- supplying chemical reagents and substances, as well as equipment and mechanisms manufactured in the Republic of Uzbekistan, to cluster participants
- Personnel training and retraining for the cluster, as well as qualification enhancements, as well as broadening the scope of experimental design and scientific research in these areas.

The copper industry cluster development service was established under the "Almaliq KMK" JSC to coordinate the activities carried out in this direction, to develop proposals on the prospective development strategy and main directions of the cluster activity.

President of the Republic of Uzbekistan Resolution No. 5159, dated June 24, 2021 "On additional measures for the development of the mining and metallurgical industry and related industries," measures are planned to "formulate the most optimal regulatory policy aimed at ensuring the development of the state's mining and metallurgical industry, increasing national competitiveness in industrial sectors"⁴.

In particular, over the last five years, our country's copper production has nearly quadrupled, reaching 148 thousand tons in 2020. Approximately 60% of copper is exported as a raw material⁵. It is worth noting at this point that there is not enough work being done on the production of high-value-added products.

According to international experts, due to the development of electric vehicles, electrical engineering, and renewable energy sources, global demand for copper is expected to increase by 40% by 2030. Uzbekistan currently earns 2.5 billion dollars from the copper industry. With a 400,000-tonne increase in copper production over the next five years, this figure could reach 7-8 billion dollars, including related industries⁶.

It should be noted at this point that the urgency of the problem of strengthening metallurgical enterprises' competitive positions in domestic and global markets has increased.

External competitive advantage should be based on specific characteristics of goods that add value to the consumer.

The most important external factors are domestic and foreign market capacity, prices of finished metal products, materials, and energy resources that make up the material consumption of production in these markets; indicators such as the level of wages established in the republic in comparison to other competing countries.

The basis of internal competitive advantage is cost advantage. The economic situation and the activity of each metallurgical enterprise determine these factors. The main internal factors are the enterprise's production potential, its geographical location in relation to consumers, and the enterprise's level of integration.

Considering the unique characteristics of metallurgical enterprises, it should be noted that organizational measures are critical in increasing the competitiveness of these businesses.

Improving the efficiency (and competitiveness) of metallurgical enterprises is critical to the country's economy. This is reflected in the key factors listed below:

- 1) Increasing the competitiveness of these enterprises benefits the state budget because stable enterprises bring stable income.
- 2) An increase in the volume of industrial product production reduces the rate of inflationary processes;
- 3) Effective use of material and fuel-energy resources reduces production material consumption, including at the national level;
- 4) Strengthening the position of metallurgical enterprises will help to significantly reduce future bankruptcy cases, allowing the population's employment level to be maintained.
- 5) Improving metallurgical enterprises' competitiveness creates conditions such as increasing demand solvency in exchange for wage costs, resolving social and environmental issues, and implementing environmentally safe technologies.
- 6) Improving product competitiveness aids in the development of export potential and strengthens the position of our republic's producers in the foreign market.

The cluster, as a form of industrial enterprise integration, is known to have the following specific characteristics.:

- superiority of organizational relations between departments of the enterprise;
- general management of assets (or part of assets in accordance with a specified contract).;
- coordinated production activities;
- the possibility of creating a common production infrastructure.

Clusters' primary responsibility is to ensure production and commercial activities through effective strategic alliances and business cooperation.

Resolution No. 5159 of the President of the Republic of Uzbekistan dated June 24, 2021 "On additional measures for the development of the mining and metallurgical industry and related sectors" "Development of an interdependent system of project and engineering services, scientific research and experimental design works within the copper industry cluster",

⁴<https://lex.uz/docs/5477076>

⁵<https://president.uz/ru/lists/view/4456>

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measures and measures are planned for "establishing a new system of interaction between science and production based on scientific research and experimental design works within the copper industry cluster"⁷.

It is appropriate to use the monetary cost indicator, which occupies a central place in the benchmarking system of mining and metallurgical enterprises, as the main criterion for evaluating the competitiveness of mining and metallurgical clusters. The cash cost calculation is based on the Wood Mackenzie methodology for calculating the global copper mine cost curve for mineral production.

The term "cash cost" refers to the concept of "money expenses." The indicator's essence is that it reflects the unit cost of copper or zinc production from primary raw materials (ore) and is primarily intended to compare metal production costs across mines.

The cash cost indicator is calculated using data from company financial and production reports. The use of melt and recycle rates (TC/RC) is an important feature in calculating cash costs. Because the indicator reflects the production costs of a unit of finished metal, the redistribution of the processing process in metallurgy must be considered. Cash costнингқуйидаги турлари мавжуд:

- C1 Cost – direct costs, cash cost;
 - C2 Cost – C1 Cost indicator and sum of depreciation (depreciation);
 - C3 Cost – C2 Cost indicator, sum of interest payments and indirect costs
- Total cash cost – the sum of all monetary costs (direct and indirect).

Mining and processing costs, mine management costs, third-party services, commercial charges, property taxes, other taxes involved in production costs, and TC / RC rates are all examples of direct costs (if any).

Indirect expenses include: corporate management costs (used for big holding structures, these costs can be particular administrative and commercial charges of the parent business), R&D expenditures, exploration costs targeted at prolonging the life of an existing mine, and unexpected costs. The difference between interest paid and interest received is used to determine interest expenditure.

The above is a three-element classification in general. However, there is a more detailed classification that, in our opinion, better reflects the essence of calculating cash cost.

There are the following cost components. Costs of mining and processing ore (cost to concentrate, C to C), costs of delivering concentrate to the metallurgical enterprise's delivery point (freight), and sales costs (realization costs). The expenses of shipping concentrates may include selling charges, depreciation, indirect costs, and interest payments in several circumstances.

The calculation of the aforementioned indicators is provided below:

$$C1Cost = CC + Freight + RealizCosts, (1)$$

$$C2Cost = C1Cost + Deprn, (2)$$

$$C3Cost = C2Cost + IndirectCosts + InterestCosts, (3)$$

$$TotalCashCost = C1Cost + IndirectCosts + InterestCosts. (4)$$

The following is a breakdown of ore extraction and processing costs in overseas mining projects:

1. Mining costs - include drilling, blasting, loading, rock processing, equipment repair and maintenance, mine fixed costs, and direct labor costs.
2. Mill cost - power, grinding media and mill coatings, consumables, chemicals, equipment maintenance and repair, direct labor expenses for processing, fixed costs of fixed assets
3. Management and administrative costs - labor protection, employee training, public relations, insurance, and environmental protection. It should be noted that depreciation is not originally included in the operating costs of mineral extraction and ore processing in the accounting practices of international metallurgical businesses.

Cash cost is a relative indicator measured per unit of metal weight.

There are two challenges here: defining the volume of metal to which these costs relate and selecting the mechanism of cost distribution. In the practice of cash cost calculation, there are three techniques to estimating the amount of metal: based on actual metal production in concentrates; based on paid metal in concentrate; and based on metal removed from concentrate (i.e. refined metal). The estimation of real metal production in concentrates is inapplicable because it provides a biased estimate due to the failure to account for metallurgical processing losses. This method makes use of the paid metal value in the concentrate (the method of using the paid metal value is given above).

As a result, the estimate is applied to either the paid metal in the concentrate (approaches for estimating paid metal are discussed above) or the recoverable metal (refined metal). The method used to compute the volume of metal is determined by the object for which the indicator of cash expenses is calculated. When studying deposits (mining enterprises), payable metal is assessed, while recoverable metal is assessed in vertically integrated mining and metallurgical enterprises.

The methodological approach to evaluating the competitiveness of mining and metallurgical clusters using the benchmarking system of international mining and metallurgical companies, in our opinion, is urgent and can be recommended for use in scientific research dedicated to the study of mining and metallurgical enterprises' global competitiveness.

⁷<https://lex.uz/docs/5477076>

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