GLOBAL ECONOMIC CRITERIA FOR OPTIMAL REGULATION OF INDUSTRIAL INFRASTRUCTURE

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ABSTRACT

This thesis analyzes the global economic criteria for optimal regulation of industrial infrastructure, the comparative processes of its development and economic stability and the possibilities of industrial infrastructure for optimizing production processes, efficient use of resources, supporting technological modernization, and ensuring economic stability.

Through optimal regulation of industrial infrastructure, opportunities are created to increase production efficiency, efficiently allocate resources, and modernize technological processes. This leads to an increase in industrial production. As a result, the share of industry in the gross domestic product of countries increases, which strengthens economic stability. At the same time, in accordance with the provisions of Goal 9 of the UN (United Nations) Sustainable Development Goals (SDG), the development of high-quality and good infrastructure serves not only to ensure economic growth, but also human well-being, creating equal and affordable opportunities for all [1].

In our country, the share of industry in gross domestic product in 2024 was 31.8 percent. The above data serve as a basis for comparing the development of industrial infrastructure and economic stability of countries. Despite the large share of industry in GDP in some regions, the level of environmental sustainability varies. This shows that the state of industrial infrastructure is directly dependent on its optimality and the level of efficient resource management. High-quality and efficient infrastructure allows for increased environmental sustainability by minimizing energy and raw material consumption in industrial production processes, waste management, and technological modernization.

Based on the research presented in the sources [2], industrial infrastructure is explained as a systematic set of material, financial, technological, and human resources necessary for the effective, competitive, and sustainable organization of production. It transforms industry into a modern and competitive system by increasing resource efficiency, energy efficiency, reducing negative environmental impacts from an ecological point of view, and attracting innovative investments. Based on the above sources and the analyzed data, we define industrial infrastructure as follows. Industrial infrastructure is a complex economic and technological system that includes real estate, transport and logistics systems, information and communication technologies, energy supply systems, as well as industrial policy and investment mechanisms necessary for the effective implementation of activities in the

industrial sector. Industrial infrastructure allows for the optimization of production processes, the efficient use of resources, the support of technological modernization and economic stability. In this regard, each component of the infrastructure directly affects the criteria for economic growth and global competitiveness. Industrial production infrastructure is of great importance for the economic development of the country and the effective functioning of industrial activity, and it includes production plants and factories, technological equipment and production lines [3]. The global economic criteria of this infrastructure are as follows:

- industry's share in Gross Domestic Product (GDP) and production volume: The volume of industrial products in the country increases through the full functioning of the production infrastructure. This leads to an increase in the share of industry in GDP, increases economic stability and strengthens the country's global competitiveness.

- optimal use of resources and efficiency: A high-level industrial infrastructure ensures the optimal use of raw materials, energy and other resources in production processes. This reduces production costs, makes products competitive and increases overall economic efficiency.

- technological modernization and innovation: Investment in industrial infrastructure allows for the introduction of innovative technologies and modernization of production processes. This increases production efficiency, improves product quality and strengthens the country's global economic position.

Information and communication technology (ICT) infrastructure is of great importance in the digital transformation of a country's industrial and economic activities, and includes Internet networks, telecommunications systems, data centers and digital platforms [4]. ICT infrastructure has the following global economic criteria:

- digital transformation of industry and innovative development: ICT infrastructure provides automation and digital management of production processes. As a result, production efficiency increases, innovative solutions are introduced, and the country's global economic competitiveness increases.

- process automation and production efficiency: Digital platforms and data centers guarantee the uninterrupted operation of production processes, contribute to the optimal use of resources and reduce production costs. This contributes to an increase in the share of industry in gross domestic product.

- strengthening global competitiveness: Digital infrastructure allows for the operational management of production and services, which increases the competitiveness of the country's products in international markets and ensures economic stability.

Industrial policy and investment infrastructure play a strategic role in the country's industrial and economic development [5]. This infrastructure includes industrial strategies, state support mechanisms, financial and financing systems and has the following global economic criteria:

- attracting investments and stimulating economic growth: Industrial policy and investment infrastructure create an opportunity for the country to attract domestic and foreign investments. This increases production volumes, creates new jobs and increases the share of industry in GDP, as a result of which economic stability is strengthened.

- forming a competitive industry: Strategic industrial policy and financial support serve

to make enterprises competitive, stimulate technological modernization and innovative development. This increases the opportunities for the country's products to enter the global market.

- quality of control and management: High-quality supervision and management systems allow for effective management of industrial infrastructure, targeted investment and economic stability. Thus, the country's global economic position is strengthened.

In conclusion, if we pay attention to the practices of global criteria in the above components of industrial infrastructure, several important aspects stand out. Energy infrastructure occupies a central place in the global criteria for optimal regulation of industrial infrastructure. World experience in the development of industrial infrastructure is based on several common criteria. They are aimed at ensuring economic efficiency, sustainability, competitiveness and innovative development. According to the efficiency criterion, infrastructure should provide maximum benefit to the economy with minimal cost. They are characterized by the return on investment, energy efficiency, reduction of transport and production time, reduction in product costs, etc.

This infrastructure cannot be optimal without digital technologies, therefore it is necessary to take into account global criteria: IoT (Internet of Things) integration, digital logistics (digital supply chain), automated production systems, "Smart" energy and transport networks (Smart Grid, Intelligent Transport). In this regard, it would be appropriate to base the optimal regulation of industrial infrastructure in the global economy on the following main paradigms. These include efficiency, competitiveness, sustainability, innovation, social and environmental responsibility, and international integration.

References:

1. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation https://sdgs.un.org/goals/goal9#targets_and_indicators
2. M. J. Abdin, Industrial Infrastructure Development for Sustainable Economic Growth, SSRN Electronic Journal, Apr. 2018 1-4 pp. 2)
https://base.garant.ru/70833138/5ac206a89ea76855804609cd950fcaf7/
3. https://portal.tpu.ru/SHARED/v/VIG/study/St1/Organiz_prod_infrastructure.pdf
4. Saba,C. S. N. Ngepah, and N. M. Odhiambo, Information and Communication Technology (ICT), Growth and Development in Developing Regions: Evidence from a Comparative Analysis and a New Approach, Journal of the Knowledge Economy, vol. 15, no. 3, pp. 14700–14748, Dec. 2023,
5. Rahman K. S., Industrial Policy Synergies: Industrial Policy + Inclusion Policy, Roosevelt Institute, Washington, DC, Apr. 25, 2023. 1-55 pp.