UDC 330.332; 316.422.4

Shevchuk N.
Assoc. prof., PhD in Economics
ORCID: 0000-0003-0355-9793;
Korneev D.
master,
National Technical University of Ukraine
«Igor Sikorsky Kyiv Polytechnic Institute»,
Kyiv, Ukraine
ORCID: 0000-0002-6778-7579

COMPETITIVENESS MANAGEMENT OF ECO-INDUSTRIAL PARKS

Eco-industrial parks (EIPs) serve as the backbone of sustainable industrial development, providing a competitive advantage to businesses committed to environmental stewardship. With a focus on sustainable practices and shared resources, EIPs provide an environment that promotes efficiency, innovation, and collaboration.

By integrating low-carbon technologies, energy-saving measures, and sustainable waste management systems, EIPs can significantly reduce operating costs and increase profitability for participating businesses. Moreover, EIPs' focus on environmental responsibility can also enhance the reputation of businesses, attracting environmentally conscious consumers and investors [1].

EIPs not only benefit participating businesses but also have a positive impact on the local community and the environment. Through the responsible use of resources, reduction of emissions, and efficient waste management, EIPs contribute to the creation of a cleaner and healthier environment, promoting the well-being of both people and the planet.

Eco-industrial management is the backbone of sustainable industrial development. It encompasses a wide range of responsibilities that management companies must undertake to ensure the efficient functioning of the park infrastructure and services. From planning and operations support to risk management and stakeholder engagement, park management plays a vital role in shaping sustainable business practices among residents [2].

While park management has limited control over industrial operations, a park charter or code of conduct signed by all participants can help enforce expected sustainable practices. It is also important to keep a close eye on potential conflicts of interest among regulators, inspectors, and park management.

Monitoring the EIP's environmental, social, and economic performance goals is crucial to track progress transparently and accountably. This includes keeping tabs on operational activities, achieving goals, and establishing measures for climate change adaptation and natural disaster preparedness.

Planning and zoning are integral components of EIA development. Multi-stakeholder processes involving government agencies, private sectors, and local communities are essential to consider economic, environmental, and social aspects. At the national level, a master plan should be created to develop the EIP, including an analysis of risks, infrastructure, public services, transport networks, environmental and social issues, zoning, buffer zones, placement of high-risk industries, and synergistic industry clusters.

Eco-industrial management is crucial to sustainable industrial development. By effectively managing park infrastructure and services, park management can play a vital role in shaping sustainable business practices, fostering stakeholder engagement, and ensuring transparent and accountable progress towards environmental, social, and economic goals.

Environmental monitoring and energy management are critical components of sustainable industrial development. To meet international standards, both environmental management systems (EMS) and energy management systems (EnMS) must be operational, and the efficiency of the park must be monitored regularly. It is also essential to support participants in maintaining their management systems at the company level [3].

Energy-saving is achieved through various opportunities to enhance the efficiency of industrial processes and buildings. EIPs must ensure a high level of energy efficiency in all joint and general services under the management company's control. Displacing fossil fuels and integrating low-carbon technologies and renewable energy generation are crucial steps to achieve sustainable energy usage. EIPs must also monitor their carbon footprint, set reduction targets annually, and develop a strategy to minimize greenhouse gas emissions through energy efficiency measures, industrial symbiosis, waste disposal, and the use of renewable energy sources.

Sustainable and efficient water use and purification are also vital components of EIPs. EIPs must supply water responsibly, taking into account local water scarcity issues and reservoir sensitivity. Planning to increase water efficiency for park participants and the EIP as a whole is crucial, and wastewater must be adequately treated with established water reuse systems.

An effective waste management plan should exist within the EIP to reduce, recycle and reuse waste at both the EIP and participant levels. The EIP management company should monitor and record the disposal of all waste to ensure environmentally safe disposal. Proper storage and disposal of hazardous and toxic materials are essential and can be facilitated by a hazardous waste registration and monitoring system.

In summary, implementing comprehensive environmental and energy management and monitoring systems is crucial for EIPs to achieve sustainable industrial development. By focusing on energy-saving, sustainable water usage and purification, and effective waste management, EIPs can promote environmentally friendly practices, reduce their carbon footprint, and safeguard the health and well-being of their local communities. EIPs are a vital component of sustainable industrial development, promoting competitiveness, efficiency, and collaboration while safeguarding the environment and the local community. By embracing sustainability and integrating environmentally responsible practices, EIPs offer a brighter future for businesses, the community, and the planet.

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