Potential and Development of Green Industrial Areas in Zemgale Planning Region

The study "Potential and Development of Green Industrial Areas in the Zemgale Planning Region" was conducted to promote the development of green industrial areas (GIA) and assess the prospects for implementing a green certification system, in line with sustainable climate neutrality policies. Today, climate neutrality goals and environmental requirements significantly shape regional and municipal development strategies. GIA are industrial areas that adhere to sustainable practices, serving as key tools for industrial decarbonization and the promotion of the green economy. Projects like GreenIndustrialAreas (GIA project) are being implemented in the Baltic Sea region to establish unified standards for the certification and development of these zones, with the Zemgale Planning Region (ZPR) actively participating. "Greening" industrial activities is crucial for reducing greenhouse gas emissions and reliance on imported energy resources. Experts advocate for investments in renewable energy, smart energy management, and efficiency to lower CO_2 emissions in industrial processes. Establishment of GIA and certification frameworks support these changes by providing mechanisms that encourage innovative solutions for emission reduction in industrial areas.

The study analyzed the current state of GIA in ZPR, Latvia, and the EU, using policy planning documents and statistical data to identify key challenges and opportunities. Cartographic materials were created to accurately represent the identified locations of potential GIA areas in ZPR as well as conclusions on their development potential, leading to proposals for enhancing the ZPR development program and strategy. Certified GIA were identified, and the feasibility of introducing a green certification system to foster sustainable development was evaluated.

Development of Green Industrial Areas in Zemgale, Latvia, and the European Union

At the European Union (EU) level, the development of GIA is associated with the European Green Deal, which envisages a comprehensive approach to emission reduction and achieving climate neutrality by 2050. EU climate policy includes goals for increasing energy efficiency, promoting the use of renewable energy, and implementing the circular economy. The Net-Zero Industry Act (NZIA) is a central element of the Green Deal's industrial plan, which envisages a significant increase in clean technology production capacity in the EU, aiming to reach at least 40% of EU demand by 2030 and ensure that EU production capacity constitutes at least 15% of the global total by 2040.

In Latvia, the development of GIA aligns with national climate goals, which include emission reduction and increasing the share of renewable energy. Latvia's strategy for achieving climate neutrality by 2050 emphasizes the need to promote investments in renewable energy production, smart energy management, and energy efficiency. The informative report, developed in accordance with the NZIA, on the framework for the development of sustainable energy technologies in Latvia until 2035 highlights the need to create net-zero emission valleys, which are geographically concentrated innovation and production nodes that promote the development of climate-neutral technologies.

They are based on industrial symbiosis, which promotes the sharing of resources, energy, and infrastructure, stimulating the progress of the circular economy.

The development program and strategy of the ZPR emphasize sustainable development, the introduction of the circular economy, and the establishment of GIA. Region's development priorities include reducing environmental, natural, and climate change impacts, as well as the development of green infrastructure and the integration of biodiversity into industrial area planning. It is recommended that ZPR integrate the development of clean technology production projects and net-zero emission technology valleys into its planning documents to promote the achievement of NZIA goals. This includes identifying specific areas, such as Laflora GIA (located in Jelgava County Municipality), as locations for concentrating clean technology production and innovation activities. Additionally, ZPR needs to strengthen cooperation with the Investment and Development Agency of Latvia, which would ensure an expedited permitting process and an information platform for businesses. ZPR should also more intensively promote industrial symbiosis and collaboration, facilitating resource sharing and joint initiatives among industries to enhance sustainability and operational efficiency.

As a recommendation for the national level, it is necessary to develop support mechanisms for the production of net-zero technologies, expand the scope of regulatory sandboxes, and strengthen green public procurement criteria. Furthermore, to ensure coordinated development of clean technology production valleys, it is necessary to define the geographical scope and operational criteria of these valleys and to implement the principle of industrial symbiosis as an approach to sustainable industry development. Using the thematic directions and criteria set out in the GIA project could foster a structured set of indicators that would increase foreign investor confidence and promote the production of sustainable energy technologies in Latvia.

Existing and Planned Green Industrial Areas

The study identifies several potential GIA within the territory of ZPR municipalities, such as Zemgale industrial park (Jelgava State city local government), Lielupe industrial park (Jelgava State city local government), NP Jelgava business park (Jelgava State city local government), Bauska industrial and logistics park (Bauska Municipality), Industrial area near Iecava (Bauska Municipality), industrial area on Zīlānu Street (Jekabpils Municipality), industrial area in Dobele on Spodrības Street and Elektrības Street (Dobele Municipality), Aizkraukle industrial park (Aizkraukle Municipality), and industrial area in Krustpils Parish (Jekabpils Municipality). Each of these areas is assessed based on the thematic directions outlined by the GIA project, which include criteria such as energy efficiency, CO_2 emissions reduction, land use optimization, sustainable mobility, location development, biodiversity conservation, water management, circular economy, and industrial cooperation. As part of the study, cartographic materials were developed to provide precise visual representations of the locations and their development potential according to thematic directions.

To determine the status of GIA development in Latvia, several potential and existing industrial areas were identified in other planning regions of Latvia. In the Kurzeme Planning Region, the Liepāja Special economic zone and Karosta industrial park are identified, which are focused on environmentally friendly and integrated industrial park

development. In the Riga Planning Region, projects such as Green Park in Mārupe, the Kundziņsala industrial area and Kore Baltic circular industrial park are being developed, focusing on green energy and circular economy principles. In the Vidzeme Planning Region, the Valmiera industrial park is being developed, promoting the processing of local resources and raw materials. In the Latgale Planning Region, the Eastern Latvia smart technology and research center industrial park is identified, which promotes the region's economic growth. Overall, more than ten potential and existing GIA have been identified in various planning regions of Latvia, promoting the country's progress towards a climate-neutral economy.

The project also included an analysis of other GIA certification standards, such as the Eco-industrial Park UNIDO guidelines (EIP), DGNB certification, BREEAM-NL, and LEED certifications, which may apply to industrial areas. These certifications provide a structured set of indicators to demonstrate that a particular area qualifies as a green industrial zone. They help build the reputation of industrial parks and businesses, reduce regulatory and resource-related risks, and support the achievement of national and international sustainability objectives. This certification makes industrial zones more attractive to investors, companies, and employees, improving competitiveness and reputation while ensuring sustainable planning. Additionally, it boosts property values and showcases leadership in climate and environmental goals, acting as an instrument for aligning the interests of developers and municipalities towards a unified, sustainable vision. Therefore, GreenIndustrialAreas project certification could potentially offer these advantages also in Latvia.