

Does the Development of Special Economic Zones Improve the Welfare of Local Communities? An analysis of the Development Policy of JIPE Gresik

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Abstract

This study aims to analyze the impact of the Java Integrated Industrial and Ports Estate (JIPE) Special Economic Zone (SEZ) development policy in Gresik on community welfare, with a focus on investment, industrial downstreaming, and employment. By using a descriptive qualitative approach with secondary data analysis methods, data was obtained from policy documents, official government reports, scientific publications, and other reliable sources. The research results show that in 2023, the JIPE SEZ succeeded in attracting strategic investment and encouraging industrial downstreaming, especially in the manufacturing and mineral processing sectors, with a total investment reaching IDR 31.4 trillion, making it the SEZ with the largest investment value in Indonesia. This positive impact is reflected in the increase in the Purchasing Power Index of the Gresik community and the decline in poverty rates. However, local labor absorption still shows a significant gap, reaching only 45% compared to the regional target of 60%. This condition reflects various challenges, such as competency mismatches, shifts in local economic structures, limited vocational education, and a lack of integrated labor market information. Furthermore, economic benefits have not been distributed evenly, marked by changes in traditional livelihoods and potential environmental impacts. Therefore, regional policy integration is needed, accompanied by increased human resource capacity, MSME empowerment, participatory governance, socioeconomic impact mitigation, and strict environmental monitoring so that the benefits of SEZs can be felt in an inclusive and sustainable manner.

Keywords: *Socio-Economic Impact; Special Economic Zones; investment; industrial downstreaming; employment.*

JEL: *R11, R58, E14, J21*

A. INTRODUCTION

National economic development is a complex and ongoing process, aimed at improving people's welfare through inclusive and equitable economic growth. (Sentanu et al., 2023). This process not only requires a shift in economic structure from the primary to the secondary and tertiary sectors, but also requires increasing added value through industrial downstreaming and expanding investment.

(Fazaalloh, 2024). Industrial downstreaming, which aims to increase the added value of domestic natural resources, not only strengthens export competitiveness but also creates new jobs and accelerates the economic transformation towards the manufacturing and technology sectors. (Sun et al., 2022).

Within this framework, the Indonesian government developed Special Economic Zones (SEZs) as an accelerative strategy to accelerate

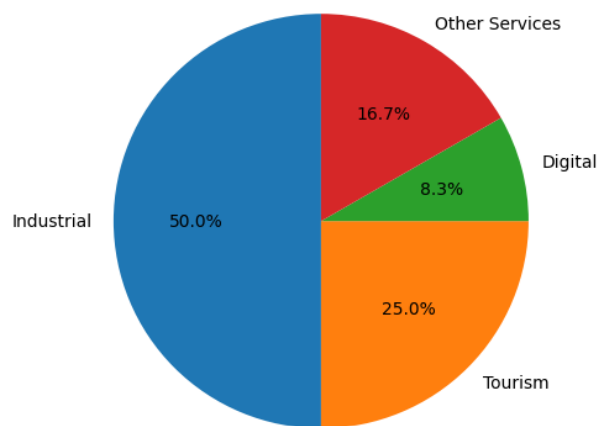


Figure 1. Distribution of Special Economic Zones in Indonesia by Sector
Source: Processed by the Author (2025)

industrialization, attract investment, and strengthen national competitiveness. Globally, SEZs have long been used as an economic development instrument, albeit under various nomenclatures such as Free Zones, Export Processing Zones, or Industrial Parks (Alves & Lee, 2022; Mogielnicki, 2021; Zeng, 2021). According to UNCTAD, there are more than 5,000 SEZs worldwide, spread across more than 140 countries, where developing countries utilize them as the initial driving force for industrialization (Tang, 2023; Zeng, 2021). In Indonesia, the development of Special Economic Zones began with the issuance of Law No. 39 of 2009. The government developed SEZs as new industrial growth centers equipped with fiscal incentives and ease of licensing (Alves & Lee, 2022; Frick & Rodríguez-Pose, 2023a). SEZs are expected to be a strategic instrument to encourage accelerated economic growth, increase national competitiveness, and act as a catalyst in structural economic reform (Mahadiansar et al., 2021).

Various data and empirical studies show that SEZs in multiple countries have succeeded in attracting large amounts of investment, especially from foreign investors (Tafese et al., 2025; Theot Therith, 2022). In addition, the existence of SEZs has also been proven to be able to create new jobs, increase industrial productivity, and make a

significant contribution to national economic growth and the welfare of local communities. As of early 2025, Indonesia has established 24 SEZs across various sectors, including 12 industrial zones, 6 tourism zones, 2 digital zones, and 4 zones focused on other service-based activities (Gideon, 2025).

One of the prominent SEZs is the Gresik SEZ or Java Integrated Industrial and Ports Estate (JIPE), which was designated as a National Strategic Project through Government Regulation No. 71 of 2021. The Gresik SEZ integrates a deep-sea port, an industrial area, and an independent city designed to support the downstreaming of mineral and metal-based commodities. Regionally, Gresik Regency has an economic structure dominated by the processing industry sector, amounting to 51.25% of the Gross Regional Domestic Product (GRDP) in 2024, making this SEZ the epicenter of regional industrialization (BPS, 2025). This SEZ is designated as a National Strategic Project (PSN) that integrates a modern industrial area, a deep sea port, and an independent city of international standards (Larasati et al., 2023). However, this large-scale, enclave-based development also poses the risk of economic dualism, where SEZs have the potential to become efficient economic “islands” but are less connected to the surrounding local economy.

This study selected the JIPE ZES due to its strategic position within the framework of national economic transformation and its potential to create broad socio-economic impacts. Since its development, the JIPE Gresik SEZ has had a positive impact on the socio-economic life of the local community, one of which is increasing employment opportunities, both directly in the industrial sector and indirectly through the growth of micro, small, and medium enterprises (MSMEs) in the surrounding area. The proximity of the work location to the residence also contributes to the efficiency of the community's cost of living (Gusti, 2024).

However, the development of the Gresik SEZ also faces fundamental challenges, particularly related to the disparity in local labor absorption. As of the third quarter of 2023, the number of workers absorbed in the Gresik SEZ reached approximately 24,000 people, but the proportion of local workers remained stagnant at 45%, below the minimum target of 60% as stipulated in Gresik Regency Regulation No. 7 of 2022. (Amrizal, 2024). This gap is caused by several structural factors, such as the low quality of vocational education, limited work experience, and limited community adaptation to industrial work culture. This indicates a mismatch *between* the needs of the business world and the capacity of local human resources.

This issue demonstrates that the success of SEZ development cannot be measured solely by investment value and production capacity, but also by the extent to which the area is able to improve the welfare of local communities in a fair and sustainable manner. Several previous studies (Alhassan et al., 2023; Davies & Mazhikeyev, 2019; Sarojadevi & Sudarvel, 2021) that analyzed the contribution of SEZs to exports and regional economic growth, and ((Frick & Rodríguez-Pose, 2023a; Otchia & Wiryawan, 2025; Seiler et al., 2023) that highlighted the impact of investment on regional GDP, tended to focus on macroeconomic indicators. However, studies that

comprehensively assess the impact of industrial downstreaming within SEZs on job quality and local community welfare are still limited. Therefore, this study seeks to fill this gap by assessing the extent to which SEZ development can empower local communities and generate inclusive and sustainable economic benefits.

In this context, it is important to examine in more depth how the Gresik SEZ development policy through industrial downstreaming impacts community welfare, both in terms of employment opportunities, increased income, and quality of life. Therefore, this study is important to be conducted as an effort to evaluate the effectiveness of the industrial downstreaming policy in the JIPE Gresik SEZ in promoting local community welfare holistically, as well as to formulate recommendations for policy improvements that are more responsive to real needs in the field.

This study seeks to answer the following questions: (1) How does investment in the JIPE Gresik SEZ affect the welfare of local communities? (2) To what extent does industrial downstreaming in the JIPE Gresik SEZ contribute to the regional economy and local community involvement? (3) How do employment dynamics in the JIPE Gresik SEZ influence the welfare of local communities? By answering these questions, this research is expected to provide a comprehensive understanding of the impact of investment, industrial downstreaming, and employment in the jiipe Gresik SEZ on local community welfare.

B. LITERATURE REVIEW

1. A brief history of special economic zones

Special Economic Zones (SEZs) have become one of the most dominant development policy instruments worldwide over the past half-century (Kozhokin, 2022). Conceptually, the United Nations Conference on Trade and Development (UNCTAD) defines SEZs as "geographically delimited areas where governments facilitate

industrial activity through fiscal and regulatory incentives and infrastructure support” (Bolwijn & Li, 2025). While the core definition is consistent, the nomenclature used varies widely, including terms such as *Free Zones*, *Export Processing Zones* (EPZs), *Industrial Parks*, or *Free Trade Zones* (FTZs), each of which often has a slightly different focus and purpose (Tsuchiya, 2024).

Historically, the idea of creating an enclave with distinct economic regulations is not new. Its roots can be traced back to the concept of a free port on the Greek island of Delos in 166 BC (Desruelles et al., 2023). However, SEZs in their modern form, focused on export-oriented industrialization, did not emerge until the second half of the 20th century, with one of the first modern zones established in Shannon, Ireland, in 1959. Since then, SEZs have experienced remarkable proliferation. Their number increased exponentially from just 79 zones in 29 countries in 1975, to approximately 3,500 zones in 130 countries in 2006, and to over 5,400 zones in 147 countries in 2019 (Zhan et al., 2020). This rapid increase underscores the popularity of SEZs as a strategic policy tool, particularly among developing countries seeking to accelerate economic growth and attract foreign investment.

2. Theoretical Framework and Rationale of SEZ Economics

The fundamental economic rationale behind the establishment of SEZs is to address market failures *and* weaknesses in a country's broader business environment, such as inefficient bureaucracy, inadequate infrastructure, or an uncertain legal framework (Frick & Rodríguez-Pose, 2023b). SEZs function as "carved-out *jurisdictions*," where governments create enclaves with more liberal laws and regulations to attract investment that might not otherwise be forthcoming, given the overall state of the national economy (Chaisse & Dimitropoulos, 2021).

The theoretical framework underpinning the SEZ model draws from several schools of economic thought. First, the theory of economic agglomeration explains that by concentrating firms in a single geographic location, SEZs can create industrial *clusters* (Chen, 2022). This agglomeration generates positive externalities, such as knowledge *spillovers* between firms, the formation of deep-skilled labor markets, reduced input costs through shared suppliers, and increased efficiency through healthy competition (Taufiqurrahman & Khoirunurrofik, 2023). Second, from a new institutional economics perspective, SEZs offer a superior institutional environment by reducing transaction costs (Ackah et al., 2024). Facilities such as "one-stop service" and simplified regulations effectively lower bureaucratic barriers and increase certainty for investors (Zeng, 2016).

Third, SEZs often function as "policy laboratories." This concept, best known through practice in China, allows the government to test market-oriented economic reforms on a limited scale before implementing them nationwide (Zeng, 2019). This approach helps mitigate the political and economic risks of full-scale liberalization. However, the application of this concept in the Indonesian context faces different dynamics. The regulatory framework for SEZs in Indonesia tends to be more top-down and is established nationally from the outset, thus limiting the space for flexible policy experimentation, as is the case in China. Rather than serving as a space for gradual institutional reform trials, many SEZs in Indonesia are focused on accelerating investment and infrastructure development. This situation raises questions about the extent to which SEZs in Indonesia truly function as "policy laboratories" or simply as instruments for accelerating economic growth.

In the context of evaluation, the theoretical framework of policy impact, as proposed by Anderson and Dye, is relevant. This framework emphasizes the importance of comprehensive

policy impact analysis, encompassing intended and unintended impacts, direct and indirect impacts, and effects on target and non-target groups. This approach is crucial to emphasize that the success of the EEZ is measured not only through macroeconomic indicators but also through broader socio-economic implications (Alexianu et al., 2019; Seyhah, 2018; Zeng, 2013).

The massive global adoption of SEZs can be interpreted not only as a reflection of their success, but also as a manifestation of intense "policy competition" among developing countries (Phommachanh, 2024; Sukadi, 2025). In an effort to attract limited foreign direct investment (FDI), many countries feel compelled to offer increasingly attractive SEZ incentive packages, not because of their proven effectiveness, but rather to remain competitive with their neighbors (Chaisse & Dimitropoulos, 2021). This dynamic carries the risk of a "race to the bottom" in which countries compete by providing excessive tax breaks or lowering labor standards, ultimately eroding the net benefits received by the host country (Aggarwal, 2019; Frick & Rodríguez-Pose, 2023a).

This dynamic is also reflected in Indonesia's SEZ policy, where the government offers various fiscal incentives to attract foreign investment, potentially reducing state tax revenues (Affandi et al., 2025; Ramadhan et al., 2025). In areas like Gresik, the benefits of investment have not been fully offset by improvements in the quality of the local workforce. Limited local labor absorption and the mismatch between worker skills and industry needs indicate that incoming investment has not yet fully generated high-quality and inclusive jobs (Amrizal, 2024). This situation indicates the risk that regional competitiveness is supported more by fiscal incentives and relatively low labor costs, rather than by improvements in productivity and work standards, thus reinforcing the potential for a "race to the bottom" in SEZ policy.

Furthermore, the establishment of SEZs can be interpreted as an implicit acknowledgment of institutional and infrastructural constraints at the national level. In many cases, SEZs function as pragmatic instruments to circumvent regulatory bottlenecks and investment barriers that are politically or financially difficult to address across the entire economy. However, whether SEZs actually resolve these structural constraints remains debatable. Rather than catalyzing broader institutional reforms, SEZs may instead operate as enclaves that selectively provide better infrastructure, regulatory flexibility, and fiscal incentives, often benefiting large-scale or elite investors.

This dynamic creates a double-edged outcome. On the one hand, SEZs can stimulate growth, attract investment, and create employment in specific locations. On the other hand, by establishing "islands" of efficiency, they may reduce the urgency for comprehensive national reforms and reinforce patterns of economic dualism between modern, investment-oriented enclaves and the rest of the domestic economy. For a country like Indonesia, which continues to face significant regional disparities, this raises important questions about whether SEZs serve as engines of inclusive development or merely as instruments that bypass deeper structural challenges.

C. RESEARCH METHODS

This research is a qualitative descriptive study using a case study approach that aims to describe and analyze the JIPE Gresik's SEZ development policy through industrial downstreaming on the welfare of the local community. The research location is focused on Manyar District, Gresik Regency, East Java Province, which is the operational area of the Gresik SEZ and a center for new industrial growth.

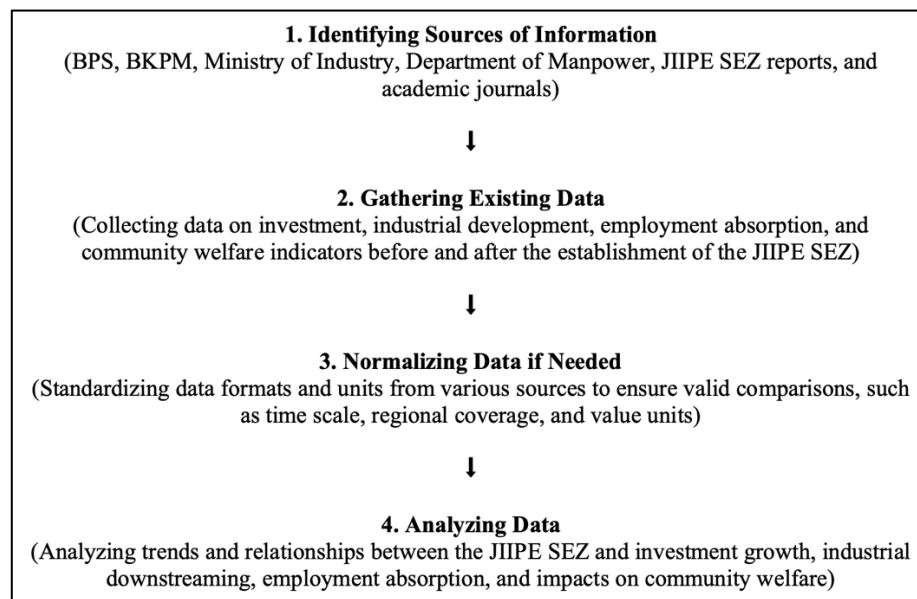


Figure 2. Data Analysis Process in Secondary Research

Source: (Wallace Foundation, 2021)

This study uses secondary data as the primary source, obtained from various official government documents such as the National KEK Council report, Gresik Regency Regional Regulations, the Ministry of Manpower report, and research results from independent institutions such as the Institute for Development of Economics and Finance (INDEF) and the Research and Industry Affiliation Institute of the Bandung Institute of Technology (LAPI ITB). In addition, statistical data from the Central Statistics Agency (BPS), along with reports from reputable national media outlets, including *Liputan6.com* and *Jawa Pos*, were utilized to complement and contextualize the analysis.

The data analysis process follows several stages of Conducting Secondary Research. These stages generally include identifying the research question, determining relevant secondary data sources, collecting data, evaluating data quality, analyzing data, and interpreting the results to answer the research question (Wallace Foundation, 2021).

Data collection techniques were conducted through documentation studies, by reviewing

various relevant publications and regulations to identify the dynamics of labor absorption and changes in community welfare resulting from the SEZ development policy. The collected data were analyzed using content analysis methods to uncover patterns, relationships, and trends of these policies on the community's socio-economic conditions. Data validity is maintained through source triangulation techniques by comparing various documents and data from different agencies to obtain more objective and comprehensive results.

Despite these efforts, this study has several limitations. As a qualitative descriptive study based primarily on secondary data, it does not incorporate primary field interviews with local communities, workers, or other stakeholders. Consequently, the analysis may not fully capture the lived experiences and perceptions of affected communities, and the findings should be interpreted within this methodological constraint.

D. RESULTS AND DISCUSSION

The results and discussion in this study will be analyzed through three main focuses, namely: (1) analysis of the impact of investment on improving community welfare; (2) study of the influence of industrial downstreaming on regional economic dynamics; and (3) study of employment dynamics and their implications for the socio-economic conditions of local communities.

Impact of Investment on Community Welfare

Investment is the main driving force in the development of SEZs, particularly in building infrastructure, increasing industrial productivity, and accelerating downstreaming. The role of investment is not only limited to the creation of macroeconomic value, but also has broad social implications, such as job creation, improving the quality of human resources, and strengthening local economic capacity (Ketu & Wirajing, 2024). Within SEZs, investment is focused on creating a competitive and integrated business climate, thus attracting national and international scale industrial players to produce efficiently and export-oriented (Berni, 2025). In this discussion, several sub-chapters will be focused on, including :

1. Investment Realization and Projections in the JIPE Gresik Special Economic Zone

The JIPE Special Economic Zone (SEZ) in Gresik is one of the SEZs with significant investment projections and realization. Its high investment performance places it among the best SEZs in Indonesia, even receiving an award for Best Industrial SEZ from the Coordinating Ministry for Economic Affairs of the Republic of Indonesia in July 2024. (Pelindo, 2024) Investment realization data demonstrates the dominant position of the Gresik SEZ.

Table 1 shows that the Gresik Special Economic Zone (SEZ) recorded the highest investment value in 2023, amounting to IDR 31.4 trillion, significantly outperforming the Kendal

Special Economic Zone (SEZ) and other SEZs. This figure differs slightly from another report from the National SEZ Council, which stated that the Gresik Special Economic Zone (SEZ) investment realization in 2023 reached IDR 32.1 trillion. This difference is likely due to a slightly different recording methodology or reporting timeframe. Cumulatively, by the end of 2023, the JIPE Gresik SEZ had recorded a total investment of IDR 65.3 trillion (Dewan Nasional KEK, 2023). This figure reflects significant progress in the area's development. In comparison, PT AKR Corporindo Tbk reported that the JIPE Gresik SEZ (which is a core part of the Gresik Special Economic Zone and managed by PT Berkah Kawasan Manyar Sejahtera, one of its entities) had attracted IDR 27 trillion in investment by the end of 2024.

Table 1. Investment Realization in the 5 Largest Special Economic Zones in 2023

No.	Location	Investment Realization
1	Gresik Special Economic Zone	Rp31.4 trillion
2	Kendal Special Economic Zone	Rp22.91 trillion
3	Sei Mangkei Special Economic Zone	Rp3.78 trillion
4	Lido Special Economic Zone	Rp1.26 trillion
5	Sanur Special Economic Zone	Rp980.66 billion

Source: (Laporan Perkembangan KEK Tahun 2023, Kemnaker, 2023; Dewan Nasional KEK, 2023)

Investment projections in the JIPE Gresik SEZ also show a positive trend. Based on a study by the Ministry of Manpower and INDEF, under

moderate assumptions (*low scenario*), the investment value in the JIPE Gresik SEZ is estimated to reach IDR 59.46 trillion in 2024 and continue to increase to IDR 130.82 trillion in 2028. Under optimistic assumptions (*high scenario*), this figure could reach IDR 77.3 trillion in 2024 and IDR 178.3 trillion in 2028. (Kemnaker, 2023) This projection serves as an important basis for planning future workforce needs.

2. Investment Contribution to Community Welfare

Investments realized in the JIPE Gresik SEZ, particularly by the JIPE industrial area manager (PT Berkah Kawasan Manyar Sejahtera), have not only increased macroeconomic value but also contributed to the welfare of the surrounding community. The JIPE SEZ is claimed to have successfully created a *multiplier effect* and become an investment destination for both foreign and domestic companies (PT AKR Corporindo Tbk, 2024). One manifestation of this contribution is through an integrated corporate social responsibility (CSR) program.

JIPE's CSR programs have touched various aspects of community life in surrounding villages, such as Manyarsidorukun, Manyarsidomukti, and Manyarejo in Manyar District. In the community development sector, JIPE has established social infrastructure such as multipurpose facilities, sports areas, and MSME kiosks. For example, in Manyarsidorukun Village, a volleyball court, a children's play area, and kiosks managed by the local community were built, demonstrating concrete forms of economic empowerment. In the education sector, the construction of a two-story Early Childhood Education (PAUD) building in Manyarsidomukti Village demonstrates JIPE's focus on early human resource development. Support for MSMEs is also evident in the construction of 12 kiosks in Manyarejo Village. In addition, JIPE's construction of roads that are accessible to the wider community has

accelerated mobility and opened up new business opportunities.

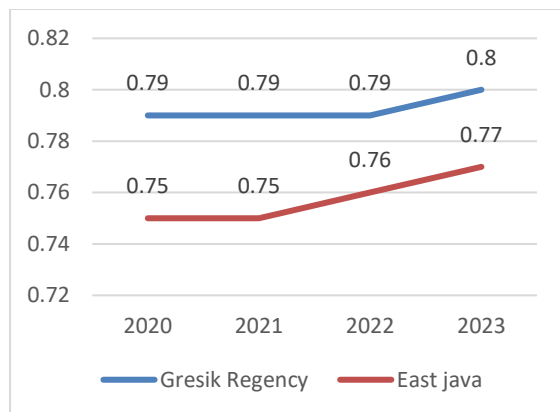
However, these initiatives also raise critical questions regarding their long-term impact. While such facilities may contribute to short-term social acceptance and community goodwill, their role in fostering sustainable economic independence remains uncertain. Without consistent support in the form of skills development, access to markets, and integration into the industrial value chain, these CSR programs risk functioning primarily as symbolic or compensatory measures rather than as instruments of structural economic empowerment for local communities.

Other CSR initiatives include the "Industrial Literacy Study" program to increase community understanding, the development of nurseries and land conservation, and support for fishermen through the Mengare Kramat Village Fishermen's Association. PT AKR Corporindo Tbk, as one of the main developers of JIPE, reported allocating more than IDR 10 billion for various community development programs in 2024, with a two-way communication approach to identify community needs.

The magnitude of investment and implementation of CSR programs should be positively correlated with improvements in community welfare, but in reality, these impacts do not automatically occur significantly or evenly. The effectiveness of CSR depends heavily on the quality of the program, the level of social inclusion, and the extent to which the initiative addresses the community's priority needs and involves them in planning and implementation. Studies show that CSR can increase community resilience, the capacity of communities to adapt and act collectively in the face of economic and environmental challenges, if the program is designed inclusively and contextually (Zainuddin et al., 2020).

However, evaluations also show that without a strong strategy, CSR remains merely a symbolic

program without any real, sustainable impact. For example, in the banking sector, CSR funds for rural development have successfully increased *the income index*, but this result is highly dependent on the effectiveness of the funds' utilization (Sharma & Sathish, 2022). Therefore, the most representative indicator for evaluating the real effects of investment and CSR on welfare is the change in the Purchasing Power Index or Per Capita Expenditure of the community in Gresik Regency, which reflects the real ability of households to meet basic needs.



Source: (Pemkab. Gresik, 2023)

Figure 3. Purchasing Power Index of Gresik Regency and East Java Province (2022-2023)

The data in Table 2 shows that the Purchasing Power Index of Gresik residents increased from 0.79 in 2022 to 0.80 in 2023. This figure is consistently higher than the average for East Java Province. This increase indicates growth in purchasing power for Gresik residents, potentially related to increased economic activity resulting from investment in the SEZ. In addition to increased purchasing power, other welfare indicators, such as poverty rates, also show a positive trend.

Table 3 shows a significant decline in the poverty rate in Gresik Regency from 12.42% in 2021 to 10.32% in March 2024. This decline strengthens the argument that investment growth and economic development in Gresik, including through the SEZ, contribute to

improving community welfare, particularly in reducing the number of poor people.

Table 3. Poverty Rate Trends in Gresik Regency (2021, 2023, March 2024)

Year	Poor Population (%)	Number of Poor Population (people)
2021	12.42	166,350
2023	10.96	149,750
March 2024	10.32	142,390

Source: (BPS, 2024)

On the other hand, the growth of MSMEs is also a positive impact. It has been reported that many food MSMEs around the SEZ have experienced a 30% increase in sales since the PT Freeport Indonesia smelter began operating, due to the increasing number of workers becoming regular customers. Demand for accommodation has also increased, with many residents' homes being converted into boarding houses or rentals, providing additional sources of income. However, this claim of a 30% increase in sales requires a more critical examination of the methodology used to determine whether it is derived from systematic surveys or anecdotal reports, to ensure its validity as evidence of broader impacts.

Overall, investment growth in the JIPE Gresik SEZ has significantly increased the income and purchasing power of the surrounding community through job creation, MSME empowerment, and a multiplier effect that strengthens the local economy. However, to ensure the sustainability of these positive impacts, ongoing efforts are needed in workforce training, MSME empowerment, and equitable development of supporting infrastructure.

The JIPE Gresik SEZ's journey illustrates a shift in focus from what may have been a more focused focus on attracting investment to a more comprehensive understanding of how that investment can be leveraged for sustainable and inclusive local development. Its success provides

a benchmark, while the challenges it faces offer valuable lessons. The Gresik Special Economic Zone's approach, combining aggressive investment efforts with a visible CSR component, has the potential to serve as a model for other SEZs in Indonesia. The award for "Best Industrial SEZ" indicates that the Gresik Special Economic Zone is viewed as a leader. Other SEZs can learn from its strategy of creating a "competitive and integrated" business climate. However, a key caveat is the need for continuous improvement in the depth, inclusiveness, and rigorous monitoring and evaluation of its socio-economic contributions. As emphasized in this analysis, true success is measured not only by the quantity of investment but also by the quality and equity of its impact.

The Impact of Industrial Downstreaming on Regional Economies and Local Involvement

Industrial downstreaming is a strategic process for processing natural resources into higher-value-added products. In the JIPE Gresik SEZ, downstreaming is a primary focus, particularly with the presence of a large-scale mineral refining facility. One of the most significant downstream projects in the JIPE Gresik SEZ is the construction of a copper smelter owned by PT Freeport Indonesia. This smelter is designed with a copper cathode production capacity of 600,000 tons per year and is targeted to begin production in 2024. Recent reports indicate that the smelter began operations in September 2024 and is expected to reach full capacity in January 2025, with a total investment of Rp58 trillion. The presence of this smelter will not only create thousands of jobs during the construction and operation phases, but is also expected to anchor the development of other downstream copper industries in the region.

The implementation of industrial downstreaming in the JIPE Gresik SEZ has contributed to an increase in the Gresik Regency's Regional Original Income (PAD) and Gross

Regional Domestic Product (GRDP), although specific data on the magnitude of this contribution is not presented in detail in the documents analyzed. Increased economic activity and investment in the downstream sector drives regional economic growth through increased tax and levy revenues and creates a multiplier effect for related sectors.

Table 4. GRDP Growth at Constant Prices in Gresik Regency 2018-2024

Year	Economic growth
2018	5.81
2019	5.42
2020	-3.68
2021	3.79
2022	7.38
2023	4.62
2024	4.79
2023	4,62
2024	4,79

Source: BPS Data for Gresik Regency 2024

PT Freeport Indonesia (PTFI) reportedly prioritizes local Micro, Small, and Medium Enterprises (MSMEs) and Small and Medium Industries (SMEs) in procuring various operational support services, such as construction, catering, security, and construction waste management. One concrete form of this empowerment is the involvement of local MSMEs in providing the company's logistics needs, including the procurement of Gresik-style batik uniforms for PTFI employees.

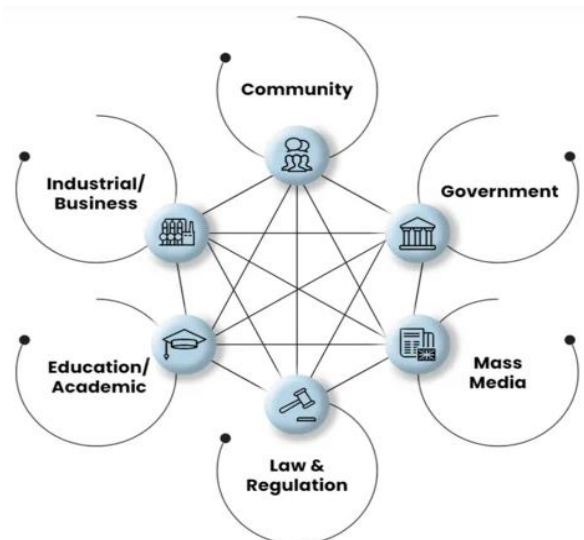
This practice reflects a strategic partnership model between large companies and local businesses that aligns with the inclusive business model approach, where large corporations not only pursue economic efficiency but also contribute to the social and economic empowerment of local communities (de Bell & Bakker, 2025). Research by Tian et al., (2021) shows that the involvement of MSMEs in large industrial supply chains can increase

production capacity, competitiveness, and community welfare, as long as it is supported by training, access to financing, and improved product quality. In the context of industrial downstreaming, such as that carried out in the JIPE Gresik industrial area, the social impact of MSME integration into the industrial ecosystem shows significant potential in creating local added value. However, challenges remain, particularly related to the ability of MSMEs to meet the quality and consistency standards set by large companies. Therefore, the facilitating role of the government and the private sector in the form of business incubation, certification, and training is key to enabling MSMEs to move up a class and contribute sustainably to local economic development.

The success of this downstreaming must be supported by a hexahelix partnership model that integrates companies, local governments, NGOs, academics, communities & MSMEs, and the media to ensure operational sustainability and improve community welfare. The hexahelix approach enables the creation of a sustainable downstream ecosystem by bridging economic, social, technical, and normative aspects. In the JIPE Gresik area, hexahelix synergy is crucial for integrating corporate CSR and investments with local MSME capacity building programs, permit and regulatory approvals, and media publication. This ensures that the benefits of downstreaming are distributed equitably and inclusively to local communities, rather than remaining a mere corporate project.

Each actor in the hexahelix model plays a strategic, interconnected role in supporting the success of industrial downstreaming in areas like JIPE Gresik. Companies or industry players act as the primary drivers by providing investment, technology transfer, and market access that can be utilized by local businesses. The government, particularly at the regional level, plays a crucial role in providing conducive regulations, expediting licensing, and promoting ease of doing

business. Academics and educational institutions contribute through applied research, technical training, and developing innovations relevant to the needs of industry and MSMEs. Meanwhile, communities and MSMEs are key actors who must be actively empowered to play a role in the downstreaming value chain. The role of the mass media is vital in disseminating information, building public awareness, and monitoring the process to ensure transparency and accountability. Legal and regulatory aspects also ensure that collaboration operates within the corridor of compliance with norms and social justice.



Source: Processed by the Author (2024)

Figure 4. Hexa Helix Model of Gresik Special Economic Zone Development

By integrating these functions, the hexahelix approach is able to create a sustainable downstream ecosystem, not only economically, but also socially, technically, and normatively. At JIPE Gresik, this model is crucial to ensure that CSR programs, investments, MSME capacity building, regulatory arrangements, and publication of results can run in harmony and integration, so that the benefits of downstreaming are truly felt by local communities in an inclusive and equitable

manner, rather than simply being an exclusive project owned by corporations.

While downstreaming promises increased value-added and economic growth, several critical aspects need to be considered. A report from the *Center of Economic and Law Studies* (CELIOS) highlights the potential for "pseudo-downstreaming," where the downstreaming process produces only primary processed products with low added value, as well as a high dependence on energy from coal-fired power plants (PLTU), which have the potential to cause significant pollution (Celios, 2023). This raises concerns regarding the long-term environmental impacts of large-scale industrialization in the JIPE Gresik SEZ.

Furthermore, the issue of equitable distribution of benefits across regions is also a concern. The construction of PT Freeport Indonesia's copper smelter in Gresik, despite the mineral resources being sourced from Papua, raises questions about the equitable distribution of economic benefits to resource-producing regions. Papua could potentially lose significant job opportunities and contributions to the GRDP, which are currently concentrated in Gresik. While Gresik benefits from the absorption of by-products such as sulfuric acid for the fertilizer industry and copper waste for cement, the smelter's location highlights the government's failure to provide adequate infrastructure in resource-producing regions to support on-site downstreaming (Juna, 2025).

Therefore, the success of downstreaming in the JIPE Gresik SEZ needs to be viewed in a broader context, considering the potential environmental costs and potential inter-regional equity challenges. The involvement of local MSMEs in Gresik is a positive aspect, but it is important to ensure that these benefits do not obscure larger structural issues related to national downstreaming policies.

Employment Dynamics and Their Implications for Local Communities

Job availability and the quality of workforce absorption are vital indicators of community well-being. The development of the JIPE Gresik SEZ has significant implications for the local labor market.

a. Labor Demand Projection

Projections from the Ministry of Manpower and INDEF indicate a significant increase in labor demand in the Gresik SEZ through 2028. In 2024, labor demand is estimated to be between 20,953 people (low scenario) and 27,239 people (high scenario) (Kemnaker, 2023). This figure is projected to increase sharply in 2028, reaching between 130,823 people (low scenario) and 178,395 people (high scenario).

This data aligns with the theory of derived labor demand, which states that labor demand is highly dependent on the demand for industrial output. Furthermore, the principle of the relationship between skill levels and economic productivity confirms that a highly educated workforce has the potential to drive innovation and operational efficiency, as explained by the Kenan Institute.

The projection shows the dominance of demand for graduates of secondary to tertiary education, underscoring the importance of preparing human resources with appropriate qualifications. Job opportunities are also increasing across various supporting sectors, with the highest projected growth in Financial Services and Insurance (7.82%), Corporate Services (7.61%), and Health Services and Social Activities (7.52%). The high demand for diploma and bachelor's degree graduates reinforces the importance of investing in higher education and vocational training relevant to the needs of the industrial and service sectors.

Table 5. Projected Labor Demand in the Gresik Special Economic Zone based on Education Level (2024 & 2028, Low Scenario)

Level of education	2024 Needs (people)	2028 Needs (people)
Bachelor's/ Master's/Doctoral Degree	6,810	14,981
Diploma	5,762	12,676
Vocational School	4,191	9,219
SENIOR HIGH SCHOOL	2,095	4,610
JUNIOR HIGH SCHOOL	1,467	3,227
Elementary School	629	1,383
Total	20,953	46,096

Source: (Kemnaker, 2023)

Note: The total in this table (46,096 for 2028) differs from the projected total figures (130,823-178,395) mentioned in the text.⁴ This table likely refers to a more specific scenario or scope in the Kemnaker/INDEF report.

b. Labor Absorption in the JIPE Gresik Special Economic Zone

The JIPE Gresik SEZ has demonstrated significant contribution to job creation. As of the third quarter of 2023, the total workforce absorbed by the Gresik SEZ reached approximately 24,000 people, most of whom were still under construction. Cumulatively, by the end of 2023, the Gresik SEZ had absorbed approximately 32,000 workers (Dewan Nasional KEK, 2023). The 2023 SEZ Development Report from the National SEZ Council also noted that the

Gresik SEZ absorbed 11,573 workers throughout 2023, placing it in third place nationally.

This growth in employment reflects the effectiveness of the JIPE Gresik SEZ in attracting investment. Derived labor demand theory explains that employment is strongly influenced by the level of investment and the operational phase of an industrial project. Consistent with this, research from LAPI ITB and the Ministry of Manpower's Manpower Planning Center revealed that the transition to the operational phase, such as the PT Freeport Indonesia smelter, will shift the construction workforce to the manufacturing and engineering sectors, which require higher qualifications. This approach demonstrates the synergy between development economic theory and pro-local policies, which are believed to improve the competence of regional human resources and support the fair distribution of development benefits. Therefore, when large projects such as smelters transition to the commissioning phase, reskilling and upskilling strategies are needed to ensure that local residents are ready and able to fill jobs in growing sectors.

Table 6. Realization of Labor Absorption in the Gresik Special Economic Zone (2021-2023)

Year	Absorption of Labor (people)	Information
2021	2,000	-
2022	11,000 (additional)	The cumulative total is 13,000 people
2023	11,573	Based on the 2023 SEZ Development Report

Source: Processed from Gresik Special Economic Zone data and the 2023 Special Economic Zone Development Report

c. Fundamental Challenges in Absorbing Local Labor

Despite significant investment and job creation, local labor absorption faces fundamental challenges. First, there is a shift in the local economic structure. The people of Gresik, traditionally dependent on the agricultural and maritime sectors, have struggled to adapt to an industrial work culture that demands high discipline and adherence to Standard Operating Procedures (SOPs). Previous research also indicates that the construction of JIPE has caused socioeconomic changes for rural communities, particularly fish farmers, whose land has been displaced or whose productivity has declined due to pre-existing industrial pollution (Yanuar et al., 2021).

Second, there are limitations in vocational education and training. Gresik Regency lacks adequate vocational higher education institutions, such as polytechnics. Existing Vocational Training Centers (BLK) face limited instructors and funding for BNSP-certified training. To address the low absorption rate of local workers in SEZ, the government has implemented several strategic policies focused on improving human resource capacity (Pemerintah Kabupaten Gresik, 2024).

One of the efforts undertaken is through a vocational education and training program designed not only for people who have been accepted to work in the SEZ area, but also for the general public who want to develop skills and expertise in various fields. This program is implemented through a collaborative scheme involving various stakeholders, including the National Professional Certification Agency (BNSP), companies operating in the SEZ, and nine Professional Certification Institutions (LSP) (Priasmoro, 2024). The nine LSPs involved include the National Electronics LSP, the National Environmental LSP, the Professional Human Resource Management LSP, the Nusantara

Shipping LSP, the Singhasari Digital Design LSP, the International Export Import LSP, the Indonesian Taxation LSP, the Nusantara Public Relations LSP, and the Katiga Bina Nusa LSP. With solid collaboration between companies, the government, and training institutions, we can create a better employment ecosystem.

Third, there is still a lack of information about job openings for the Gresik community. Although the Regional Government has provided platforms such as "Gresikerja," a number of tenant companies in the JIPE Gresik SEZ have not been fully registered in this system, making it difficult for residents to access information about job opportunities within the industrial area. As a result, Gresik's local workforce absorption rate has only reached around 45%, far below the Regional Regulation's target of a minimum of 60%. Fierce competition with workers from surrounding areas has resulted in local residents being left behind, despite companies' stated commitments to prioritizing local workers.

Furthermore, collaboration between industry and educational institutions (DUDI) is also suboptimal. Curricula in vocational and secondary education institutions are not fully aligned with the skills and certification needs of companies, creating a skills mismatch between graduates and industry competencies. This also hinders the achievement of local workforce absorption targets, as many local applicants lack the necessary technical qualifications, which should be accompanied by specialized training and certification that is affordable or subsidized through CSR programs and the regional budget.

This situation has the potential to create a "development trap," where the demands of sophisticated industries in the SEZ outstrip the adaptive capacity and qualifications of the local population. As a result, the SEZ becomes more dependent on external labor, which can exacerbate local inequalities and prevent the economic benefits of the SEZ from being shared equally among local communities.

Global studies show that SEZs without local skills training support often fail to deliver inclusive socioeconomic benefits. For example, research in Thailand noted a significant decline in the country of origin's workforce due to skills gaps, while cases in Pakistan and other developing countries revealed that SEZs do not automatically reduce social inequality without policy intervention and strengthening local human resources.

Furthermore, the literature on *new structural economics* emphasizes the importance of holistic investment in human capital for regions to move up the ladder in the modern economic system (Liu, 2020). Therefore, to avoid these development pitfalls, *re-skilling* and *up-skilling strategies* for the local workforce are needed, supported by relevant vocational education policies, and collaboration between industry, government, and educational institutions. This approach is crucial for the Gresik SEZ to not only attract investment but also transform the local economy into an inclusive, sustainable, and equitable one.

The Impact of Special Economic Zones on Educational Investment (Comparative Perspective)

A study in China (Lu et al., 2023) showed that the presence of SEZs can encourage increased investment in education, particularly at the senior high school level, with SEZs encouraging an additional 31 students per 1,000 to continue to that level. This potential positive impact is relevant to the conditions in Gresik.

Data on the average length of schooling in Gresik Regency from 2021 to 2023 can serve as an early indicator for assessing the potential for similar impacts. If the JIPE SEZ can stimulate similar educational investment, it has the potential to be a long-term solution to address the competency gap and improve the competitiveness of the local workforce.

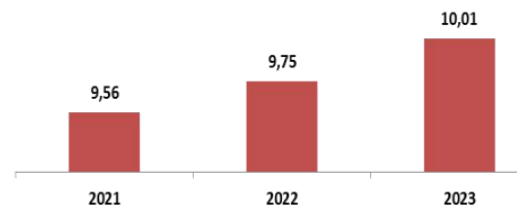


Figure 5. Average length of schooling in Gresik Regency 2021-2023

However, several local factors can influence the effectiveness of this positive feedback loop. Uneven school infrastructure, vocational curriculum readiness, and population mobility are some of the obstacles that could limit increased secondary education participation in Gresik. Unlike the Chinese context, where policy interventions and the education system are more coordinated, local policies in Gresik have so far focused more on vocational training and job certification than on building new formal schools.

However, there are indications that some families around JIPE are now able to allocate additional income to their children's education, particularly as a result of economic changes after selling land or finding employment in industrial areas. This opens up opportunities to design mechanisms that can actively encourage investment in local community-based education as an integral part of the strategy to strengthen human resource quality within the JIPE SEZ ecosystem.

Critical Analysis of the Distribution of Benefits and Challenges of Inclusive Development

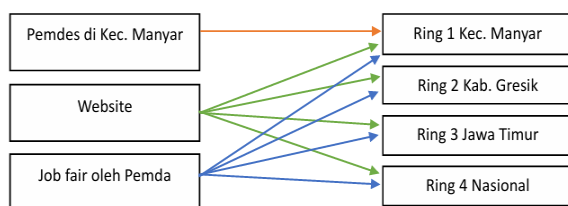
Although the JIPE SEZ has demonstrated significant economic achievements, a more critical analysis is needed to assess the extent to which these benefits are distributed fairly and whether its development is inclusive.

Unequal Benefit and Welfare Gaps

As previously described, despite the aggregate positive impacts, such as increased

investment, general employment, and reduced poverty, the benefits of the JIPE SEZ development have not been fully felt equally by all levels of the local community. The local employment rate, which remains at 45%, indicates that the majority of job opportunities, 55%, are filled by workers from outside Gresik (Amrizal, 2024). This certainly has implications for income distribution and welfare improvements, which are more focused on certain groups, while some local communities may not yet feel significant direct impacts.

To address this challenge, the local government and relevant stakeholders have implemented several strategies to improve local workforce access to job opportunities in the JIPE Special Economic Zone, one of which is through a zoning-based recruitment policy divided into four levels or "rings".



Source: Processed by the Author (2025)

Figure 6. Sources of Labor Recruitment

The figure above illustrates the distribution scheme of job vacancy information in the development of the JIPE Special Economic Zone (KEK) based on the priority zoning of workforce recruitment, which is divided into four regional rings. There are three main channels for information dissemination: first, through the village government in Manyar District, which exclusively distributes information to Ring 1 as the closest and top priority area. Second, through the official recruitment website, which functions to reach the community from Ring 1 to Ring 4 more widely and efficiently. Third, through job fair activities organized by the local government,

which are open to all ring levels, from local to national. The pattern of different colored arrows indicates the relationship between the source of information and the targeted area coverage, reflecting a communication strategy tailored to ensure the distribution of job opportunities in a gradual and equitable manner, while still giving priority to the local community around the industrial area.

Socio-Economic Impact on Traditional Communities

The change in economic structure from agrarian and maritime to industrial has had a significant socio-economic impact on traditional communities, especially fish farmers and fishermen. Research Yanuar et al., (2021) shows that even before JIPE developed rapidly, the decline in pond productivity due to industrial waste pollution around Manyar had prompted people to sell their land. The expansion of the JIPE Gresik SEZ has the potential to exacerbate these conditions for those who still rely on coastal natural resources for their livelihoods. This shift in livelihoods, if not managed through effective adaptation and career transition programs, could lead to social friction and marginalization of certain community groups.

Environmental and Sustainability Issues

The development of a large-scale industrial area such as the JIPE Gresik SEZ, particularly with the presence of heavy industries such as smelters, carries significant environmental risks. The report Celios (2023) highlights the downstream industry's dependence on energy from coal-fired power plants, which contributes to high carbon emissions and potential pollution. Although PT AKR Corporindo Tbk, one of the JIPE developers, has expressed its commitment to responsible environmental management and has received awards for its environmental management,

systemic risks from massive industrialization remain. Pollution issues that have impacted fishpond productivity prior to JIPE's expansion demonstrate the region's environmental vulnerability. Therefore, strict and transparent environmental oversight is crucial.

Overall, the combination of skills mismatch challenges, shifting livelihoods for traditional sectors, potential environmental impacts, and unequal distribution of benefits suggests that without targeted and comprehensive policy interventions, the JIPE Gresik SEZ risks developing into an enclave economy. Such enclave economies tend to have limited positive linkages with the broader local community, where the primary benefits accrue to those directly involved in the SEZ's core activities, while surrounding communities may experience only minimal spillover impacts or even bear negative externalities.

E. CONCLUSION

The development of the JIPE SEZ in Gresik has demonstrated significant success in attracting strategic investment and encouraging industrial downstreaming, particularly through the construction of PT Freeport Indonesia's copper smelter. Positive macroeconomic impacts are reflected in its potential contribution to regional GDP, improvements in the Purchasing Power Index, and a decline in poverty levels in Gresik Regency. The JIPE SEZ has also generated tens of thousands of employment opportunities.

However, the contribution of the JIPE SEZ to inclusive and sustainable community welfare remains constrained. Local workforce absorption is still below the regulatory target due to skill mismatches, limited vocational capacity, and adaptation challenges from traditional livelihoods. As a result, economic benefits are unevenly distributed, some communities experience socio-economic disruption, and large-scale industrialization raises long-term

environmental risks. Therefore, the success of SEZ policies should not be measured solely by economic indicators such as investment value and production volume, but also by their capacity to empower local communities, ensure equitable benefit distribution, and maintain ecological sustainability. These challenges highlight the need for a series of structured and integrated policy interventions.

To maximize the socio-economic benefits of the JIPE SEZ, several policy priorities are required. First, strengthen an integrated vocational education and training ecosystem that is closely aligned with industry needs. Second, empower local MSMEs by integrating them into the industrial value chain through active business development support. Third, ensure participatory, transparent, and accountable governance in SEZ management. Fourth, conduct comprehensive social impact assessments for future expansions and provide reskilling programs, alternative livelihoods, and social protection for affected communities.

Fifth, strengthen environmental governance through strict and independent monitoring mechanisms. Environmental oversight should not rely solely on corporate-led reporting, but also involve independent institutions, local governments, academic bodies, and community representatives to ensure transparency and accountability. This approach is essential to mitigate the risks associated with massive industrialization and to prevent long-term ecological degradation.

Sixth, establish periodic welfare indicators tailored to local contexts to monitor community well-being. The holistic and coordinated implementation of these policy measures is expected to bridge the gap between the economic potential of the JIPE SEZ and the realization of equitable and sustainable welfare improvements for the people of Gresik Regency.

Finally, the enforcement of regional regulations mandating at least 60% local

workforce absorption should be strengthened through a combination of incentives and sanctions. Companies that meet or exceed the target could be granted fiscal or administrative incentives, such as priority access to permits, training subsidies, or additional tax benefits. Conversely, firms that consistently fail to meet the requirement should face gradual sanctions, including reduced access to incentives, administrative penalties, or stricter compliance reviews. The holistic and coordinated implementation of these policy measures is expected to bridge the gap between the economic potential of the JIPE SEZ and the realization of equitable and sustainable welfare improvements for the people of Gresik Regency. Future research could expand the analysis by comparing multiple SEZs in Indonesia and conducting longitudinal studies to assess the sustainability of long-term benefits. In addition, further studies should examine environmental and social governance aspects, particularly for vulnerable groups, as well as the implementation of green industry principles.

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