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Industrial Paradigm of Multidimensional Poverty in Karawang Regency (Determinant Analysis and Policy Implementation)

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Abstract: Karawang Regency is known as one of the largest processing industry centers in West Java, with the sector's contribution of around 71 percent to GDP on a Constant Price Basis in 2024. However, the dominance of the industrial economy has not been followed by an inclusive poverty reduction: the number of absolute poor people will increase by March 2024, the open unemployment rate remains above the West Java average, and the inequality of expenditure between the poor is widening. Previous studies of the determinants of poverty have generally addressed economic, population, or environmental factors separately, and have rarely linked the structure of the industrial labor market to skills mismatches, gender inequality, and spatial vulnerability in a single industrial district. This article aims to explain the paradox, identify the determinants of multidimensional poverty in Karawang, and formulate policy implications for more inclusive industrialization. The research uses a descriptive-analytical approach with policy case studies, sourced from secondary data from the Central Statistics Agency, Regsosek/Sepakat, and regional planning documents in the Final Report of the Karawang Regency Regional Poverty Alleviation Plan 2025-2029. The results of the analysis show that poverty in Karawang is formed from the interaction of economic determinants, employment, education, health, basic services, gender, population, and coastal-rural vulnerabilities that are mutually reinforcing and cannot be overcome only through industrial growth.

Keywords: Industrialization, Multidimensional Poverty, Inclusive Development, Regional Inequality, Poverty Alleviation Policies

Abstrak: Kabupaten Karawang dikenal sebagai salah satu pusat industri pengolahan terbesar di Jawa Barat, dengan kontribusi sektor ini mencapai sekitar 71 persen terhadap PDRB Atas Dasar Harga Konstan pada 2024. Namun, dominasi ekonomi industri belum diikuti penurunan kemiskinan yang inklusif: jumlah penduduk miskin absolut meningkat pada Maret 2024, tingkat pengangguran terbuka bertahan di atas rata-rata Jawa Barat, dan ketimpangan pengeluaran antarpenduduk miskin melebar. Kajian terdahulu mengenai determinan kemiskinan umumnya membahas faktor ekonomi, kependudukan, atau lingkungan secara terpisah, dan jarang menautkan struktur pasar kerja industri dengan ketidaksesuaian

keterampilan, ketimpangan gender, dan kerentanan spasial pada satu kabupaten industri. Artikel ini bertujuan menjelaskan paradoks tersebut, mengidentifikasi determinan kemiskinan multidimensional di Karawang, serta merumuskan implikasi kebijakan bagi industrialisasi yang lebih inklusif. Penelitian menggunakan pendekatan deskriptif-analitis dengan studi kasus kebijakan, bersumber pada data sekunder Badan Pusat Statistik, Regsosek/Sepakat, dan dokumen perencanaan daerah dalam Laporan Akhir Rencana Penanggulangan Kemiskinan Daerah Kabupaten Karawang 2025-2029. Hasil analisis menunjukkan kemiskinan di Karawang terbentuk dari interaksi determinan ekonomi, ketenagakerjaan, pendidikan, kesehatan, layanan dasar, gender, kependudukan, serta kerentanan pesisir-perdesaan yang saling memperkuat dan tidak dapat diatasi hanya melalui pertumbuhan industri.

Kata Kunci: *Industrialisasi, Kemiskinan Multidimensional, Pembangunan Inklusif, Ketimpangan Wilayah, Kebijakan Penanggulangan Kemiskinan*

INTRODUCTION

Karawang Regency occupies a strategic position as one of the largest processing industry centers in West Java Province and nationally, with industrial estates that house automotive, electronics, and other manufacturing production chains as the main support of the regional economy (Putri, A. A., & Yasin, 2026). Data on the Gross Regional Domestic Product on a Constant Price Basis (GDP ADHK) shows that the processing industry sector contributes around 71 percent to the total GDP of Karawang Regency in 2024, far exceeding the contribution of other sectors, although its annual growth is relatively moderate, which is an average of around 6 percent per year (Central Bureau of Statistics, 2025).

The large scale of industrialization should ideally be an engine for job creation and welfare improvement. However, in reality, industrial growth has not completely eliminated poverty and inequality in Karawang Regency. The number of poor people in March 2024 was recorded at 187.77 thousand people, an increase of 540 people compared to March 2023, while the poverty depth index (P1) and poverty severity index (P2) both rose in the same period (Central Statistics Agency, n.d.). A similar pattern of economic growth that does not necessarily reduce poverty proportionally is also recorded on a national scale; The World Bank warns that Indonesia's transition to an upper-middle-income country demands higher welfare standards and a more inclusive distribution of growth benefits (World Bank, 2023). Karawang's Open Unemployment Rate (TPT) in 2024 is recorded at 8.95 percent, still higher than the average of West Java Province (6.75 percent) and the national average (4.9 percent), even though this area is one of the largest manufacturing bases in Indonesia. Karawang's Gini Ratio also remained in the range of 0.35–0.39 in the 2019–2024 period, showing persistent income inequality although relatively lower than the provincial average.

The gap between industrial and urban areas on the one hand, and rural and coastal areas on the other, shows another face of Karawang's development. Districts that are directly adjacent to industrial areas, such as West Karawang, enjoy economic diversification in the trade, services, and banking sectors. On the other hand, coastal and rural sub-districts such as Pedes, Tempuran, Batujaya, Jayakarta, and Cibuaya still rely on traditional agriculture and fisheries that are vulnerable to weather fluctuations, tidal floods, and seawater intrusion. This kind of socio-economic vulnerability of coastal areas is also found in other northern coastal areas of Java; studies of Demak Regency show that exposure to floods and tidal waves is intertwined with low education, high dependency ratios, and limited basic infrastructure (Rudiarto, I., Pamungkas, D., Annisa, H., & Adam, 2016). The spatial gap between rural and urban areas at the national level is also confirmed by Priyarsono et al. (Priyarsono, D. S., Wijaya, M. B., & Sigiuro, 2023), which found that agricultural sector productivity and average

schooling time of rural residents were the main determinants of narrowing the rural-urban poverty gap in Indonesia. These patterns show that poverty in Karawang is not just a matter of low income, but a multidimensional condition that includes education, health, food security, basic services, gender equality, and environmental vulnerability (Alkire, S., & Foster, 2011).

Studies of the determinants of poverty generally tend to address these factors separately. Oluoko-Odingo (2009), for example, highlights the determinants of environment, food security, and socio-economic of households in Kenya, while Eyasu and Yildiz (Eyasu, A. M., & Yildiz, 2020) emphasizing the influence of family size, land ownership, proximity to the market, and health status of heads of households on rural poverty in northwestern Ethiopia. In the Indonesian context, (Dartanto, T., 2013) showed that the dynamics of household poverty are influenced by income shocks, demographic characteristics, and housing locations based on national panel data, while Faharuddin and Endrawati (Faharuddin, F., & Endrawati, 2022) found that informal employment status, working hours, and the work sector of heads of households are important determinants of working poverty in Indonesia. These studies rarely link the structure of the industrial economy with labor competency gaps, gender inequality, inequality of basic services, and spatial vulnerability in an integrated manner, especially in the context of labor-intensive industrial districts such as Karawang. This is where the research gap lies that this article seeks to answer.

The mismatch between the composition of workforce education and the needs of industrial competencies is also an important link between economic structure and poverty. Setiyana and Oktora (Setiyana, A., & Oktora, 2024), using data from the National Labor Force Survey, found that most of the workforce of Vocational High School graduates in Indonesia experience horizontal mismatch, i.e. working in fields that are not in accordance with the field of expertise pursued, with a higher tendency to workers in rural areas. This kind of mismatch phenomenon is relevant to the condition of Karawang, where the largest unemployment comes from the group of high school/vocational school graduates, not from the low-educated group. In addition to the employment dimension, the gender dimension is also an important determinant of poverty; Rumble et al. (Rumble, L., Peterman, A., Irdiana, N., Triyana, M., & Minnick, 2018) found that household poverty and low educational attainment of women are significant determinants of child marriage in Indonesia, a pattern that has the potential to reproduce women's economic vulnerability between generations. On the dimensions of health and nutrition, Yunitasari et al. (Yunitasari, E., Al Faisal, A. H., Efendi, F., Rachmawati, P. D., Aurizki, G. E., Aini, K., & Wahyuni, 2022) shows that the inadequate practice of complementary feeding of breastfeeding in children aged 6-23 months in Indonesia is related to the socio-economic characteristics of households, which is relevant to the problems of stunting and food security that are also faced by Karawang Regency.

METHODS

This study uses a descriptive-analytical approach with a policy case study design in Karawang Regency, with analysis units in the form of districts and sub-districts that focus on aggregate poverty indicators and their determinants (Creswell, 2014). The descriptive approach was chosen because it aims to describe the data as it is without the intention of generalizing (Scott, 2017), while case study design is used to examine contemporary phenomena in depth in their real-world context (Yin, 2018). The data used are entirely secondary, sourced from the Final Report of the Karawang Regency Regional Poverty Alleviation Plan for 2025–2029, which contains data from the Central Statistics Agency (Karawang in Numbers and Official Statistics News), Regsosek/Sepakat data on extreme poor families, Karawang Regency 2025–2029 KLHS RPJMD documents, and related regional apparatus data. The data period varies according to the indicators, generally covering 2019–2025, with a number of historical poverty data since 2004. Data collection is carried out

through document review, which is a systematic procedure to review and evaluate documents as a data source (Bowen, 2009).

Data analysis uses qualitative content analysis with a deductive approach, namely coding based on a predetermined framework (Hsieh, H.-F., & Shannon, 2005), as well as descriptive-comparative analysis of available quantitative data (Moleong, 2017). Determinants of poverty are grouped into seven areas according to the framework of the source document, namely economy, population, health and food security, access to basic services, education, social (including gender), and geography and environment. The inter-field linkages are arranged narratively: the structure of the processing industry determines the availability of employment, the suitability of local labor competencies determines access to value-added formal work, income forms the capacity of households to meet basic needs, and these capacities ultimately determine multidimensional poverty status, with gender equality, population pressure, location of residence, environmental risk, and program governance capacity as intermediate factors. Because it is entirely based on descriptive secondary data, this study does not examine causal relationships and does not count the statistical contribution of each determinant, so the discussion is limited to expressions such as "related to", "indicates a trend", and "indicates", rather than "significantly affects" or "statistically correlated".

RESULTS AND DISCUSSION

The Paradox of Industrialization and Poverty

The processing industry sector accounts for 71 percent of Karawang Regency's ADHK GDP in 2024, with a cumulative value of 2020–2024 reaching IDR 631.3 trillion of ADHK's total GDP of IDR 884.1 trillion. This contribution far exceeds the second largest sector, wholesale trade and retail, which only accounts for around 9.5 percent. However, the annual growth of the processing industry is only about 6 percent, lower than the transportation and warehousing sector (11 percent) which is supported by the existence of the industry itself as a leverage sector (backward-forward linkage), in line with the structure of industrial linkages outlined by Putri and Yasin (Putri, A. A., & Yasin, 2026) in the Karawang industrial estate. This pattern indicates a large production capacity but has not been offset by a significant surge in innovation or new added value.

Paradoxically, the large scale of the industry is not directly proportional to the absorption of quality local labor. Employment data shows that of the 1,148,222 working workforce in 2024, as many as 539,264 people or about 47 percent have the status of laborers/employees/employees, reflecting the structural dependence on the formal employment relationships of subordinates in the manufacturing industry. However, the educational composition of the labor force is dominated by high school/vocational school graduates (536,413 people) and those who have not graduated from elementary school (415,440 people), while only 104,288 college graduates are from the group of high school / vocational school graduates (64,744 people), not from the low-educated group which actually has the highest percentage of work (98.4 percent for not graduating from elementary school/elementary school, compared to 87.93 percent for high school graduates). These findings are in line with the horizontal pattern of mismatch identified by Setiyana and Oktora (Setiyana, A., & Oktora, 2024) in vocational school graduates nationally, and indicates that Karawang's job market structure absorbs more unskilled and semi-skilled labor for routine production jobs, while middle graduates who expect higher-qualified jobs face job exclusion from the job market.

Structural dependence on this one dominant sector also poses risks. When the processing industry experienced external shocks, as seen during the COVID-19 pandemic when global demand plummeted and triggered mass layoffs, Karawang's TPT jumped to 11.52 percent in 2020 and held high at 11.83 percent in 2021–2022, before gradually dropping to

8.95 percent in 2024, but remaining above the West Java (6.75 percent) and national (4.9 percent) averages. Thus, Karawang's industrialization has not shown inclusive social mobility: it has created a large number of formal jobs, but it does not automatically absorb local middle-to-high educated workers, is not fully resistant to external shocks, and has not driven poverty reduction proportional to the scale of its contribution to GDP.

Table 1. Profile of Industrialization, Employment, and Poverty Indicators in Karawang Regency

Indicator	Recent Values	Year
Contribution of the processing industry to ADHK's GDP	71%	2024
Average annual growth of the processing industry	6%	2020–2024
Number of poor people	187.77 thousand inhabitants	March 2024
Poverty line per capita/month	IDR597.345	March 2024
Poverty Depth Index (P1)	1,08	2024
Poverty Severity Index (P2)	0,28	2024
Open Unemployment Rate (TPT)	8,95%	2024
Gini Ratio	0,376	2024
Average length of school	7–8 years	2024
Workforce of high school/vocational school graduates	536,413 inhabitants	2024

Source: processed from the Final Report of the Karawang Regency RPKD 2025–2029, based on BPS data (2025a, 2025b)

Economic Determinants

In terms of the poverty line, the value of the poverty line in Karawang Regency increased from IDR 555,889 per capita per month in March 2023 to IDR 597,345 in March 2024, in line with the increase in the price of basic commodities such as rice (up 20.26 percent on an annual basis) and red chili peppers (up 51.87 percent). This increase in the poverty line has also shifted some vulnerable households into the poor category, so that the number of absolute poor people has risen to 187.77 thousand people even though the percentage decrease is only 0.01 points from the previous year, an improvement that can be said to be substantially stagnant. More worryingly, the depth of poverty index (P1) rose from 1.06 to 1.08 and the poverty severity index (P2) rose from 0.22 to 0.28 (an increase of 27.2 percent) in the same period, indicating a widening inequality in expenditure between the near-poor and the severely poor. The pattern of poverty that has not improved despite this strong economic structure is in line with the findings of Dartanto and Nurkholis (Dartanto, T., 2013) that the dynamics of household poverty in Indonesia are more determined by income shocks and structural vulnerabilities than by aggregate economic growth alone.

Structural dependence on the processing industry is combined with less productive household consumption patterns: the largest expenditure of the food group is finished food and cigarettes, not nutritious foods. Meanwhile, Regsosek data shows that extreme poverty is spread across all 30 sub-districts with the highest concentrations in coastal and rural sub-districts such as Pedes (808 households), Tempuran (426 households), Batujaya (420 households), Jayakarta (386 households), and Cibuaya (345 households), sub-districts that depend on traditional agriculture and fisheries that are vulnerable to climate fluctuations. On the other hand, Karawang Regency actually has surplus food potential: rice production in 2023 will reach 885,468 tons with a surplus of 598,818 tons above local consumption needs, but the absence of clear distribution pattern data and delivery logistics constraints cause this potential for local food security to not fully support the welfare of poor households in the producer area itself. This condition also confirms the findings of Faharuddin and Endrawati (Faharuddin, F., & Endrawati, 2022) that the employment status and work sector of the head of household, not just the availability of regional resources, are important determinants of worker poverty in Indonesia.

Determinants of Education and Employment

The average length of schooling for Karawang residents in 2024 is still around 7–8 years, equivalent to not having completed junior high school, lagging behind the urban average of West Java which is already above 9 years. The achievement of literacy and numeracy at the elementary level is also low: in 2024, the achievement of elementary literacy is only 59.11 and elementary numeracy is 54.05, while junior high school literacy is 69.8 and junior high school numeracy is 61.97, although it shows an improvement trend since 2021 (elementary literacy 44.84; elementary school numeracy 33.73). The gender gap is also seen in school age expectations, with a gap of 0.5 years between boys and girls in Karawang, wider than the provincial average gap (0.2 years). As described in the previous section, this educational inequality is intertwined with a mismatch between the composition of graduates and industrial needs, resulting in a surplus of unskilled and semi-skilled labor that risks maintaining low wage levels as well as slowing social mobility and reducing long-term economic inequality.

Population Determinants

The population of Karawang Regency will grow from 2,354,000 people in 2020 to 2,526,002 people in 2024, with a projected to reach 2,726,868 people in 2030 at a growth rate of around 1.12 percent per year. The population density in urban areas such as West Karawang will reach 3,913 people/km² in 2024, much higher than coastal districts such as Jayakarta and Batujaya. High density in urban areas does not automatically worsen poverty, but still poses a risk of pressure on basic infrastructure, settlement density, and slum potential if not balanced with adequate spatial and vertical housing arrangement. On the other hand, coastal districts with lower density actually face different problems, namely the dominance of primary sector jobs and limited education, so that population pressure has a different face between industrial-urban areas and coastal-rural areas.

Determinants of Health and Food Security

Around 40 percent of Karawang households rely on low-nutrient foods, with the second largest expenditure on cigarettes instead of nutritious food. The Karawang Hope Food Pattern Score was recorded at 92.8 in 2023, below the ideal standard of 100, reflecting the low diversity of food consumption dominated by grains. Regarding the nutritional status of toddlers, the source document contains two sets of stunting prevalence data that are not entirely consistent, so the exact number needs to be further verified in the official publication of the Health Office or the Indonesian Nutrition Status Survey before being used to claim definitive trends; what can be safely concluded is that stunting remains a significant chronic nutrition problem in Karawang Regency. This issue is in line with the findings of Yunitasari et al. (Yunitasari, E., Al Faisal, A. H., Efendi, F., Rachmawati, P. D., Aurizki, G. E., Aini, K., & Wahyuni, 2022) that early childhood feeding practices in Indonesia are strongly influenced by household socio-economic characteristics, and are intertwined with low family health literacy, high cigarette consumption patterns and reduced child nutrition budget allocation, as well as anemia conditions in adolescent girls that are at risk of continuing low birth weight and pregnancy complications.

Inequality in Access to Basic Services

Household access to clean water increased from 68.10 percent (2021) to 77.85 percent (2025), and access to proper sanitation from 65.90 percent to 74.50 percent in the same period, but these two indicators remain the most lagging aspects compared to access to electricity (98.85 percent in 2025) and basic education (96.80 percent). Access to decent and affordable housing will only reach the target of 70 percent by 2025, which means that around 30 percent of Karawang households still do not have decent housing, generally in densely populated or

disaster-prone areas. This inequality is concentrated in coastal sub-districts such as Cibuaya, Batujaya, Kutawaluya, and Cilamaya Kulon, which also face geographical remoteness and vulnerability to coastal disasters, so the lack of access to basic services in these areas is layered and mutually reinforcing, rather than standing alone.

Gender and Women's Vulnerability in the Job Market

The Karawang women's Labor Force Participation Rate (TPAK) in 2024 is only 43.48 percent, far below the male TPAK (83.56 percent) and also below the average of the West Java female TPAK (49.79 percent) and the national (56.42 percent) female TPAK. Although the absolute number of unemployed is more from men (60,961 out of a total of 100,404 people in 2024), the unemployment rate for women is actually higher (9.32 percent) than for men (7.39 percent), a paradox that occurs because the female labor force base is much smaller (423,220 people compared to 825,406 men). Coupled with the gap in the expectation of 0.5 years for intergender schooling and a deep-rooted culture of early marriage, Karawang women, especially female heads of households, face layered vulnerabilities in accessing decent work and economic resources. This condition is in line with the findings of Rumble et al. (2018) that household poverty and low educational attainment of women are important determinants of child marriage in Indonesia, which in turn weakens the capacity of women's households to get out of poverty intergenerationally.

Vulnerability of Coastal and Rural Areas

The northern coastal area of Karawang faces the threat of flash flooding due to low tides and land elevation, with routine events as recorded in January 2025 submerging settlements with 350 people from 100 families. The source document also noted high levels of flood vulnerability in the rice fields of Jayakarta District due to low topography, Citarum watershed overflow, and obstructed drainage. In addition to flooding, seawater intrusion due to groundwater subsidence has reduced the quality of clean water in a number of coastal villages, such as Tanjungpakis Village in Pakisjaya District, where the water has become brackish to salty due to pond contamination and uneven PDAM networks. This pattern of socio-economic vulnerability due to exposure to floods and tidal waves is consistent with the findings of Rudiarto et al. (Rudiarto, I., Pamungkas, D., Annisa, H., & Adam, 2016) in the coastal countryside of Demak Regency, which shows that coastal disaster exposure is intertwined with the low education and limited basic infrastructure of the local population. This environmental vulnerability directly disrupts the agricultural and fishery production cycles that are the main livelihoods of coastal residents, thereby strengthening the structural vulnerability of households to poverty.

Interdeterminant Interactions

The above determinants do not stand alone, but rather intertwine to form layered vulnerabilities. Low education limits households' access to high-value-added industrial jobs, so the income earned tends to be at the basic to middle wage level. This limited income then limits the ability of households to obtain nutritious food and decent housing. Lack of sanitation and clean water increases the risk of disease and increases the burden of poor households' health expenditures, while the vulnerability of coastal environments disrupts the seasonal income of already vulnerable farmers and fishers from the beginning. Gender inequality narrows the source of household income with female heads of households, while population growth pressures increase the need for basic services that local governments must fulfill. Ultimately, weaknesses in data governance and cross-program coordination, given their complexity and distribution across 30 sub-districts with different characteristics, have the potential to cause poverty alleviation programs to be not on target.

Table 2. Determinants of Multidimensional Poverty and Their Empirical Evidence

Dimensions	Key Empirical Evidence	Indications of Linkages with Poverty
Economy	71% of GDP dependence on the processing industry; P1 rose to 1.08 and P2 rose 27.2%	Output inequality widens despite strong economic structure
Education	Average school length is 7–8 years; elementary literacy 59.11; elementary numeracy 54.05 (2024)	Restricting access to high-value-added jobs
Employment	TPT 8.95% (2024), higher than West Java (6.75%); highest unemployment among high school/vocational school graduates	Demonstrate job market exclusion for secondary graduates
Health & Food	PPH score of 92.8 (2023); significant stunting prevalence (data needs further verification)	Indicates long-term HR quality risks
Basic Services	Access to sanitation 74.5%; decent housing 70% (2025)	±30% of households have not met their basic needs
Gender	Female TPAK 43.48% vs male 83.56% (2024)	Limiting sources of household income
Geography & Environment	Routine tidal flooding on the north coast; seawater intrusion in Tanjungpakis	Disrupting the livelihoods of farmers and fishermen

Source: processed from the Final Report of the Karawang Regency RPKD 2025–2029

Table 3. Interdeterminant Interaction of Poverty

Early Determinants	Interaction Mechanism	Further Impact
Primary education	Restricting access to high-value-added industrial jobs	Low household income
Low income	Reducing the ability to buy nutritious food and decent housing	Risk of malnutrition and unsuitable housing
Sanitasi buruk	Increased risk of disease and health expenditure	The economic burden of poor households is increasing
Vulnerability of coastal environments	Disrupting agricultural and fisheries production cycles	Seasonal income is increasingly volatile
Gender inequality	Narrowing women's participation in the job market	Narrowing sources of household income
Population pressure	Augment basic service needs	Pressure on infrastructure and regional budgets

Source: analyzed by the author based on the findings of the Final Report of the Karawang Regency RPKD 2025–2029

This layered interaction explains why the growth of the industrial sector, no matter how much it contributes to GDP, does not automatically break the multidimensional poverty chain in Karawang Regency. The findings of this article's research lie in the affirmation that the paradox of industrialization and poverty in labor-intensive industrial districts is not caused by a single determinant, but by a network of interactions between industrial economic structures, labor competency gaps, gender inequality, limitations of basic services, and mutually reinforcing rural-rural spatial vulnerabilities; The integration of these three dimensions of analysis, as far as the author is concerned, has not been explicitly linked in poverty studies in large-scale manufacturing industrial districts such as Karawang.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

This article shows that the paradox of industrialization and poverty in Karawang Regency stems from the misalignment between the scale of the industrial economy and the structural capacity of the community to utilize it equally. The dominance of the processing industry sector in GDP is not followed by an inclusive poverty reduction because the local workforce is still dominated by unskilled and semi-skilled groups, while secondary education

graduates face job market exclusion. Multidimensional poverty in Karawang is formed from the interaction of economic determinants, education, employment, health and food security, access to basic services, population, gender equality, and geographical and environmental vulnerabilities, which are mutually reinforcing and cannot be overcome through a single intervention path. Thus, industrialization requires human development policy support that is in line with the needs of industrial competence, equitable distribution of basic services, empowerment of women and vulnerable groups, economic diversification, strengthening coastal environmental resilience, and collaborative governance across sectors so that the benefits of economic growth can be enjoyed more equitably. The academic contribution of this article lies in the provision of an integrated analysis framework that connects the structure of the industrial economy with multidimensional poverty in the context of labor-intensive industrial districts, as well as policy contributions in the form of time-based intervention priority maps that can be a reference for the implementation of the Karawang Regency Regional Poverty Alleviation Plan for 2025–2029.

Limitations

This study has fundamental limitations because it relies entirely on descriptive secondary data without surveys, interviews, or primary statistical tests, so it cannot state causal relationships between variables or calculate the statistical contribution of each determinant to poverty. The scope of the study is also limited to one district and a specific period, so the findings cannot necessarily be generalized to other industrial districts with different structural characteristics. In addition, a number of secondary data referenced, particularly related to stunting prevalence, show inconsistencies between sections in the source document so that further verification in official publications before being used for definitive trend claims.

Recommendations

Based on the interdeterminant interaction pattern, poverty alleviation in Karawang Regency requires a strategy that goes beyond the growth of the industrial sector alone. The following recommendations are compiled according to the implementation period and the field of intervention.

Short-term (strengthening governance and basic protection). Local governments need to integrate and update cross-source poverty data (Regsosek/Sepakat, BPS, and regional apparatus data) so that they are interoperable and able to identify vulnerable groups precisely up to the sub-district level; strengthen the coordination of the Regional Poverty Alleviation Coordination Team (TKPKD) with regional apparatus so that social assistance does not overlap; and prioritize the expansion of access to clean water and sanitation in sub-districts with the highest extreme poverty, such as Pedes, Tempuran, Batujaya, Jayakarta, and Cibuaya.

Medium term (human resource development, inclusive industrialization, and empowerment of vulnerable groups). Improving the quality of primary and secondary education needs to be focused on strengthening literacy-numeracy and vocational education that is in line with the needs of industrial competencies, through partnerships with local governments, schools, job training centers, and industry actors, in line with Presidential Regulation Number 72 of 2021 concerning the Acceleration of Stunting Reduction which also emphasizes cross-sector interventions in vulnerable groups. Reskilling and upskilling programs for high school/vocational school graduates who are the largest unemployed group need to be prioritized, accompanied by apprenticeship programs and competency certification so that local workers are more competitive in entering the industrial production chain. Partnerships between large industries and local MSMEs, strengthening local supply chains, and directing corporate social responsibility programs on productive empowerment can expand the distribution of industrialization benefits beyond core industrial areas. Given the low

unemployment rate for women and the high unemployment rate for women, there is also a need for expanded access to training and formal employment for women, support for female heads of households, prevention of child marriage, and gender-responsive social protection for the elderly and people with disabilities.

Long-term (regional resilience and economic diversification). Coastal and rural areas require structural mitigation against tidal flooding and seawater intrusion, protection of clean water sources, and strengthening and diversifying the livelihoods of farmers and fishers so that they are not completely dependent on the natural cycle. The diversification of regional economic structures into the service sector, modern agriculture, and tourism needs to be encouraged gradually to reduce over-dependence on the processing industry, while strengthening the monitoring and evaluation of poverty alleviation programs, in line with the direction of the National Medium-Term Development Plan 2025–2029 (Ministry of National Development Planning/Bappenas, 2024), so that interventions remain evidence-based and on target until the end of the 2029 period.

Table 4. Implications and Priorities of Poverty Alleviation Policies

Term	Policy Focus	Key Targets
Short	Integration of poverty data; coordination of TKPKD; expansion of clean water and sanitation	Districts with the highest extreme poverty
Intermediate	Vocational education, reskilling/upskilling, apprenticeships, industry-MSME partnerships	High school/vocational school graduates and unskilled workforce
Intermediate	Empowerment of women and vulnerable groups in the job market	Women, female heads of household, elderly, disabilities
Length	Mitigation of tidal floods and seawater intrusion; diversification of the local economy	Coastal and rural districts

Source: formulated by the author based on the analysis of determinants in the Results and Discussion Section

Author Contributions

The author is fully responsible for the entire research process, including conceptualization, data collection, data analysis, interpretation of results, preparation of manuscripts, and final approval of manuscripts for publication.

AI Disclosure Statement

In the preparation of this manuscript, the author uses an artificial intelligence (AI) tool in the form of Claude (Anthropic) which is specifically used to help tidy up the grammar and writing of the manuscript. The use of AI does not include the preparation of ideas, analysis, data, or research conclusions. The author has studied, examined, and edited all the results obtained, and is fully responsible for the entire content of this manuscript, including its accuracy, authenticity, and scientific integrity.

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