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The Maritime Sector as a Barometer of Surabaya's Progress in Indonesia's Economic Development

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Abstract

The socio-economic dimension of marine potential utilization plays a crucial role in regional development. With the emergence of various regulations and technological advancements both in tools for exploiting marine resources and in technologies for preserving and enhancing marine potential these resources can be optimized to promote prosperity. This study contributes to closing the knowledge gap by assessing the socio-economic aspects of maritime sector utilization in Surabaya. The research follows several key steps: developing a framework for the maritime economy, collecting and classifying relevant socio-economic indicators, and ensuring their comparability and reliability within the maritime context. The data obtained enables an evaluation of the scale of Surabaya's maritime sector and its position within the maritime cluster framework established by provincial and central governments. The study also analyzes the alignment between local and national strategies for maritime cluster development, including the relevance of transnational approaches. The findings highlight discrepancies between central and local government policies, particularly at the implementation level. Additionally, the research expands understanding of Surabaya's marine potential and supports the formulation of more effective strategies and policies for its utilization.

Keywords: Socio-Economic Dimension, Marine Potential Utilization, Maritime Clustering, Policy Strategy

1. INTRODUCTION

Surabaya's economy is fundamentally interlinked with the maritime sector, with marine resources serving as a core driver of sustainable regional development [1]. This connection has elevated Surabaya's economic profile, given its strategic coastal location that supports its function as a logistics and trade distribution center across Indonesia [2]. As the country's second-largest metropolitan area, Surabaya benefits from well-established port infrastructure, notably Tanjung Perak and Teluk Lamong Terminals, which enhance its integration into national and international maritime supply chains [3].

The maritime industries in Surabaya encompass a wide range of activities, including capture fisheries, aquaculture, seafood processing, shipbuilding, marine tourism, and logistics services [4]. Collectively, these industries not only contribute significantly to Gross Regional Domestic Product (GRDP) but also provide employment and foster regional development [5]. These sectors act as a catalyst for upstream and downstream economic linkages, from fish farming supply chains to port-based export-import operations [6]. The economic value generated by maritime clusters demonstrates their ability to stimulate innovation, attract investment, and develop human capital [7].

The concept of the blue economy centered on sustainable marine development is central to Surabaya's planning framework [8]. In this regard, the city has adopted the Minapolitan approach, a regionally focused development model that promotes integrated, efficient, and environmentally responsible use of coastal and marine resources [9]. This model prioritizes the synergy of ecological sustainability and economic productivity through improved coastal infrastructure, marine spatial planning, and technology-driven aquaculture [10].

Minapolitan implementation emphasizes enhancing the productivity of marine sectors while promoting coastal community welfare and strengthening ecological stewardship [4]. In practical terms, this involves developing small-scale fishing enterprises, upgrading traditional processing industries, and improving the resilience of

coastal livelihoods to climate-related risks [5]. However, implementation is not without barriers. These include data disparities between policymaking bodies and real field conditions [2], fragmented policy mandates between central and regional governments (especially in port operations and fisheries resource control) [10], and constrained financial flows to local governments—many of which receive indirect economic benefits through levies and taxes, while central agencies manage direct port revenues [3]. Furthermore, inadequate inter-agency coordination and inconsistent policy enforcement have often resulted in inefficiencies and missed opportunities in optimizing maritime economic zones. This calls for adaptive governance mechanisms that align with multilevel institutional arrangements and that encourage participatory planning with local stakeholders [6].

This study seeks to examine the maritime sector's direct and indirect contributions to Surabaya's economy through three analytical lenses: its effect on Regional Original Revenue (Pendapatan Asli Daerah—PAD), its capacity to absorb labor, and the effectiveness of regulatory and institutional frameworks supporting maritime development [10]. These lenses reflect key components in assessing regional economic resilience and competitiveness. The findings aim to propose evidence-based recommendations for advancing Surabaya's role as a maritime economic hub and improving multi-level governance between central agencies, local authorities, and private maritime stakeholders.

2. METHODS

This study adopts a mixed-methods approach to comprehensively assess the role of the maritime sector in Surabaya's economic development. The combination of quantitative and qualitative techniques allows for a more holistic understanding of sectoral contributions, policy performance, and governance dynamics. The quantitative component involves the collection and analysis of secondary data spanning the last five years (2019–2024). Key data sources include the Central Statistics Agency (BPS), Surabaya City Government reports, the Ministry of Marine Affairs and Fisheries (KKP), and regional development planning documents. The quantitative analysis is structured around four main indicators:

- Contribution to Gross Regional Domestic Product (GRDP),
- Employment absorption in maritime-related sectors,
- Contribution to Regional Original Revenue (PAD), and
- Growth rate of maritime sub-sectors.

These indicators are processed using a scoring and weighting system based on a normalized scale (0–1). Each indicator is assigned a weight reflecting its strategic relevance, as determined through expert judgment and literature review (e.g., Porter, 1998; OECD, 2005). Composite scores are then calculated to identify and rank leading maritime sub-sectors such as fisheries, port services, shipbuilding, and marine tourism. The qualitative component employs descriptive and comparative analysis. This includes a review of existing national policy frameworks (such as the Minapolitan and Blue Economy strategies), local development regulations, and transnational references (e.g., ASEAN maritime strategies). Interviews were conducted with local policymakers, maritime industry stakeholders, and representatives from academia to gather insights on challenges, coordination mechanisms, and policy implementation gaps.

To ensure analytical rigor, the study applies triangulation by cross-validating statistical trends with stakeholder perceptions and policy document content. Additionally, thematic coding is used in analyzing interview transcripts to identify recurring patterns related to governance, infrastructure, and socio-economic outcomes. The integrative nature of this methodological design ensures that both macro-level economic indicators and micro-level implementation realities are captured. This enables the formulation of policy recommendations that are not only evidence-based but also grounded in local institutional and socio-economic contexts.

3. RESULTS AND DISCUSSION

3.1. Surabaya's Minapolitan Zone and Its Contribution to Regional Original Revenue (PAD).

The city of Surabaya, strategically located on the northern coast of East Java, possesses significant marine potential. Geographically, seven of the 31 districts—Kenjeran, Bulak, Pabean Cantian, Semampir, Asem Rowo, Benowo, and Krembangan—are directly adjacent to the coastline, forming the core of Surabaya's designated Minapolitan zone. These districts are recognized for their economic reliance on maritime-based

activities, including capture fisheries, fish farming, marine product processing, and port logistics. These sectors have shown substantial contribution to local revenue (PAD), both directly through licensing and taxation, and indirectly via induced economic activity in supporting industries [11].

Field data analysis reveals that targeted policy instruments—such as spatial marine zoning, infrastructure development, and marine commodity prioritization—have positively influenced PAD growth in these coastal areas. In line with the national blue economy strategy, the Minapolitan framework provides an integrated development model combining economic productivity and sustainability. However, a gap remains between the strategic planning at the city level and the operational realities in coastal districts. This is often due to insufficient stakeholder coordination and a lack of updated marine economic data [12]. To address this, Surabaya's city government has initiated revisions to its regional regulations (Perda No. 12/2008) to clarify jurisdiction and optimize revenue generation from marine-based activities. The regulatory backing is reinforced by national mandates, including Law No. 23/2014 and the Ministerial Regulation PER.12/MEN/2010, which affirm local governments' authority in managing marine and fisheries sectors. This legal foundation enables Surabaya to develop more structured marine resource governance, supported by annual Musrenbang (development planning forums) that now emphasize marine-based proposals.

Moreover, budget planning and program execution under the Musrenbang framework have begun to reflect marine sector priorities, particularly in infrastructure and coastal community development. Evidence from stakeholder interviews suggests that projects funded under provincial and national grants are increasingly aligned with Surabaya's marine spatial plan, although discrepancies remain in follow-up and monitoring phases.

Figure 1. Map of Surabaya City Administration

Figure 1 (Map of Surabaya Marine Districts) illustrates the spatial distribution of the Minapolitan area and its functional zoning. The effective use of this zoning system has led to higher levels of investor confidence, improved regulatory clarity, and greater synergy between sectors such as tourism, transportation, and fisheries. The basic authority of the Surabaya city government in regulating policies related to Minapolitan potential is based on several laws and regulations that provide autonomy to local governments to manage certain government affairs. Here are some of the basics of such authority:

1) Law No. 23 of 2014 on Local Government. This law regulates the division of government affairs between the central government, provincial governments, and district/city governments. In the annex to the law, the Marine and fisheries sector is included in government affairs that can be managed by local governments in accordance with their authority.

2) Surabaya regional Regulation No. 12 of 2008 on Government Affairs under the authority of the region: this regulation sets out government affairs under the authority of the Government of the city of Surabaya, including the field of marine and Fisheries. In Article 3, it is stated that government affairs under the authority of the region include 31 areas, one of which is marine and Fisheries.

3) Regulation of the Minister of Marine Affairs and Fisheries number PER.12/MEN / 2010 about Minapolitan: this Regulation describes the concept of Minapolitan as a Marine and Fisheries economic

development area that is integrated, efficient, qualified, and accelerated. Local government has an important role in the development of the Minapolitan area in accordance with the potential of the region. With these basic powers, the Surabaya city government has a legal basis to regulate and develop policies related to the potential of Minapolitan in its territory. The following Figure 2 below is a scheme / workflow
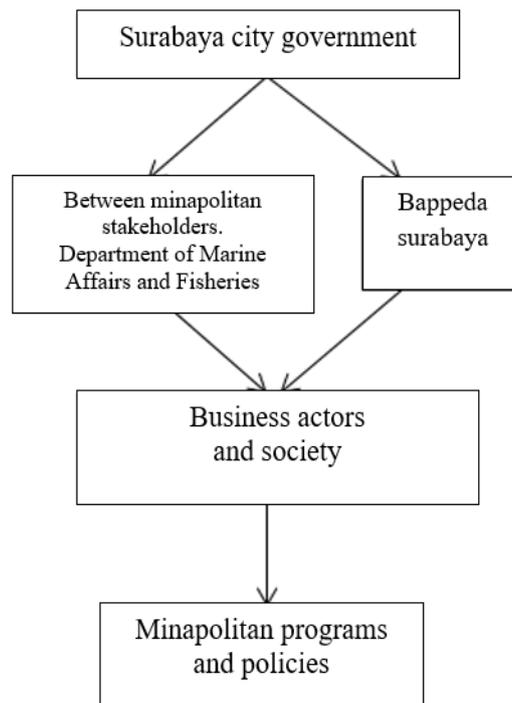

Figure 2. Work Scheme Minapolitan Surabaya

To maximize this potential, Surabaya must continue investing in sustainable development practices—such as eco-harbors, digital logistics platforms, and vocational training for coastal youth. Coordinated promotion, supported by local tax incentives and access to capital, is key to enhancing competitiveness and driving inclusive growth. These recommendations are supported by international studies on maritime cluster development [13].

Therefore, the development of Surabaya's Minapolitan zone when grounded in coordinated policy, legal clarity, and inclusive planning has the potential to transform the city into a model for sustainable urban maritime economy in Indonesia and the Southeast Asian region.

3.2. Theory and implementation of the policy framework.

The strategic implementation of the Minapolitan concept in Surabaya is guided by a dual policy framework that combines a theoretical classification of maritime economic activities with a pragmatic approach to planning, regulation, and stakeholder coordination. This framework enables the Surabaya city government to improve sectoral targeting, enhance inter-agency collaboration, and maximize the contribution of the maritime sector to local economic development.
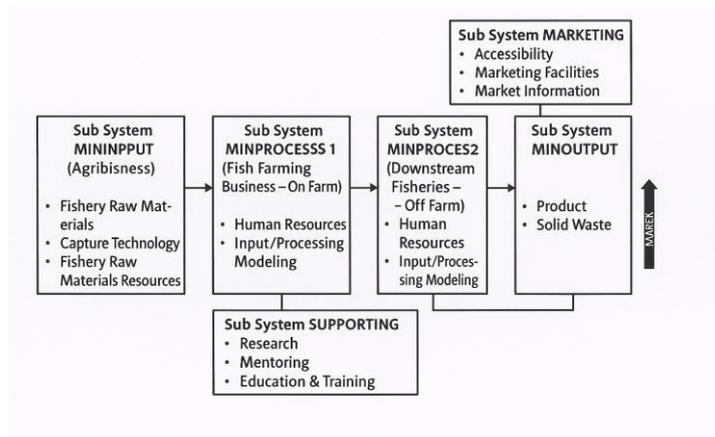
Figure 3. Minapolitan Subsystem Analysis

3.3. Theoretical Framework

The theoretical framework aims to establish a structured classification system for maritime-related economic activities. This system allows for standardized data collection, high comparability across time and regions, and targeted policy formulation. The classification includes:

1. Fully marine-based activities: such as capture fisheries, aquaculture, seafood processing, and marine tourism;
2. Partially marine-based activities: such as shipbuilding, fishing gear manufacturing, fisheries logistics, and tourism support services;
3. Supportive non-marine-based activities: such as fish feed production, ice processing for fish preservation, and food manufacturing using marine products.

This framework helps policymakers and practitioners understand the value chain dynamics and interdependencies across sectors, which is essential for optimizing marine-based development. Moreover, by aligning classifications with regulatory and economic objectives, it enables performance benchmarking and more precise resource allocation [14].

3.4. Applied Framework

In practice, the city of Surabaya has adopted a data-driven, multi-sectoral approach to implementing this framework. The local government uses coastal mapping, economic profiling, and regulatory review to assess the distribution and performance of maritime activities in the seven coastal districts. Key features of this applied framework include:

- Integrated marine zoning based on potential and economic activity levels;
- Commodity prioritization aligned with local strengths and market demand (see Figure 4);
- Coordination through development planning forums (Musrenbang);
- Stakeholder engagement involving government agencies, private enterprises, community groups, and academic institutions;
- Capacity development programs targeting small and medium marine enterprises.

To ensure continuity and adaptability, the framework also incorporates mechanisms for feedback, policy revision, and monitoring and evaluation. This aligns with broader international best practices in maritime cluster governance [15]. Human capital development is also prioritized through training, certification, and business mentoring programs, particularly for youth and women in coastal communities. These efforts are designed to foster inclusive growth and social resilience while increasing the productivity of the maritime sector. With effective execution, the combined theoretical and applied framework positions Surabaya as a leading example of localized marine economic governance. Its structured and participatory approach provides a replicable model for other Indonesian coastal cities aiming to advance blue economy initiatives.

No	Commodity	Product-Score	Land A-Score	Market Demand Score	Total Score	Commodity Category
1	Pangasius	3,012	2,892	3,897	16.914	Excellent
2	Catfish	3,987	3,102	3,578	18.867	Excellent
3	Nile Tilapia	3,876	3,256	3,412	18.288	Excellent
4	Gourami	3,488	3,111	3,654	16.419	Potential
5	Common Carp	3,167	3,984	3,431	16.654	Potential
6	Pommet	3,267	3,001	3,586	17.062	Potential
6	Pomfret	3,267	3,586	3,521	17.062	Potential

Figure 4. Featured Commodity Analysis Surabaya City

3.5. Maritime sector" Minapolitan " in the city of Surabaya and its contribution to the economy

This section conveys a general view of the maritime economic activities in the city of Surabaya as a whole, especially in areas that have the potential as a Minapolitan zone. This analysis is carried out in two steps, namely the first step: the contribution of maritime activities to the economy of the city of Surabaya, which is assessed based on the gross value and the impact on job creation.
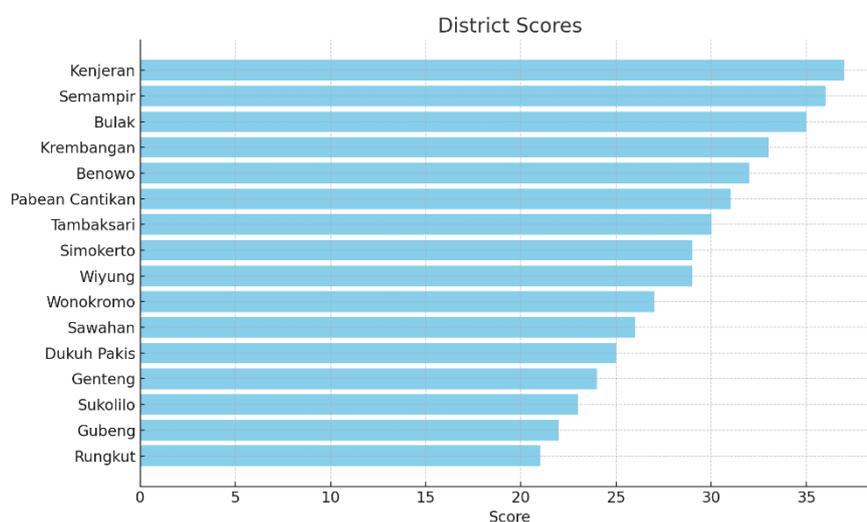

Figure 5. Scoring and Weighting Results for The City of Surabaya

This section provides a comprehensive analysis of maritime economic activities in Surabaya, particularly in districts classified as Minapolitan zones. The analysis consists of two main stages: (1) evaluation of the economic contributions of maritime activities based on gross value and employment absorption, and (2) assessment of the sector's broader macroeconomic impacts within East Java's marine economic system. In the first stage, quantitative scoring and weighting methods were applied to evaluate the performance of maritime subsectors in Surabaya. These include fisheries, marine tourism, seafood processing, and port-related logistics. Figure 5 illustrates the composite results, highlighting that fisheries and port services have the highest weight due to their substantial contributions to employment and regional income. These subsectors have shown strong linkages with small and medium enterprises, enhancing local value chains and supporting inclusive growth. The second stage expands the analysis by examining macroeconomic indicators. The data demonstrate that the maritime sector contributes not only to local economic output but also to social well-being. Between 2021 and 2024, the poverty rate in Surabaya decreased from 5.23% to 3.96%, while open unemployment (TPT) declined

from 9.68% in 2021 to 4.91% in 2024. These improvements are partly attributable to job creation in coastal and port-based industries. Economic growth indicators also show a positive trend. Surabaya's economy grew by 5.70% in 2023 and 5.76% in 2024, marking the city as the fastest-growing urban economy in East Java. In 2023, the city's GRDP per capita reached IDR 245.68 million, ranking second in the province. This aligns with international literature on the role of maritime clusters in regional economic transformation [16].

The consistent decline in poverty and unemployment, alongside increased GRDP and sectoral productivity, underscores the strategic role of the maritime economy. It suggests that Surabaya's investments in the Minapolitan framework and blue economy initiatives are yielding tangible results, both economically and socially. Going forward, improving inter-sectoral integration and sustaining policy alignment will be essential for maintaining this growth trajectory.

3.6. Contribution of the Port Sector to Surabaya's Local Revenue (PAD)

Tanjung Perak Port, one of the busiest and most strategic ports in Indonesia, serves as the central logistics gateway for Eastern Indonesia. Its significance is reflected in both its scale and its role in facilitating the movement of domestic and international goods. The port catalyzes economic activities in Surabaya, including warehousing, transportation, and distribution services. However, despite its scale, the port's direct contribution to Surabaya's Regional Original Revenue (PAD) remains limited, as most revenues are administered by the central government through PT Pelindo (Persero).

Surabaya's PAD is primarily derived from local taxes, which account for approximately 74% of total revenue. These include hotel, restaurant, entertainment, and advertisement taxes—many of which are indirectly influenced by port-related economic activity. Additionally, regional retributions such as public service fees, business services, and licensing contribute around 7.5% of PAD. Ports stimulate growth in these sectors by generating demand for hospitality, logistics, and transport services.

Indirectly, the port also impacts revenue streams from Surabaya's separated wealth management (e.g., BUMD profits), which contribute around 3.2%, and other legitimate local income (e.g., interest, penalties), accounting for about 14% of PAD. These figures highlight the broader economic value chain created through port operations. Although the centralization of port revenue limits direct fiscal gains for the local government, the economic spillover is substantial. Employment opportunities in loading and unloading services, maritime logistics, and port infrastructure continue to expand. These activities also attract investment in logistics parks, cold storage, and maritime-related industries [17].

Recognizing these dynamics, the Surabaya city government has increasingly advocated for decentralization in port asset management. With potential policy reforms on revenue-sharing and local oversight, Surabaya could secure a greater share of port-generated income. To this end, building stronger partnerships between local authorities, port operators, and private sector players is essential. Such collaboration could unlock more equitable benefit-sharing, enhance PAD contributions, and ensure long-term sustainability in Surabaya's maritime economy. Strategic planning must now focus on optimizing this synergy to bolster local fiscal independence and infrastructure development.

3.7. Fiscal Structure of Surabaya's Local Revenue (PAD)

The structure of Surabaya's PAD serves as a benchmark for evaluating the city's financial independence and capacity to fund public services. It reflects how effectively the local government mobilizes internal revenue sources to sustain infrastructure, education, health, and economic development initiatives. The four major revenue sources include local taxes, local levies, profits from regional-owned enterprises (BUMD), and other legitimate income.

As of 2022, the largest portion of PAD approximately 78.2% or IDR 4,157.52 billion out of a total IDR 5,314.70 billion was contributed by local taxes. These include the hotel and restaurant tax, entertainment tax, advertisement tax, parking fees, street lighting tax, and land-related taxes such as Land and Building Tax (PBB) and Land and Building Rights Acquisition Tax (BPHTB). The increase in economic activities around Surabaya's trade, property, and service sectors has played a pivotal role in sustaining this tax base. Local levies represent another significant component, amounting to 5.1% or IDR 269.60 billion in 2022. These levies cover payments for public and business services and licensing fees—such as building permits and route permits—which directly support government regulation and development functions.

The contribution from regional wealth management (i.e., profits from BUMDs) added approximately 4.4% (IDR 233.69 billion) to PAD. This revenue stream reflects the performance of regional government investment in public enterprises, including utility services, logistics operations, and market management.

Additionally, other legitimate revenues—such as interest income, late penalties, and returns from underutilized regional assets—contributed 12.3% or IDR 653.89 billion to the city's fiscal capacity. Surabaya's overall PAD demonstrates a consistently upward trajectory. Bapenda (Surabaya Revenue Agency) projected a revenue target of IDR 5.13 trillion in 2023. This is expected to rise to IDR 6.4 trillion in 2024 and reach IDR 8 trillion by 2025, signaling strong fiscal performance and enhanced autonomy [18].

To support this growth, the city government continues to improve tax collection systems, digitize service payments, and promote investment through infrastructure readiness and regulatory reforms. With effective governance and performance monitoring, Surabaya is poised to further strengthen its fiscal foundation and build equitable public service delivery systems across its administrative regions.

3.8. Strategic Role of Surabaya's Container Ports in Maritime Commercial Development

Surabaya is home to two major container terminals Surabaya Container Terminal (TPS) and Teluk Lamong Terminal both of which play a central role in driving the city's logistics and maritime commerce. As key logistics hubs, these ports serve not only East Java but also broader regions across Eastern Indonesia, facilitating high-volume cargo throughput and enabling export-import activities [19].

TPS was the first terminal in Indonesia to adopt the International Ship and Port Facility Security (ISPS) Code in July 2004. By 2023, PT Pelindo Container Terminal (SPTP), the operator of TPS, recorded a total throughput of 11.53 million TEUs, an increase of 2.63% compared to the previous year. This growth was bolstered by the addition of 20 new shipping routes, including six managed by TPS itself. During peak periods such as the Eid holidays, TPS implemented integrated response strategies involving human resources, engineering, IT systems, and safety protocols to maintain operational stability. Teluk Lamong Terminal, a newer generation semi-automated port facility, complements TPS by serving both containerized cargo and dry bulk commodities [20]. In 2023, the terminal added five new international service routes, further enhancing Surabaya's connectivity and reinforcing its position as a national trade distribution center. Technological innovation has been a key pillar of operational efficiency. Both terminals have implemented advanced logistics technologies, including X-ray scanning systems and automated gate operations, which streamline customs clearance, reduce congestion, and improve port security. These innovations support the vision of a smart, efficient, and globally competitive port system [21].

The cumulative impact of these terminals extends beyond operational capacity. The port cluster stimulates value chains in warehousing, cold storage, marine insurance, freight forwarding, and inland transportation. Furthermore, the increasing container flow strengthens investor confidence and generates indirect fiscal benefits for Surabaya through taxes, business permits, and labor market absorption. In the broader context of the blue economy, the role of Surabaya's ports aligns with sustainable maritime growth by promoting multimodal transport integration, optimizing port hinterland connectivity, and reducing carbon footprints through digitalization and automation. If leveraged strategically, these ports can serve as catalysts for regional economic transformation and urban logistics modernization [22].

To fully capitalize on these advantages, stronger collaboration between PT Pelindo, local government, and private logistics players is essential [23]. Policy incentives, spatial alignment with Surabaya's maritime zoning plans, and infrastructure investments must be synchronized to maintain port competitiveness in the ASEAN regional supply chain. Surabaya's continued focus on modernizing its port infrastructure and governance mechanisms will play a pivotal role in elevating its status as Indonesia's eastern maritime gateway and in enhancing the city's contribution to the national logistics ecosystem.

4. CONCLUSION

The maritime sector plays an important role in Surabaya's economic development by contributing to local revenue (PAD), job creation, and the growth of marine industries. The implementation of the Minapolitan concept has helped manage marine resources more sustainably while improving the welfare of coastal communities.

Surabaya's growing GRDP, declining poverty and unemployment rates, and strong port infrastructure especially TPS and Teluk Lamong—show how the maritime sector supports economic progress. However, challenges remain, especially in the coordination between central and local governments regarding port revenues, which mostly go to the central level. To overcome this, better cooperation between governments, fairer revenue-sharing policies, and stronger collaboration with the private sector are needed.

Community empowerment, digital innovation, and data-based planning should also be strengthened. With these steps, Surabaya can continue its progress as a leading, sustainable maritime city in Indonesia and support the growth of the national blue economy.

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