TOURISM, REGIONAL ECONOMIC STRUCTURE, AND SUSTAINABILITY IN THE SPECIAL REGION OF YOGYAKARTA: A DESCRIPTIVE CASE STUDY

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Abstract

This study examines how tourism shapes the regional economic structure of the Special Region of Yogyakarta (DIY), how tourism-related activities connect to local businesses and employment, and which spatial and environmental constraints shape the sector's development. It uses a descriptive case-study design based on secondary statistical publications, government documents, and academic literature covering 2019–2024. The analysis is organized around four themes: the contribution of tourism-related sectors to regional output; the local economic linkages commonly described as the multiplier effect; accessibility and tourism infrastructure; and the distributional and environmental challenges associated with tourism development. The available material indicates that accommodation, food and beverage services, transportation, and other services are relevant components of DIY's service-oriented economy. It also points to uneven tourism infrastructure across the five administrative areas and ongoing concerns about waste management and protecting local livelihoods. Because the study does not estimate a causal model or calculate a regional input-output multiplier, it does not claim that tourism independently caused changes in regional growth or household welfare. The study contributes an integrated descriptive account linking regional output, local economic linkages, spatial distribution, and environmental governance during the 2019–2024 recovery period.

Keywords: *Tourism; Regional Economic Structure; Local Economic Linkages; Spatial Inequality; Sustainable Tourism; Yogyakarta*

INTRODUCTION

Tourism is commonly treated as a component of regional development because visitor expenditure creates demand for accommodation, food and beverages, transport, retail, cultural activities, and other services. These linkages can support business activity and employment, although the scale and distribution of the benefits depend on the extent to which local suppliers and workers participate in the tourism value chain (Sharpley, 2018; Sinclair & Stabler, 1997; Dwyer et al., 2004). For a regional economy, therefore, tourism should not be assessed only through visitor numbers. Its relevance also concerns the sectoral composition of regional output, the retention of expenditure within the region, the quality of employment, and the environmental costs borne by host communities.

The analytical framework of this article is deliberately limited to concepts that can be examined using descriptive secondary data. First, the Keynesian expenditure-multiplier perspective provides a conceptual explanation of how an initial increase in visitor spending may circulate through local suppliers and household consumption (Archer & Fletcher, 1996; Dwyer et al., 2004). It is used here to interpret economic linkages, not to estimate a multiplier coefficient. Second, the core–periphery perspective helps organize the comparison between tourism concentration in Yogyakarta City and Sleman and the tourism potential of Bantul, Gunungkidul, and Kulon Progo. Third, sustainable tourism provides a framework for considering whether economic activity is compatible with environmental capacity and community interests (Bramwell & Lane, 1993; Ko, 2005). These concepts are complementary: the multiplier perspective concerns local circulation, the spatial perspective concerns where benefits accumulate, and the sustainability perspective concerns the long-term conditions under which tourism can be maintained.

The Special Region of Yogyakarta (DIY) is a relevant case because its tourism offer combines cultural heritage, education-related travel, urban attractions, and coastal and nature-based destinations. Its administrative territory consists of Yogyakarta City and four regencies: Sleman, Bantul, Gunungkidul, and Kulon Progo. These areas differ in their tourism assets, accessibility, settlement patterns, and supporting facilities. Such differences make DIY suitable for examining not only the relationship between tourism-related activities and regional output but also the spatial distribution of tourism facilities and the challenges faced by destinations outside the main urban corridor.

Yogyakarta's reputation as a city of education also contributes to visitor mobility associated with family visits, academic activities, and meetings. These activities may complement leisure tourism and support accommodation, food services, transport, and retail. Nevertheless, the presence of educational institutions should be treated as contextual support for visitor demand rather than as proof of a measurable tourism contribution unless the relevant visitor and expenditure data are separately identified.

The COVID-19 period demonstrated the vulnerability of activities that depend on mobility and face-to-face services. Restrictions on travel and the temporary closure or reduced operation of tourism facilities affected accommodation, food services, transport, and small businesses connected to visitors. This experience provides an important baseline for interpreting the 2019–2024 period: the period includes a pre-pandemic reference year, the contraction, and the subsequent recovery. It does not, by itself, establish that tourism was the sole determinant of regional economic performance, since other sectors and policy responses also influenced the regional economy.

Previous studies have discussed tourism's potential to generate local economic linkages and support community-based businesses. The Keynesian multiplier concept explains the possible transmission of visitor expenditure through suppliers and household income, while research on locally owned tourism in Yogyakarta highlights the role of small-scale businesses and community participation (Keynes, 2018; Pitana & Diarta, 2009; Hampton, 2003). These findings provide interpretive foundations for this article. However, estimates reported by previous researchers, including multiplier values, cannot be presented as findings of the present study unless they are independently calculated using comparable data and a stated method.

The literature and policy discussion provide useful insights into tourism recovery, community-based tourism, and environmental management. However, the material reviewed for this article does not yet offer a single descriptive account that brings together the five administrative areas of DIY and examines, for the same 2019–2024 period, regional output proxies, local business linkages, infrastructure and accessibility, spatial distribution, and environmental constraints. The article addresses this gap by organizing these dimensions in one case-study framework. Its contribution is integrative and analytical rather than causal: it clarifies what the available secondary evidence can show, distinguishes it from claims made in earlier studies, and identifies data limitations that should guide future empirical work.

Accordingly, this study has three objectives: (1) to describe the position and development of tourism-related economic activities in DIY using available regional statistical indicators; (2) to examine, through a synthesis of secondary sources, the channels connecting tourism expenditure with MSMEs, employment, and local economic circulation; and (3) to identify spatial, institutional, and environmental constraints affecting the sustainability and distribution of tourism activity across Yogyakarta City, Sleman, Bantul, Gunungkidul, and Kulon Progo. The article uses the term 'contribution' in a descriptive sectoral sense and does not treat it as a causal effect.

RESEARCH METHOD

This article adopts a descriptive qualitative case-study design based on secondary sources. This design is appropriate for synthesizing statistical descriptions and documentary evidence about the structure, distribution, and governance of tourism in DIY. It is not designed to estimate causal effects. The unit of analysis is tourism-related economic activity and its associated spatial and environmental conditions at the provincial and regency/municipality levels. The five administrative areas constitute embedded analytical settings within the single case of DIY.

The geographical scope covers Yogyakarta City and the four regencies of Sleman, Bantul, Gunungkidul, and Kulon Progo. The period 2019–2024 was selected to capture three analytically distinct phases: the pre-pandemic reference period, the disruption associated with COVID-19, and the subsequent recovery. Comparisons are made only where indicators are defined consistently across years and administrative areas. Where comparable observations are not available in the reviewed material, the discussion is presented as contextual evidence rather than as a quantified regional comparison.

The study relies on secondary materials identified in the original research design: publications of the Central Bureau of Statistics (BPS) for DIY, including regional statistics and regional GDP by industry; regional government performance and tourism reports; and relevant academic publications. The intended observation period is 2019–2024. Documents are included when they (a) address DIY or one of its five administrative areas, (b) provide information relevant to tourism, regional output, business activity, employment, infrastructure, spatial development, or the environment, and (c) identify the reporting institution and period. The article does

not report a complete document inventory or a reproducible extraction log; consequently, its evidence base should be understood as a documentary synthesis rather than a fully replicable systematic review.

The analysis distinguishes three types of material: official statistical observations, statements or estimates reported by earlier studies, and the author's interpretation. Official statistics are used to describe indicators within their published definitions. Academic studies are used to explain possible mechanisms and provide context, not to substitute for missing local observations. Claims that cannot be traced to a specific table, year, unit, or source are not treated as verified numerical findings. This distinction is particularly important for estimates of tourist expenditure, multiplier values, investment concentration, and environmental carrying capacity.

The analytical dimensions, indicators, and proposed source categories are summarized in Table 1. The table is a framework for organizing the evidence rather than a claim that every indicator is available as a complete annual series for all five areas.

Table 1. Analytical Dimensions, Indicators, and Secondary Source Categories

Analytical Dimension	Indicators / Focus	Source Category	Analytical Function
Regional economic structure	Regional GDP by industry; annual growth of accommodation and food services, transport, and other relevant sectors	BPS DIY regional GDP publications, 2019–2024	Describe tourism-related sectors; not a complete measure of tourism GDP
Local economic linkages	MSME activity, local procurement, employment, tourism-village participation	BPS and regional agency reports; studies cited in the literature	Synthesize possible direct, indirect, and induced linkages; no multiplier estimated
Spatial distribution	Visitor flows, accommodation capacity, investment by administrative area, length of stay	BPS DIY; tourism and investment agency reports	Assess spatial concentration where comparable data are available
Environmental sustainability	Waste volume and processing, congestion, land-use change, site-specific carrying-capacity indicators	Environmental agency reports and site-specific studies	Identify environmental pressures; distinguish regional waste issues from tourism-specific waste

Source: Compiled by the author based on the research design; availability varies by indicator and year.

The analysis follows the interactive approach of data condensation, data display, and conclusion drawing described by Miles, Huberman, and Saldaña (2020). First, relevant information was grouped under the analytical dimensions in Table 1 and screened for geographical and temporal relevance. Second, the information was compared across years and administrative areas where definitions and units were sufficiently consistent. Third, the resulting patterns were interpreted using the Keynesian multiplier, core–periphery, and sustainable tourism perspectives. Findings from official statistics were kept distinct from interpretations based on academic literature. Cross-checking was undertaken by comparing statements across the available official and academic documents; however, no formal inter-coder reliability test or quantitative triangulation procedure was conducted.

For transparency, this procedure has limits. The article does not calculate a tourism satellite account, an input-output multiplier, or a causal estimate. Accommodation and food service activities are treated as partial proxies for tourism because these sectors also serve residents and non-tourism demand, while tourism expenditure may be recorded in several other sectors. Accordingly, the findings describe tourism-related patterns and plausible linkages, not the total direct, indirect, and induced contribution of tourism to DIY's economy.

RESULTS AND DISCUSSION

Tourism-Related Activities and Regional Gross Domestic Product

Tourism is not recorded as a single industry in the standard regional GDP classification. Tourism-related demand is distributed across accommodation and food services, transportation and storage, trade, information and communication, and other services. For that reason, the accommodation and food service sector can be used as one observable proxy for part of tourism-related activity, but it cannot represent the entire tourism economy. It also includes purchases made by local residents and business customers. Conversely, tourist spending in transport, retail, and cultural activities is recorded outside this sector. This limitation must be considered when interpreting sectoral GDP figures.

The 2019–2024 period covers the pre-pandemic baseline, the contraction associated with mobility restrictions, and the recovery phase. BPS regional GDP by industry and annual growth publications are the appropriate primary sources for describing the value added and growth of accommodation and food services, transportation, and other relevant sectors. The original draft's percentage claims do not provide the underlying annual values, calculation formula, or a traceable table reference. They are therefore not retained as verified results in this revision. A defensible year-on-year comparison should state the current-price or constant-price series, the base year where applicable, the sector classification, and the formula used: (value in year t minus value in year t−1) divided by value in year t−1, multiplied by 100.

The descriptive evidence supports examining tourism-related services as part of the recovery of DIY's service economy. It does not establish that these services were the primary driver of overall regional growth. Such a conclusion would require comparison with the growth contributions of other sectors, using consistent constant-price data. Hotel occupancy and visitor-arrival statistics can supplement the GDP analysis by indicating activity in the tourism market, but they measure different phenomena and should not be treated as interchangeable with value added. The analysis therefore interprets these indicators jointly and avoids attributing regional GDP changes exclusively to tourism.

Fiscal and institutional arrangements may influence the capacity of local government to maintain cultural assets, public facilities, and destination infrastructure. The role of regional funding should, however, be assessed through budget allocation and realization documents before its effects on tourism performance are asserted. In the absence of a comparable annual fiscal series in the materials presented here, institutional funding is discussed as a governance context rather than as a quantified explanation of post-pandemic growth.

Table 2. Tourism-Related Indicators and Their Interpretive Limitations

Indicator	What it can show	Limitation / data requirement
Accommodation and food services (regional GDP)	Part of tourism-related value added	Also serves residents and non-tourism demand; not a complete tourism measure
Transportation and storage (regional GDP)	Economic activity associated partly with visitor mobility	Cannot isolate tourist transport without purpose-of-travel data
Hotel occupancy and visitor arrivals	Tourism-market activity and changes in demand	Different units and concepts; must specify source, period, and coverage
MSME activity and employment	Potential local business and livelihood linkages	Requires comparable annual revenue, employment, and business-level data
Foreign tourist arrivals	International visitor arrivals recorded through YIA	Specify reporting month, coverage, and whether the figure counts arrivals or persons
Domestic tourist trips / visits	Domestic travel activity as defined by the relevant BPS series	Do not equate trips with unique visitors; specify the statistical unit and coverage

Source: Author's analytical framework based on the scope and limitations of the secondary data.

Local Economic Linkages, MSMEs, and Employment

The multiplier effect describes the possibility that an initial injection of visitor expenditure generates further transactions through local suppliers and household spending. In DIY, potential channels include purchases from food producers, craft workers, transport providers, accommodation operators, guides, and

retail businesses. The extent of local circulation depends on local ownership, sourcing patterns, worker residence, and the use of external inputs. Earlier tourism-impact research shows why the multiplier should be interpreted with attention to local supply linkages and the method used to estimate it (Archer & Fletcher, 1996; Dwyer et al., 2004). This article uses the concept to interpret these linkages; it does not estimate a new multiplier coefficient.

A directly relevant input-output study by Nuryadin and Purwiyanta (2023) examines the tourism sector in DIY using the 2015 input-output table covering 35 sectors. The authors identify hotels and restaurants and air transport among sectors with important inter-industry linkages, and report that tourism-related activities account for a substantial share of total output when direct and indirect connections are considered. This is a result of their 2015 input-output model, not an estimate produced by the present study and not a general multiplier coefficient that can be transferred to the 2019–2024 period. The original manuscript's separate estimate of approximately 1.8 attributed to Astuti (2019) is removed because its underlying publication and calculation could not be independently verified. Any multiplier claim should identify the underlying table, sector aggregation, model, and year.

A purchase of locally produced batik, for example, may create a direct sale for a retailer and demand for upstream producers or suppliers. This illustrates a possible indirect linkage, but the magnitude of the resulting income cannot be inferred from the example alone. Evidence of local retention would require data on supplier origin, business ownership, procurement, wages, and the proportion of expenditure retained within DIY. Such information would also help distinguish local multiplier effects from economic leakage to firms and suppliers outside the region.

Tourism villages such as Nglanggeran and Pentingsari are frequently discussed as examples of community-based tourism. Research on small-scale tourism in Yogyakarta describes how locally owned businesses can provide entry points for residents into the tourism economy (Hampton, 2003). Evidence from other Indonesian destinations also cautions that tourism-led livelihood change can create dependence on visitor markets and seasonal demand (Lasso & Dahles, 2018). These cases illustrate institutional arrangements through which a greater share of visitor spending may remain in the host community. They should not, however, be generalized to all villages in DIY without comparable evidence on income, employment, ownership, and the distribution of benefits.

Community-based tourism may create livelihood opportunities and strengthen local participation, but claims that it reduces poverty or prevents migration require direct indicators. Relevant measures include household income, the number and quality of jobs, business survival, poverty rates, and migration patterns over time. Recent analysis of Indonesia shows that tourism expansion can have different effects across regions and household groups, including adverse poverty or inequality outcomes in some places (Nugroho et al., 2024). Tourism-led inclusive growth also depends on supply-chain linkages, decent work, and the bargaining position of host communities (Jeyacheya & Hampton, 2020). Accordingly, this article identifies these outcomes as potential pathways and policy considerations rather than established effects.

The role of MSMEs should also be considered alongside employment quality and business vulnerability. Informal workers and small vendors may depend on visitor flows while having limited access to social protection, stable contracts, and business finance. Research on tourism-dependent livelihoods in Indonesia illustrates that a shift into tourism can increase income opportunities while also creating dependence on narrow and volatile visitor markets (Lasso & Dahles, 2018). Tourism-led growth may likewise produce precarious work and weak local supply-chain linkages unless inclusive policies are deliberately pursued (Jeyacheya & Hampton, 2020). A more inclusive tourism strategy therefore requires not only increasing visitor expenditure but also improving market access, business capabilities, social protection, and the bargaining position of local workers.

Infrastructure, Accessibility, and Yogyakarta International Airport

Yogyakarta International Airport (YIA), located in Kulon Progo, has changed the region's air-access infrastructure. The airport is relevant to tourism because it provides an additional gateway for domestic and international travel. Nevertheless, the existence of new infrastructure does not by itself demonstrate an increase in tourist arrivals or regional income attributable to the airport. Establishing such a relationship would require comparable data before and after the airport's operation, information on passenger purpose and origin, and consideration of other changes that occurred during the same period. Projections reported in earlier literature should be identified as projections, not as observed outcomes.

Road connectivity may reduce travel time and influence the choice of destinations, including weekend and short-stay travel. The original discussion links the Trans-Java toll network with changes in domestic tourist mobility. For Yogyakarta, this proposition should be tested using route-specific travel-time information, visitor-arrival data, and the timing of road openings. In the absence of a consistent before-and-after dataset in the material presented, the toll network is treated as an accessibility context rather than as a proven cause of tourism growth.

Infrastructure development can also generate uneven local effects, including land conversion, changes in access to livelihoods, and pressure on local public services. These distributional consequences should be assessed alongside aggregate accessibility gains. In particular, the experience of communities affected by airport-related land acquisition requires evidence from official impact assessments and local records; general claims about displacement should not be extended beyond the documented cases.

Institutional Governance and Policy Synergies in DIY Tourism

Tourism governance in DIY operates within the region's special institutional and cultural framework, including arrangements established under Law No. 13 of 2012 on the Special Status of the Special Region of Yogyakarta. Cultural preservation, spatial planning, land administration, and community empowerment are relevant to the conditions under which tourism develops. These institutional arrangements provide context for the analysis, but their effectiveness cannot be inferred solely from the existence of special status or a dedicated funding mechanism.

The Special Autonomy Fund (Dana Keistimewaan) may support cultural preservation and other functions associated with DIY's special status. To assess its specific contribution to tourism, research would need to trace budget allocations, realization, program outputs, and beneficiary areas. This article therefore treats the fund as part of the institutional setting and does not attribute a quantified tourism outcome to it.

Sultan Ground and Pakualaman Ground are distinctive elements of land governance in DIY and may shape the availability and terms of land use for tourism-related development. Their effects are not necessarily uniform: they may support cultural protection while also creating administrative procedures that investors and communities must navigate. A balanced assessment requires attention to the applicable legal arrangements and local land-use decisions rather than assuming that customary land governance always prevents commercialization or investment.

Spatial Distribution and Potential Economic Leakage

Tourism facilities and investment are not necessarily distributed evenly across DIY. The urban concentration of accommodation, commercial facilities, and transport connections in Yogyakarta City and parts of Sleman may create a core area with stronger capacity to capture visitor spending. By contrast, destinations in Bantul, Gunungkidul, and Kulon Progo may have different levels of accommodation, transport access, and supporting services. The core–periphery perspective helps frame this issue, but the extent of inequality must be demonstrated through comparable indicators rather than inferred from destination characteristics alone.

The original manuscript reports that more than 75 percent of formal tourism investment is concentrated in Yogyakarta City and Sleman. Because the underlying investment dataset, period, classification, and calculation are not supplied in the article, this percentage is not retained as a verified finding. A reliable assessment would require annual realized investment by regency/municipality, a consistent definition of tourism investment, and the share of each area in the DIY total. Until those data are documented, the concentration argument remains a proposition supported by the spatial pattern discussed in the literature.

Bantul and Gunungkidul contain coastal and nature-based attractions, while Kulon Progo combines rural, coastal, and airport-related functions. Whether these destinations capture a sufficient share of visitor expenditure depends on overnight stays, local accommodation capacity, visitor spending, and the presence of local suppliers. The possibility that visitors travel to southern destinations during the day and return to the urban north is a plausible form of leakage, but it requires visitor-flow and expenditure data to establish its scale.

Uneven tourism development may distribute costs and benefits asymmetrically. Communities near popular destinations can experience traffic, waste, and pressure on public facilities even where a relatively small proportion of visitor expenditure remains locally. Policy responses should therefore combine destination-level investment with transport connections, local procurement, community participation, and environmental services. The aim should not simply be to shift investment geographically, but to ensure that development is appropriate to local capacity and benefits residents.

Comparative Context: Yogyakarta, Bali, and Surakarta

A comparison with Bali and Surakarta can provide context, but a valid empirical comparison requires indicators measured in comparable ways and for the same period. Differences in international visitor shares, average spending, ownership structures, accommodation capacity, and statistical classifications can otherwise produce misleading conclusions. The original manuscript does not present a harmonized dataset for the three destinations. For this reason, the comparison is retained only as contextual literature discussion and is not used to rank the destinations or quantify differences in economic leakage.

The literature characterizes Bali as having a substantial international tourism market and a significant presence of larger-scale tourism investment, while Yogyakarta is often associated with cultural tourism and community-based businesses. These descriptions may help identify different development models, but claims that one destination has a specific leakage rate or that another retains a larger share of expenditure require comparable ownership, procurement, and visitor-spending data. No such harmonized figures are reported in this study.

Surakarta shares aspects of Central Javanese cultural heritage with Yogyakarta, while differing in scale, infrastructure, and tourism products. A defensible comparison should specify common indicators such as annual visitor numbers, average length of stay, accommodation capacity, tourism-related employment, and the contribution of relevant sectors to regional GDP. In the absence of a consistent comparative table, this article does not draw a definitive conclusion about the relative performance of Yogyakarta, Bali, and Surakarta.

Environmental Capacity, Waste Management, and Overtourism Risks

The sustainability of tourism depends on whether destinations can accommodate visitor activity without unacceptable environmental and social costs. Overtourism is therefore not established by an increase in visitor numbers alone; it requires evidence that visitor pressure exceeds the capacity of infrastructure, ecosystems, or community services. Tourism sustainability assessment should combine economic, social, and environmental indicators rather than rely on a single measure (Ko, 2005; UN Tourism, 2024). Relevant indicators include visitor density, waste generated per visitor, collection and processing capacity, water use, traffic congestion, land-use change, and ecological condition. The materials reviewed identify waste management and congestion as concerns in DIY, but do not provide a consistent dataset sufficient to calculate the carrying capacity of the province's destinations.

The Piyungan waste-management facility has been discussed in the literature and public policy debate as a regional waste-management challenge. Its operational constraints affect the wider waste system and should not automatically be attributed to tourism alone. Household waste, commercial activity, institutions, and visitors may all contribute to the waste stream. To isolate tourism's contribution, data would be needed on waste composition and volume by source, seasonal visitor numbers, and the amount generated by tourism businesses. The present article therefore treats the Piyungan issue as a regional environmental governance problem with potential implications for tourism.

The circular-economy perspective suggests that hotels, restaurants, and other tourism businesses can reduce environmental pressure through waste prevention, sorting, reuse, recycling, and responsible procurement. This approach is consistent with the broader sustainable-tourism principle that environmental management and host-community interests should be integrated into destination planning (Bramwell & Lane, 1993; UN Tourism, 2024). However, the claim that most hotels in DIY continue to use a linear production model requires a clearly identified survey or administrative dataset. Without that evidence, the article presents circular practices as a policy direction rather than a quantified description of current compliance.

Traffic congestion during peak travel periods and pressure on coastal destinations are relevant issues for destination management. Yet claims that visitor numbers routinely exceed ecological carrying capacity require site-specific measurements and a stated carrying-capacity method. Environmental impacts such as erosion and habitat disturbance may also have multiple causes. The analysis consequently identifies these matters as risks requiring monitoring, rather than concluding that tourism alone has caused the observed environmental changes.

Digitalization and Post-Pandemic MSME Resilience

Digital platforms, online travel agencies, social media, and cashless payment systems can expand the market access of tourism-related MSMEs. The literature reviewed in the original manuscript describes the acceleration of digital adoption during the pandemic. In the context of DIY, digitalization may help small

businesses reach visitors beyond their immediate location and manage bookings and payments. The extent of adoption and its income effects, however, require direct business-level data and should not be inferred from the availability of digital payment infrastructure.

Digitalization can complement local economic linkages by reducing transaction costs and improving the visibility of small businesses. It does not automatically guarantee higher revenue or business survival, since outcomes also depend on digital skills, platform fees, connectivity, product quality, and competition. Policy support should therefore combine digital access with training, financial literacy, and assistance in developing marketable local products. The present study treats digitalization as a relevant enabling condition identified in the literature, not as an independently measured determinant of MSME performance.

Strategic Policy Roadmap for Sustainable Tourism Development

The policy directions below are derived from the descriptive themes identified in this study. They should be understood as recommendations for further assessment and implementation, not as interventions whose effects have been evaluated by this research.

Table 3. Policy Directions for Sustainable Tourism Development in DIY

Time Horizon	Strategic Objective	Key Action Items	Target Stakeholders
Short-Term (1 Year)	Emergency Environmental & Waste Governance	Mandate zero-waste sorting in hotels/restos; enforce strict sanctions for illegal dumping; deploy mobile waste processing units in tourist hubs.	DLH DIY, Dispar DIY, PHRI Yogyakarta
Medium-Term (2-3 Years)	Mitigating Spatial Disparities & Capital Leakage	Provide tax incentives for eco-resorts in Gunungkidul/Bantul; shift government MICE events to southern regencies; improve feeder transit from YIA.	Bappeda DIY, BPMPT, Regency Governments
Long-Term (4-5 Years)	Institutional Resilience & Labor Formalization	Extend BPJS Ketenagakerjaan to informal tourism workers; establish carrying-capacity thresholds; integrate Dana Keistimewaan for green cultural villages.	Pemda DIY, BPJS, Sultanate & Ministry of Tourism

Source: Author's synthesis of the issues discussed in this study.

CONCLUSION, POLICY IMPLICATIONS, AND LIMITATIONS

This study describes tourism as an important component of the service-oriented economic structure of the Special Region of Yogyakarta. Accommodation and food services, transport, trade, and other services provide observable channels through which tourism-related demand may be reflected in regional output. However, no single sector captures the entire tourism economy, and the available evidence does not support a causal estimate of tourism's effect on regional GDP. This distinction is consistent with tourism-impact research that cautions against interpreting conventional sectoral or input-output estimates as complete measures of tourism's economy-wide effects (Dwyer et al., 2004; Nuryadin & Purwiyanta, 2023). The study therefore uses the concept of contribution descriptively and avoids claiming that tourism is the sole or primary cause of regional economic recovery.

The operation of Yogyakarta International Airport and improvements in road connectivity are relevant changes in the region's accessibility. They may influence visitor mobility and the location of tourism investment, but their specific economic effects cannot be isolated from the evidence assembled in this article. Establishing

those effects would require comparable pre- and post-development data and a research design that addresses other simultaneous changes.

The analysis also identifies spatial distribution and environmental governance as important conditions for sustainable tourism. The possible concentration of facilities and investment in Yogyakarta City and Sleman, contrasted with the different development conditions in Bantul, Gunungkidul, and Kulon Progo, warrants systematic comparison using consistent regional indicators. Likewise, waste management, congestion, and destination capacity should be assessed with source-specific environmental data. The current evidence supports identifying these as policy concerns, but not assigning precise magnitudes or attributing them exclusively to tourism.

The article's contribution is an integrated descriptive framework that connects tourism-related regional output, local economic linkages, infrastructure, spatial distribution, and environmental governance within one case study of DIY over 2019–2024. It also clarifies the boundary between descriptive contribution, a conceptual multiplier mechanism, and causal impact. This distinction helps prevent estimates from previous studies or unverified percentages from being presented as original empirical findings. It is also consistent with the emerging emphasis on distributional and spillover effects in tourism assessment, particularly the need to distinguish aggregate growth from the welfare outcomes experienced by different regions and households (Nugroho et al., 2024).

Regional policy should prioritize better data integration across BPS, tourism agencies, investment authorities, environmental agencies, and regency/municipality governments. Investment and destination development should be assessed against local infrastructure, environmental capacity, community participation, and the retention of benefits by local businesses and workers. Waste prevention and processing by tourism businesses, improved connectivity to peripheral destinations, and social protection for informal workers are relevant policy directions. Implementation should be accompanied by measurable targets and routine public reporting.

This study is limited by its reliance on secondary sources and the absence of a harmonized annual dataset for all indicators and all five administrative areas. It does not calculate an input-output multiplier, estimate causal effects, or independently verify all numerical claims reported in earlier publications. Future research should assemble comparable regency-level data on regional GDP, visitor arrivals and spending, investment, employment, business ownership, and waste generation. A tourism satellite account or input-output analysis could estimate direct, indirect, and induced contributions, while spatial analysis could examine the distribution of investment and visitor expenditure. These extensions would provide a stronger basis for evaluating policy outcomes.

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