

# Urbanization and nature-based tourism development: A case of tourism corridor in Surakarta-Karanganyar-Magetan

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**Abstract.** Urbanization and tourism development are closely intertwined, influencing each other in multiple ways and affecting the environment and natural resources both positively and negatively. Therefore, understanding the relationship between the two is crucial for devising strategies that promote more sustainable urban and tourism development. This study aims to examine the interaction between the urbanization process and nature-based tourism. The research questions are: How do urban centers relate to nature-based tourism, and what challenges do nature-based tourism face amid the expansion of urbanization and tourism activities? This study employs GIS mapping and secondary data processed with descriptive statistics, as well as Focus Group Discussions (FGD). The results indicate that urban centers play a central role in coordinating tourism development in the study area. The primary driving forces behind rapid urbanization stem from shifts in major economic sectors from primary (agriculture) to secondary (industrial activities) and tertiary (services) sectors. Subsequently, nature-based tourism contributes to the urbanization process through the development of service activities that to a certain extent cause land conversion in the area of tourism villages, which impacts the sustainability of the main attractions of nature-based tourism. Therefore, effective management of rapid urbanization and tourism development, particularly through land management, is critical for achieving sustainable strategies for interactions between nature-based tourism and urbanization.

## 1 Introduction

Urbanization is a phenomenon that is related to the physical and socio-cultural aspects of a place [1]. Urbanization and tourism significantly contribute to economic growth, with the tourism sector playing a crucial role. For example, Thailand has experienced rapid urbanization and globalization, which have fueled its economic development, largely due to the contributions of its tourism sector [2]. There is also a terminology of "tourism urbanization" as urbanization based on consumption and argues that tourism is not only a result of urbanization but can also contribute to the process of urbanization [3]. Tourism not only creates jobs and generates income for cities but also drives urbanization. The growth of commercial sectors, hospitality industries, and cultural attractions directly benefits urban

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economies. In these expanding cities, tourism diversifies the economy, enhancing its resilience. Other research examines the relationship between tourism agglomeration and urbanization, providing empirical evidence to support this connection. The study finds a positive and significant effect of tourism agglomeration on urbanization, suggesting that promoting tourism agglomeration could effectively drive urbanization [4]. Moreover, popular tourist destinations, such as coastal areas and heritage sites, often experience urbanization as tourism expands. As tourism increases, so does the demand for infrastructure and services, resulting in the expansion of urbanized areas in these regions [5].

On the other hand, the tourism industry has been impacted by urbanization. The development of regional tourism has been positively affected by population increase, GDP contribution from the service sector, and economic growth [6]. The stages of urbanization will influence the economic impact of tourism in different ways [7]. Residents' disposable income and economic activities rise due to urbanization. Cities may spend money on marketing campaigns and tourist attractions as a result of this economic expansion to boost tourism. Because tourists are drawn to cities with contemporary infrastructure, cultural attractions, shopping centers, and entertainment venues, urbanization can lead to the creation of new vacation destinations. To meet the expectations of tourists, cities frequently make investments in infrastructure in areas like public transportation, highways, and airports. As they expand, their infrastructure improves, increasing the places' accessibility and allure. For instance, constructing a contemporary airport might significantly increase tourism by making it easier for foreign tourists to arrive.

Furthermore, the positive impacts of urbanization and tourism also present environmental challenges [8]. Tourism can drive urban development including population growth and environmental problems [5]. Tourism development and urbanization significantly impact the environment. Urbanization brings challenges such as congestion, pollution, and housing affordability, which can be worsened by tourism. Of different types of tourism, there is nature-based tourism. Nature-based tourism is defined as “*the segment in the tourism market in which people travel with the primary purpose of visiting a natural destination*” or activities related to tourism where the main draw is the natural environment. Among the most well-known examples of these activities are trekking, scuba diving, snorkeling, wildlife viewing, and bird watching, as well as visits to national parks [9]. The challenge of urbanization and tourism expansion will risk the nature attractions, while this segment of tourism is the fastest-growing tourism sector [10, 11].

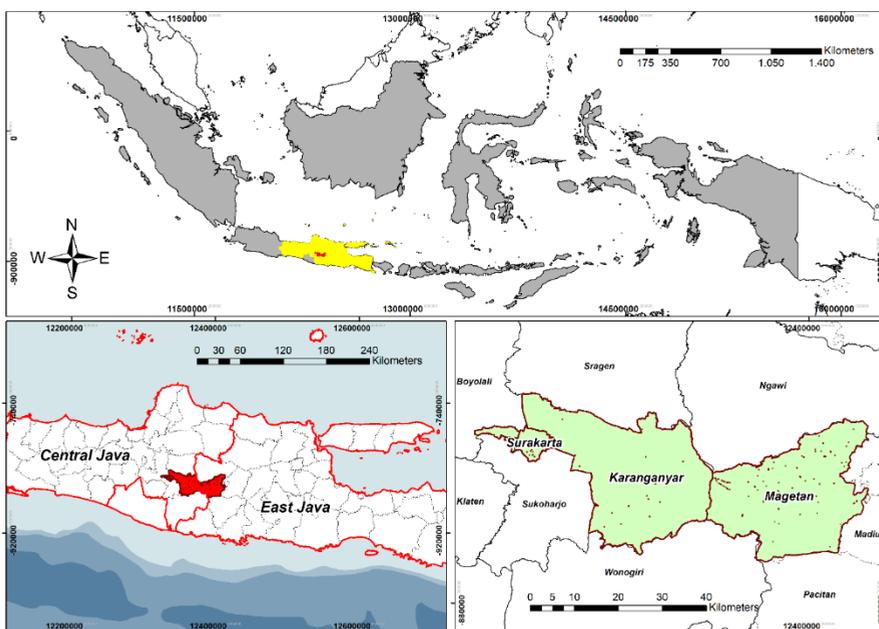
Nature-based type of tourism is strongly linked to a place's natural qualities, encouraging respect for the environment and frequently placing a strong emphasis on sustainability and conservation [12]. Nature-based tourism has several important characteristics [11]. Forests, mountains, rivers, lakes, deserts, marshes, and coastal regions are examples of natural settings. The focus is on locations that offer chances for tourists to interact with nature and are comparatively unaffected by human activity. Second, biodiversity and animals: places with a lot of wildlife draw a lot of nature-loving tourists [13]. Travelers can see animals in their native environments through activities including guided wildlife tours, safaris, whale watching, and birding. These encounters frequently center on understanding ecosystems and protecting species. Third, sustainability and conservation: A lot of nature-based tourism providers stress how crucial it is to preserve the natural areas that visitors come to see [13]. This can entail eco-friendly activities including reducing the area's negative effects on the environment, aiding regional conservation initiatives, or emphasizing the idea of sustainability and the region's ecological significance [14]. Fourth, ties to the community and culture: Interactions with Indigenous or rural populations whose livelihoods rely on or are intimately linked to the natural environment can also be a part of nature-based tourism [15]. Learning about local cultures that coexist with nature, conservation techniques, or traditional knowledge are a few examples of this. The economic foundation of tourism, which in turn

stimulates additional urban growth by boosting economic activity and necessitating the addition of new services and attractions, therefore, complicating the management of the natural environment of this type of tourism.

In summary, urbanization and tourism development are interrelated phenomena. Urban growth provides the essential infrastructure, but unregulated expansion can strain local resources and harm the environment. Urban regions act as cultural hubs, promoting cross-cultural exchanges that can strengthen the city's identity and global awareness. However, this can also lead to the monetization of local cultures and gentrification, as urban spaces increasingly cater to tourists. Overall, the connection between tourism and urbanization is often overlooked, despite their close interrelationship and mutual influence [16]. By referring to that theoretical perspective, this study aims to contribute valuable insights into the discussion about the interrelations of tourism and urbanization by taking a perspective of nature-based tourism. The research questions of this study are how the relations of urban centers to nature-based tourism are, and what is the challenge of nature-based tourism under the expansion of urbanization and tourism activities.

## 2 Methodology

The study proposes a case study method that combines quantitative data using GIS mapping, secondary data in terms of documents, as well as qualitative data from Focus Group Discussions. This study suggests an analysis to identify and assess the potential development of tourism sites along the corridor in line with the process of urbanization of the area in the corridor. The case study area is the tourism sites along the Surakarta-Karanganyar-Magetan Districts (Figure 1).



**Fig. 1.** The case study location.

Several stages were applied in this study to operationalize the research questions: how the relations of urban centers to nature-based tourism are, and what is the challenge of nature-based tourism under the expansion of urbanization and tourism activities? First, the process of urbanization is examined. This process is elaborated by using the data of urban and rural

village classification from the *Master File Desa* (MFD) or Village Master File document in the years 2000 and 2020 for Surakarta and Karanganyar, and the years 2010 and 2020 for Magetan District. Second, the tourism sites and the particular nature-based tourism sites are identified. The nature-based tourism sites are justified based on the main tourist attractions. Third, accessibility is determined by mapping the roads connecting the main urban centers and tourism villages and sites. Fourth, the land conversion from 2000 to 2020 is mapped in a selected district, in this case, Karanganyar District, as it is located in the middle of the corridor.

**Table 1.** Focus Group Discussion Participants.

No	Participants
1	Culture and Tourism Agency of Surakarta City
2	Public Works and Spatial Planning Agency of Surakarta City
3	Manpower Agency of Surakarta City
4	Representative of Laweyan Village
5	Representative of Jayengan Village
6	Micro Small Medium Enterprises and Industry Agency of Surakarta City
7	Representative of Jayengan Village Forum
9	Tourism, Youth and Sports Agency of Karanganyar District
10	Public Works and Housing Agency Karanganyar District
11	Public Works and Spatial Planning Agency of Magetan District
12	Culture and Tourism Agency of Magetan District

The land conversion is cross-checked with the spatial planning of Karanganyar District to examine whether or not the conversion took place in protected areas. Fifth, all the data will be further analyzed with the information gathered from Focus Group Discussion (FGD). The participants for FGD are from local government officials in Karanganyar and Magetan Districts, as well as Surakarta City (see Table 1).

### 3 Results and Discussion

#### 3.1 The Urbanization Process in the Corridor

This study identifies that the urbanization process in the Surakarta-Karanganyar-Magetan corridor from 2000 to 2020 has been rapid. During this period, the number of urban villages increased significantly, nearly tripling in Karanganyar (from 42 urban villages in 2000 to 125 in 2020, out of 177 villages) and doubling in Magetan (from 88 urban villages in 2010 to 153 in 2020, out of 235 villages). In contrast, Surakarta City was an exception, as all the *kelurahan* (equivalent to village administrative units in a city) already had urban status (see Figure 3). The data shows that since 2020, 63 percent of villages in the corridor have been classified as urban villages, indicating that the corridor has become an urbanizing region.

The classification of rural to urban villages is defined by the Central Statistical Bureau (BPS), based on variables related to population, accessibility, urban infrastructure, and facilities. According to 2020 data, fifty percent of nature-based tourism villages were classified as urban villages by the Central Bureau of Statistics. Overall, Karanganyar District has 10 nature-based tourism villages, of which 5 have rural status and 5 have urban status. Magetan District also has 10 nature-based tourism villages, with 5 classified as urban and the other 5 as

rural. Some villages have shown a change in status from rural to urban. In Karanganyar District, from 2000 to 2020, three nature-based tourism villages experienced this change: Pablengan, Girimulyo, and Pendem. Meanwhile, in Magetan Regency, four nature-based tourism villages changed from rural to urban from 2010 to 2020: Bungkuk, Pacalan, Jabung, and Genilangit.

Rural-to-urban reclassification indicates progress in urban services, infrastructure provision, urban land development, population growth, and density, coupled with a shift in major economic sectors that collectively drive the urbanization process [17]. This shift can be observed in the changes in Gross Regional Domestic Product (GRDP) from primary sectors to secondary and tertiary sectors. Typically, the early driving force of urbanization is industrialization, followed by a land economy led by local government [18].

For the corridor under study, there are notable differences in the major economic sectors contributing to city and district economic growth during the observed years of 2000, 2010, and 2020. Surakarta, the core city that reached a 100 percent level of urbanization in 2000, has seen its urban infrastructure and services, along with its commercial and trade sectors, contribute over 60 percent to its GRDP. This contribution has remained stable over the past 20 years, with a slight increase of 10 percent in the contribution from these tertiary sectors since 2000.

In Karanganyar, the main economic sector is the processing industry, which has slightly decreased from 51 percent in 2000 to 46 percent in 2020, while the contribution of urban services sectors has increased. In Magetan District, the GRDP continues to be dominated by agriculture and mining sectors, although these sectors have shown a slight decline over the last decade, dropping from a contribution of 36 percent in 2010 to 29 percent in 2020. The urban services sector has moved to the second position, rising from 26 percent in the previous period to 28 percent. The industrial sector remains a smaller contributor, accounting for only 11 percent in 2020, up slightly from 10 percent in 2010. Overall, economic changes in Magetan still reflect a significant dependence on the primary sector, with a gradual shift toward the tertiary sector.

Another consequence that can be identified along with the process of urbanization in the corridor of Surakarta-Karanganyar-Magetan in addition to industrialization is land conversion. To examine the land conversion in detail, the study observes the phenomenon of land conversion in Karanganyar District as the region located in the middle of the corridor that connects Magetan to Surakarta. The area of Karanganyar District is 80,238, Ha. The total land conversion, from non-built up to built up area in Karanganyar from 2000 to 2020 is 16, 281 Ha (20 percent). Many land conversions are also occurring on the slope of Mount Lawu in Karanganyar District, for tourism services activities like restaurants and hotels. From this total land conversion, 222 Ha does not comply with the spatial planning, and about 8 Ha occurs in the protected zones, particularly the protected forests. It is found that land conversion in protected forests also occurs around tourism villages based on natural attractions (Figure 2 and Table 2)

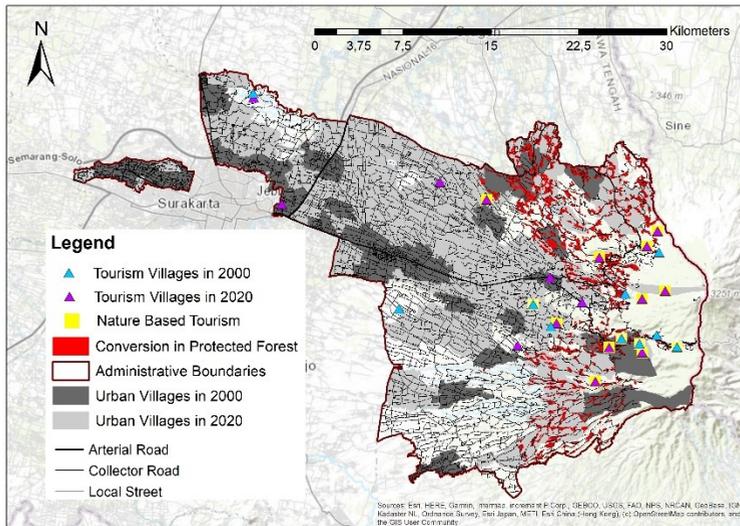
**Table 2.** Nature-based tourism villages with land conversion in the protected zones

Sub-District	Village
Jenawi	Anggrasmanis
	Gumeng
Ngarogoyoso	Kemuning
	Girimulyo
	Berjo
Tawangmangu	Gondosuli
	Kalisoro
	Tawangmangu
Jatiyoso	Beruk

As stated by one of the resource persons in the FGD, many permits submitted for tourism

services related to nature-based tourism activities are constrained because they propose tourism service activities in protected forests. Based on the Job Creation Law Number 11 of 2020, permit submission for activities in medium-high, and high-risk are not allowed.

*“Regarding a permit for tourism activities, there are still some constraints, as many tourism business activities are still in the protected zone, there are activities located at medium-high and high-risk location making them still cannot succeed to get legal permission [for the tourism activities] (FGD, 2024)”.*



**Fig. 2.** Nature-based tourism and land conversion in Karanganyar District.

However, the FGD results also inform that the conversion in the protected zones can occur by applying for permits on behalf of UMKM (*Usaha Mikro, Kecil dan Menengah*)/micro, small, and medium-scale enterprises so that the activities can get their permits.

*“The construction of restaurants or other UMKM in tourist locations, especially in the green zone, can be facilitated through UMKM permit submission” (FGD, 2024).*

Changes in these aspects: populations and land use, must be a concern because the changes will have an impact on the sustainability of nature-based attractions for tourism activities, as those attractions are linked to a place's natural qualities.

### 3.2 Tourism Village Development in the Corridor

Government policy affects tourism development [19]. Similarly, the case indicates that tourism development in the Surakarta-Karanganyar-Magetan corridor has increased (see Table 3) following the issuance of government regulations related to “*desa wisata*” or the tourism village program, particularly the local government regulations (see Table 4). These regulations were issued between 2013 and 2018. The introduction of regulations regarding tourism villages boosted their numbers, as shown in the 2020 data. The total number of tourism villages in the corridor is 47, with 20 of them being nature-based. These 20 nature-based tourism villages are located in the Karanganyar and Magetan Districts (Figure 3). The attractions in these villages vary and include river tubing, tea and coffee plantations, camping grounds, waterfalls, heritage sites, pinus forests, and mountain tracks. Referring to the classification of nature-based tourism in previous studies [13], these tourism villages in the corridor under study are on the types of providing natural settings that offer opportunities for

tourists to interact with nature, although some sites have been modified to create partly man-made environments.

**Table 3.** Tourism Villages.

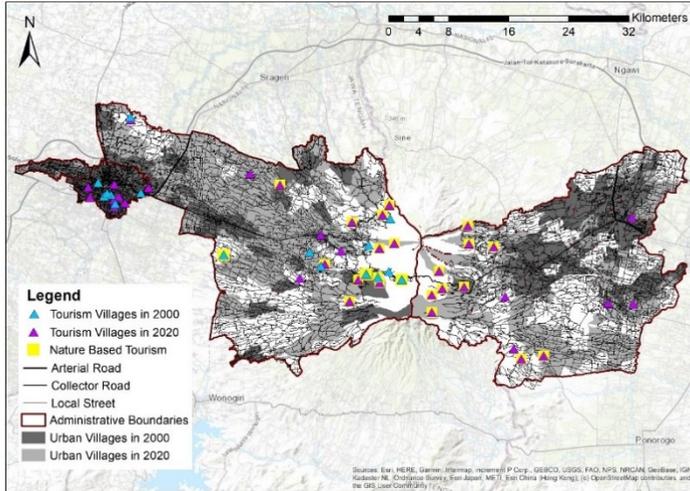
No	City/District	Tourism Village	
		2000	2020
1	Surakarta	6	12
2	Karanganyar	10	20
3	Magetan	0	15

**Table 4.** Regulations on Tourism Villages.

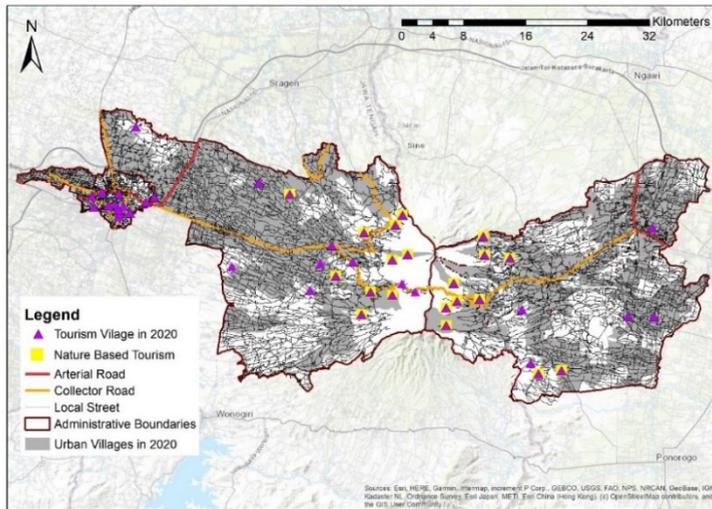
No	Tourism Village related Regulations
1	Karanganyar Regent Regulation Number 13 of 2018 concerning Guidelines for the Determination of Tourism Villages
2	Local Government of Karanganyar Regulation Number 6 of 2016 concerning the Karanganyar District Tourism Development Master Plan for 2016-2026
3	Local Government of Karanganyar Regulation Number 8 of 2016 concerning Tourism Implementation
4	Local Government of Magetan Regulation Number 8 of 2016 concerning the Magetan District Tourism Development Master Plan for 2015-2025
5	Local Government of Magetan Regulation Number 7 of 2013 concerning Tourism Sector
6	Local Government of Surakarta City Number 5 of 2017 concerning the Implementation of Tourism Business
7	Regulation of the City of Surakarta Number 13 of 2016 concerning the Master Plan for Regional Tourism Development for 2016-2026

Borderless tourism cooperation is gaining popularity due to its economic efficiency in tourism management [20]. The results of the FGD reveal that all respondents recognize that tourism activities and management are inherently borderless. They cannot be divided by administrative regions and should be coordinated from one region to adjacent areas. In the case study, there is a tourism forum for seven administrative units of Surakarta and its surrounding areas, including Karanganyar in Central Java Province. To facilitate the Surakarta Region collaboration, the agencies responsible for tourism in Surakarta and its surrounding districts established the Soloraya Tourism Forum in 2008. This forum aims to strengthen and develop tourism not only in Surakarta City but also in the surrounding districts. The coordination is expected to address the shortcomings of each area, such as non-nature-based tourism complementing nature-based tourism destinations. By synergizing these potentials, the length of stay for tourists in each tourism area is expected to increase.

Furthermore, road infrastructure supports tourism development, as the availability of good roads influences the local community's attitude toward tourism activities [21]. The focus group discussion (FGD) confirms that, although Magetan is located in East Java Province, distinct from Surakarta and Karanganyar, the district is well-connected to these two regions by a collector road (see Figure 4). Additionally, connections among the tourism sites within the corridor are facilitated by collector roads and local streets. Access to Surakarta is crucial for tourism development in the corridor, as tourists commonly visit Surakarta before continuing on to Magetan or Karanganyar.



**Fig. 3.** Tourism village and rural-urban status.

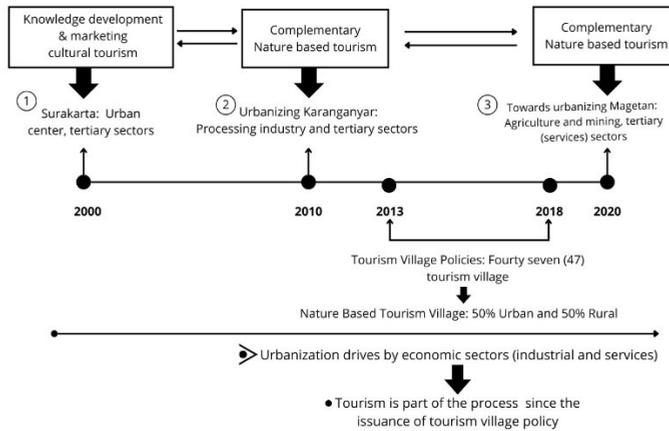


**Fig. 4.** Accessibility of tourism village.

Moreover, the FGD reveals that promoting tourism sites in Surakarta, the core city, will significantly increase tourist visits to the districts of Karanganyar and Magetan. This interaction between the core urban area and the surrounding regions of tourism development is described by [22] as fostering rural-urban interaction and continuous urban growth. Similar to the argument about rural-urban integration in tourism development presented by [22], there is also a trickle-down effect from Surakarta to Magetan and Karanganyar, and vice versa, as confirmed by the FGD. The FGD indicates that major cities in the corridor, like Surakarta, play a crucial role in facilitating interactions between urban centers and districts in tourism development, sharing management knowledge such as training programs for homestay management. This is vital for nature-based tourism, as one of its key elements is local wisdom and nature [15] Therefore, staying in a homestay that reflects local character and is run by local owners presents an appealing option for tourists interested in nature-based experiences. Conversely, nature-based tourism in the districts will serve as complementary attractions to the cultural tourism offered by the city.

## 4 Conclusions

City-regions must balance tourism with the sustainability of their natural environments, including nature-based attractions. This study demonstrates that urban centers play a crucial role in tourism development by serving as marketing and knowledge development hubs. Tourism activities in districts and cities complement each other and create opportunities to extend the length of stay for tourists within the tourism corridor. The case study reveals that urbanization in the corridor occurred rapidly prior to the establishment of tourism village activities (see Figure 5). This urbanization process is primarily driven by changes in the region's economic sectors, shifting from agriculture to urban infrastructure, services, or processing industries. Furthermore, the development of tourism villages along the corridor is largely influenced by local government policies regarding tourism villages, which subsequently integrate tourism activities into the urbanization process, acting as factors that contribute to land conversion.



**Fig. 5.** Interaction process of urbanization and tourism development in Surakarta-Karanganyar-Magetan corridor

This interaction process highlights the rapid urbanization and risk of rapid land conversion, which indicates the need for a coordinated and comprehensive approach to urbanization, tourism, and the environment to promote sustainable nature-based tourism development. Strategies should be implemented to restrict unsustainable tourism practices. It is crucial to mitigate the negative effects of urbanization, especially land conversion, and to integrate ecological protection into the decision-making processes for urban and tourism development. Regarding the risk of rapid land conversion, effective urban planning and sustainable tourism practices are vital for addressing these challenges. Both urbanization and tourism require careful planning to ensure sustainable growth while balancing development, environmental preservation, and the needs of local communities which include managing the development of micro, and small-medium-scale enterprises in the tourism area. Additionally, monitoring and regulating tourism activities are necessary to prevent and address negative impacts on the wider community, with training initiatives such as ecotourism guidance playing a key role.

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