



Explorative Study on The Potential of Sustainable Cycling Tourism Development in Karawang, Indonesia

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Abstract: This study aims to analyze the potential of sustainable cycling tourism development in Karawang Regency, Indonesia, by referring to the route-specific, amenities, supplementary, and sustainability elements. The significance of this research is in studying the potential of sustainable cycling tourism development, which has not yet been noticed nor seriously studied before. This qualitative research was approached using a case study and triangulation technique utilizing an atlas.ti software. The results of this study show that (1) Cycling tourism in Karawang Regency has the potential to be developed both from the general aspect, namely the diversity of tourism potential, the potential for many cycling tourism communities, and the potential based on sustainability indicators for cycling tourism in Karawang Regency; (2) Amenities, including accommodation and restaurants, could be found quite widely in Karawang; (3) Supplementary cycling tourism in the form of a guidebook and Tourism Map has yet to be available; and (4) The sustainability of cycling tourism comes from tourist spending and its benefit on the economy, optimizing the positive impact on the environment, as well as benefits for residents and local socio-culture. It is recommended that there be a local government policy that regulates and adds more bike tour routes, bicycle-friendly accommodations and restaurants, and the availability of secure bicycle storage areas; also, the government publishes guidebooks and printed maps.

Keywords: Sustainable cycling Tourism, Development, Route Specific, Guidebook, Karawang.

1. Introduction

Tourism is a travel activity that requires a mode of transportation to reach or appreciate a destination, namely car, train, or airplane. This mode of transportation can also be a tourist experience, such as cruise tourism and tour buses in urban tourism. Sustainable urban tourism experiences rely on the ability of local institutions, private operators, and destination managers to connect people and places using attractive and low environmental impact transport networks (Gunter & Wöber, 2021).

Bicycles are a mode of transportation that continues to develop and evolve into a form of tourist experience, namely cycling tourism. Cycling tourism is outdoor recreation (Asan, 2021). One form of urban tourism experience with the predominant use of bicycles and other means of transportation that support tourism purposes or leisure time, namely exploring destinations; athletic exercises; seeking adventure, physical, mental, and spiritual relaxation; entertainment; being closer to nature; among others (Sabri et al., 2019; Poljičak et al., 2021; Liu & Li, 2019). Bicycle mode is a means of developing sustainable urban tourism that increases the relationship between cycling activities and finding tourist destinations (Duran et al, 2018; Gazzola et al, 2018; Mamrayeva & Ashenova, 2017). Natural scenery and infrastructure are considerations for cycling tourists when choosing a destination (Nilsson, 2019). Bicycles are also used to connect intra-destination places (Magris dan Ross, 2018).

This eco-friendly journey results in economic growth and environmental protection (Bakogiannis et al., 2020) namely: (1). The implementation of cycling/tourism-cycling infrastructure for the benefit of tourism potential provides benefits to local communities in the form of the development of small towns and villages. It contributes to local economic and social development (Ciascai et al., 2022; Qiu & He, 2018.; Sabri, 2019; (Ferreira et al., 2020). (2). The local economy grows from direct tourist spending. The additional extended stays of cycling tourists can bring various benefits to the local area through increasing demand for local culture and traditional food. (Han, 2016) (3). The existence of cycling tourism infrastructure also has a positive impact on the environment because cycling is a form of transportation that can reduce CO2 emissions, air pollution, noise pollution, and fuel consumption (Poljičak et al., 2021; Liu & Li, 2019; Tripoli et al., 2018; Qiu & He, 2018; Sabri, 2019; (Ferreira et al., 2020).

In cycling-oriented countries such as Germany, Denmark, and the Netherlands, cycling tourism is usually not limited to one location within a destination (many trips occur within cities) due to well-established cycling

facilities and paths (Chen & Lee, 2017; Chen et al., 2014). Cycling tourism continues to grow in Europe, England, and New Zealand using designated cycle paths (Sabri et al, 2019). Cycling and cycling tourism have become a sensation and have increased during the COVID-19 pandemic. (Rupaka, 2021; Wiyatiningsih et al, 2022). Mallorca, Spain, is a popular low-cost cycling tourism destination that can lure around 100,000 cyclists annually and achieves a high employment index in various types of accommodation (Mundet, 2022). Cycling tourism in Italy generated 55 million overnight stays in 2019 (6% of national tourists). In 2020, almost 5 million Italians used bicycles during their holidays (17% of all tourists).

The development of cycling and cycling tourism activities is also occurring in Indonesia, both in urban and rural areas. In 2022, after the addition of cycle lanes in DKI, the number of cyclists will increase to 4,000 per day (Hakim, 2022). Cycling tourism was developed in Meulaboh, Aceh. (Tripoli et al., 2018), Bandung (Aqarita et al, 2016), Yogyakarta (Wiyatiningsih et al, 2022), Bali (Rupaka et al, 2021; Wirawan, 2016). In June 2020, a bicycle boom in Indonesia (Rupaka et al, 2021).

In its implementation, cycling tourism in Indonesia still has several problems, including (1) Lack of adequate infrastructure to support cycling tourism in Indonesia, namely cycle paths, parking facilities, and workshops (Amri, Adni & Yudilla (2021), (2) The limited availability of bicycles for tourists in several areas of Indonesia is limited (Wiyoso & Pramitasari, 2021), (3) Tourist safety in cycling is associated with heavy traffic and poor road conditions. According to Fahmi Saimima, community leader of the Bike to Work Indonesia community, in 2021, there were 63 bicycle accidents in Indonesia, most of the cases occurring on the island of Java. Based on data, around 93.3 percent of bicycle accidents occur on roads (Roojai Indonesia, 2023, April 13). Implementing cycling tourism also refers to existing regulations, namely Government Regulation No. 79 of 2013 concerning Traffic Networks and Road Transport in Article 26, that cyclists have the right to support facilities for security, safety, order, and smooth traffic.

Responding to the future development of cycling tourism in Indonesia with existing resources, regulations, and problems, research was conducted on the potential for developing cycling tourism in Indonesia. This research is geographically limited to Karawang Regency. Karawang Regency, Indonesia, as an industrial area, contoured land, and multiple tourist destinations (LAKIP Pemda Karawang, 2021), and the existence of bicycle activities and communities has the prospect of developing cycling tourism.

The rise of cycling activities in Karawang is organized not only by bikers but also by the local government and community organizations. Some of these activities include the Karawang Cycling Spirit Cycle the Field (*Karawang Bersepeda Semangat Gowes Lapangan*), attended by around 2000 participants ranging from Bikers and the community (Karawangkab.go.id, 2014). The first Fun Bike event was held by the Indonesian Television Journalists Association (IJTI) Karawang Regional Coordinator (Korda), with around 3000 cyclists joining (spiritnews.com, 24 Maret 2019). Fun Bike Cycling Event on the 389th Karawang Anniversary held by the Karawang Regency Government (sergap.co.id, 19 Sept 2022)). Apart from cycling activities, there are maintenance problems on the existing route, such as its condition being better, the paint fading, and the route is filled with parked four-wheeled vehicles (onediginews.com).

There is a gap between the potential development of cycling tourism and several problems in cycling tourism in Karawang by paying attention to sustainability aspects. Thus, the research question is "What is the potential for developing sustainable cycling tourism in Karawang Regency?". The indicators for the sustainability of cycling tourism in this research are route specific, supplementary, amenities, and sustainability. This research explores the potential of cycling tourism in Indonesia, especially in Karawang Regency, by using elements of cycling tourism development, namely route specific, supplementary, amenities, and sustainability.

Using bicycles as a mode of tourism transportation requires the central element in the form of a designated cycling route (specific route). It is a route designed to make it easier for tourists to travel by bicycle, which has attractive, safe, and comfortable characteristics (Aqarita et al., 2016; Zoltán, 2015; Sabri et al., 2019; Tripoli et al., 2018; Vedel et al., 2017; Poljičak et al., 2021). Second, amenities in the form of restaurants and accommodation are needed, especially if you are going on a long-distance cycling tour (Han et al., 2017). To support the safety and comfort of tourists while cycling, a supplementary in the form of a bicycle route map for tourist safety is required (Lee, 2014 in Mundet et al., 2022; Sabri et al, 2019; Nilsson, 2019, (Hall et al., 2017) and guide book (Pratte, 2006 in Zoltán, 2015). Lastly is the sustainability of cycling tourism, namely in the form of impacts on society, socio-culture, and local economy (Ciascai et al., 2022; Han, 2016; Qiu & He, 2018.; Sabri, 2019; (Ferreira et al., 2020). For the environment, cycling is a form of transportation that can reduce CO2 emissions, air pollution, noise pollution, and fuel consumption (Poljičak et al., 2021; Liu & Li, 2019; Tripoli et al, 2018; Qiu & He, 2018; Sabri, 2019; Ferreira et al., 2020).

The urgency of this research is the development of cycling tourism in Indonesia, especially in Karawang Regency, to ensure the security and safety of tourists. In contrast, cycling is sustainable and can maximize their activities in visiting existing tourist destinations. The direct benefit of this research is to provide input on Karawang Regency government policy in planning and managing cycling tourism and increasing the body of knowledge about cycling tourism.

2. Methodology

This research is qualitative research with a case study approach and triangulation techniques using an atlas.ti software. The data in this research refers to the concepts and indicators of cycling tourism in Karawang Regency, which were developed in this research, namely route_specific, supplementary, amenities, and sustainability (processed by researcher, 2023).

Table 1. Cycling tourism concept

Concept	Sub-concept	Literature references
Cycling tourism	Existence	Asan, 2021; Sabri et al, 2019; Poljičak et al., 2021; (Liu & Li, 2019); Duran et al, 2018; Gazzola et al, 2018; Mamrayeva & Tashenova, 2017; Nilsson, 2019
	Potential	
	Development strategy	

Source: Processed by researcher (2023)

Table 2. Cycling tourism indicator

Cycling tourism indicator	Sub-indicator	Literature references
Route-specific	Route-attractive	Aquaritaet al., 2016; Zoltán, 2015; Sabri et a.l, 2019; Tripoli et al., 2018; Vedel et al., 2017; Poljičak et al., 2021; Nilsson, 2019; Černá et al., 2014
	Route-safe	
	Route-comfortable	
Amenities	Accommodation	Han et al., 2017; Pratte, 2006 cited Zoltán, 2015.
	Restaurant	
Supplementary	Cycling route maps	Lee, 2014 cited Mundet et al., 2022; Sabri et al., 2019; Nilsson, 2019, Hall et al, 2017
	Guidebook	
Sustainability	Economics	Ciascai et al., 2022; Qiu & He, 2018; Sabri, 2019; Ferreira et al., 2020; Han, 2016; Liu & Li, 2019
	Socio-culture	
	Environment	

Source: Processed by researcher (2023)

Data were collected through interviews with respondents from cycling tourism stakeholders, namely the Regional Government, Bikers, and Academics.

Table 3. Research respondents

No	Stakeholder	Institution	Research term	Amount
1.	Government	Karawang Cultural & Tourism Office (Dinas Pariwisata dan Kebudayaan Karawang)	Disparbud	3
		Karawang Regional Development Planning Agency (Badan Perencanaan dan Pembangunan Daerah)	Bappeda	1
		Karawang Public Works and Housing Office (Dinas Pekerjaan Umum dan Perumahan)	PUPR	1
2.	Community	Karawang Biker Community	Biker Community	1
3.	Academics	Tri Mitra Mandiri Polytechnic Karawang	Academics	1
4	Business	Indonesian Hotel and Restaurant Association Karawang (Perhimpunan Hotel dan Restoran Indonesia)	PHRI	1
			Total	8

Source: Processed by researcher (2023)

Data processing was carried out with the help of ATLAS.ti includes: 1. Creating a HU (Heurmeunistic Unit) as the first step in using the ATLAS.ti software. 2. Data input: Create several PD (Primary Documents) and input the interview data into the ATLAS.ti software. 3. Selecting data: Making several quotations from each data. 4. Providing coding: Determining the code to be used (adjusted according to sources or personal findings) and marking the data with the appropriate code. 5. Conduct analysis: Create a network picture. This network description can help researchers trace the relationship of the findings to be analyzed with other findings or with quotes and/or codes that have been marked.

3. Results and Discussion

General overview of Cycling tourism in Karawang Regency

The existence of cycling tourism in Karawang Regency is considered differently by stakeholders, as found in the results of this research (Figure 1). These differences reflect the challenges and complexities of developing, developing, and managing cycling tourism in the area. From all respondents, different opinions were obtained: cycling tourism in Karawang Regency already exists, does not exist, has existed, and is not understood.

The regional government, through Bappeda, stated that cycling tourism already exists, referring to cycling communities in cities, in destinations such as Lake Cipule, Loji, and coastal areas. This shows that the government has a positive understanding of the existence of cycling tourism. Even though there is an optimistic outlook from Bappeda, Disparbud stated that cycling tourism is solely in the form of events organized by the government, private sector, or community. This could indicate that Disparbud views cycling tourism as something that still needs to be well-structured and integrated. Meanwhile, PUPR and PHRI stated that cycling tourism had never existed in Karawang Regency. A lack of equal understanding and awareness regarding cycling tourism among stakeholders can cause this difference in views (Jia et al., 2018).

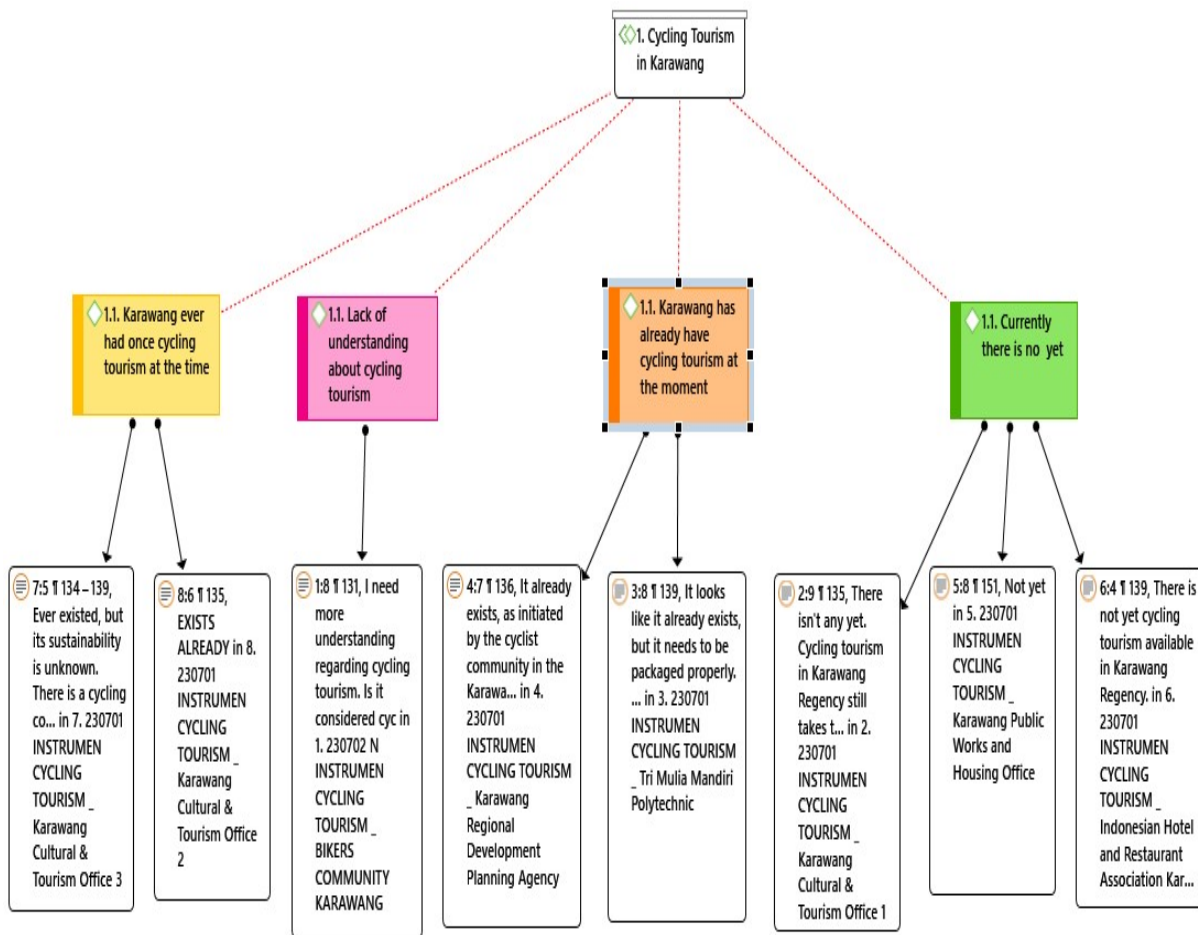


Fig 1. The existence of cycling tourism in Karawang Regency
Source: Processed by researcher (2023)

Although there are distinctions in understanding, stakeholders are optimistic that cycling tourism in Karawang Regency can evolve (Figure 2). Stakeholders recognize that Karawang Regency has cycling tourism potential, strengthened by its diverse tourist destinations, including mountains, beaches, and history. This aligns with the opinion that cycling tourism is the right choice for the community, aiming to increase the relationship between cycling and discovering a destination (Gazzola et al, 2018; et al.čić & Ivek, 2022). The existence of several stakeholders who have similarities in the field of tourism sector activities provides an opportunity to synergize in management (Rahmanita et al., 2022)

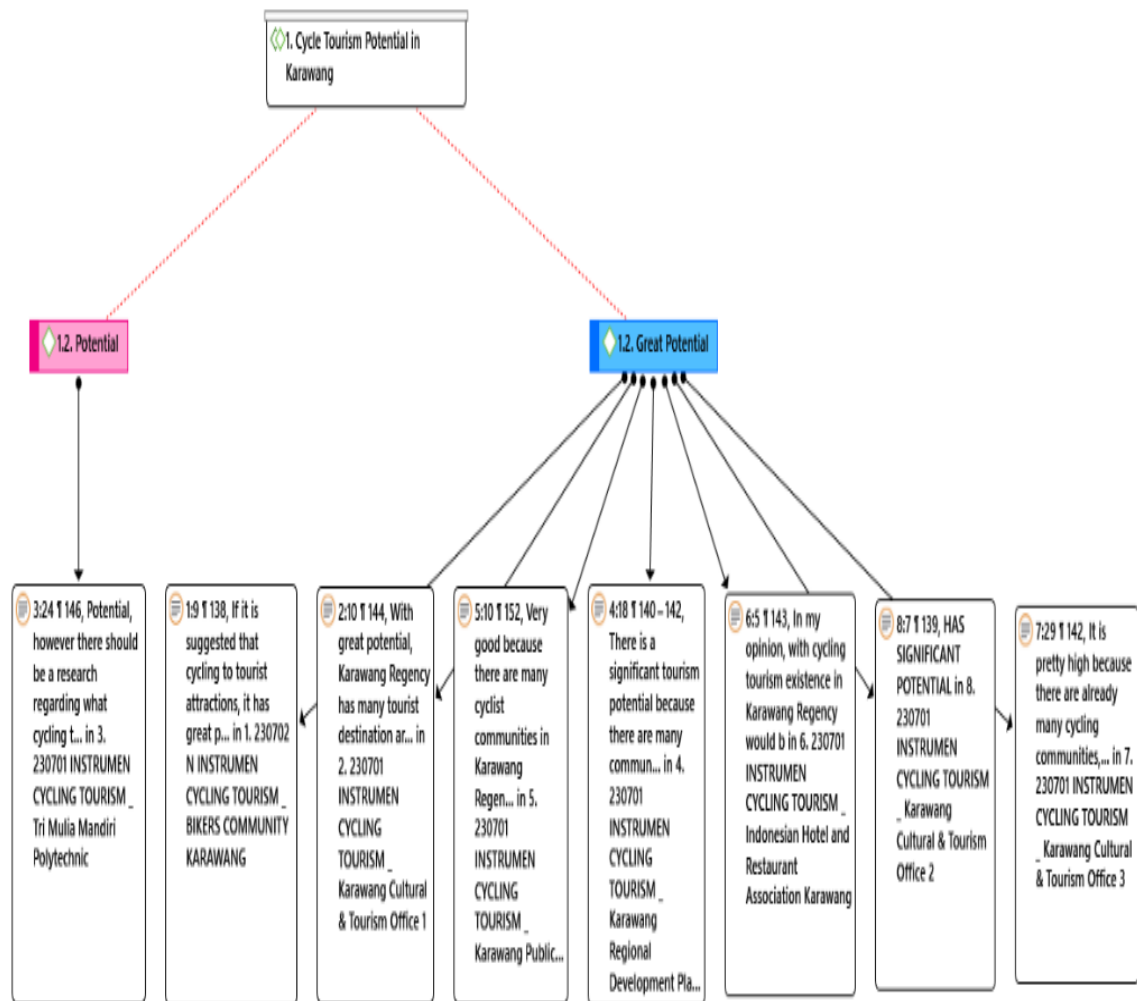


Fig 2. Cycling tourism potential in Karawang Regency
Source: Processed by researcher (2023)

The existence of many bicycle communities in the area is a substantial capital for the development of cycling tourism. These communities can become a base for active cyclists and play a role in promoting and developing cycling tourism (Disparbud 3). Karawang Regency is a busy industrial city, which can make cycling tourism an attractive recreational alternative (Bappeda). Cycling activities can help local people relieve stress and create a balance between urban life and nature. Suggestions from stakeholders (Academics) regarding the need to conduct studies are a good step. This study can provide a deeper understanding of the potential, challenges, and opportunities for developing cycling tourism in the area. The majority of tourist destinations in Karawang Regency are natural-based tourism destinations, which can be combined well with cycling activities. This opens up opportunities to promote health themes and sustainable cycle activities(Disparbud3).

Potential of Cycling Tourism Development in Karawang Regency

Analysis of the potential for developing cycling tourism in Karawang Regency through identifying indicators of sustainable cycling tourism in its development, including specific routes, amenities, supplementary (route maps and guidebooks), and sustainability.

Route-specific

The results of the research show that there are differences in opinion among stakeholders regarding the existence of specific routes in cycling tourism in Karawang Regency (Figure 3), namely:

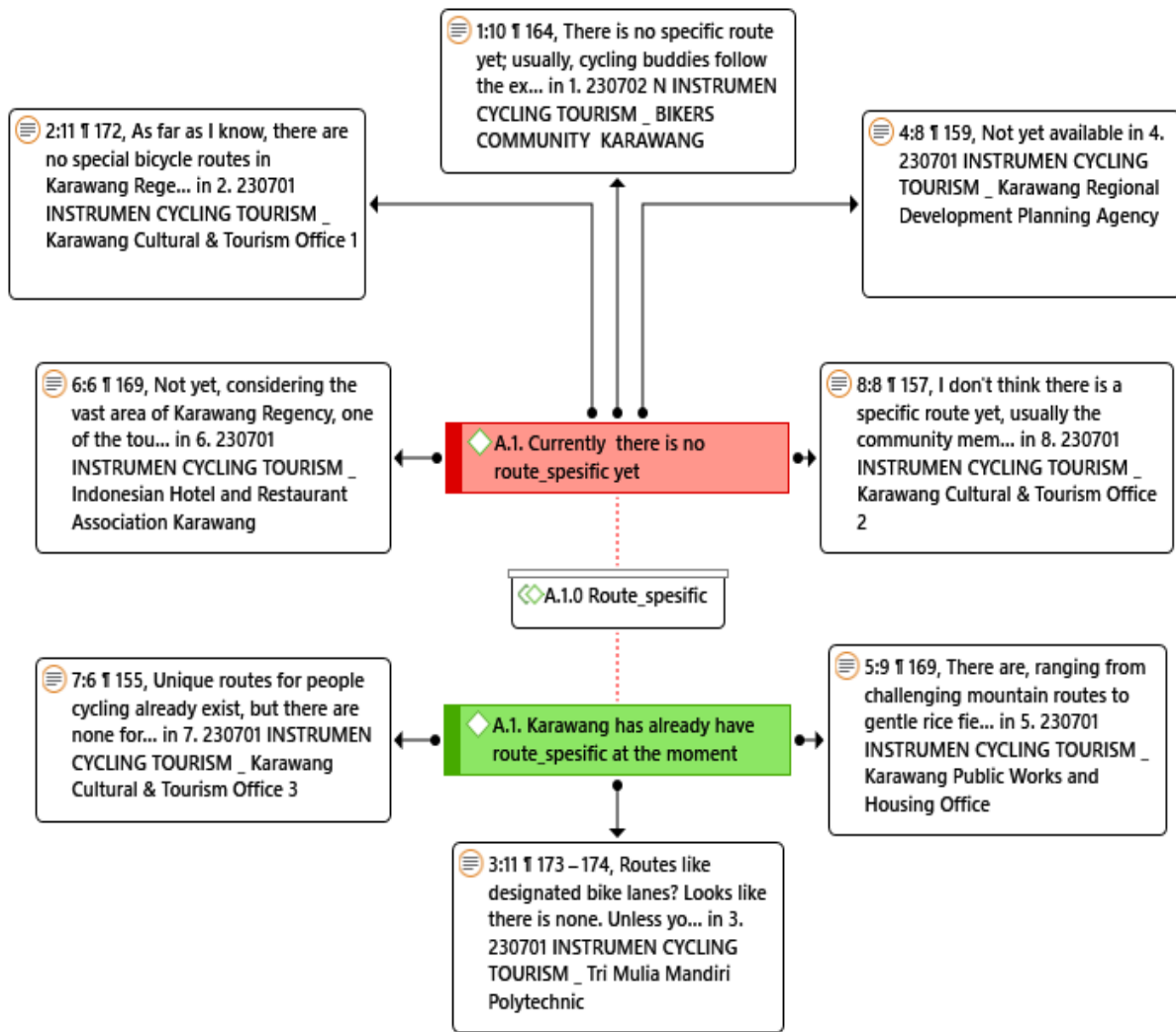


Fig 3. Route-specific of Cycling tourism in Karawang Regency
 Source: Processed by researcher (2023)

There is already a specific_route in Karawang Regency. According to (1) PUPR: Routes ranging from challenging mountain routes to gentle rice field routes punctuated by culinary tours on each route; (2) Academics: There is a particular route located on the main road and is still short; (3) Bappeda: Already exists.

There has yet to be a specific_route in Karawang Regency. According to (1) Bikers Community, It is considered that it does not yet exist because it is only limited to the bike park located in Karawang International Industrial City (KIIC), where it is known as Warlot (WarungLotek). The route for the bike community is the road followed to the Bikers' destination; (2) Disparbud 1: Routes are only made when a bicycle event is held; (3) PHRI: There are no routes yet due to the large area of Karawang Regency as one of the tourism factors in Karawang Regency; (4) Disparbud 2: Not yet available; (5) Disparbud 3: The existing route is not yet for tourist purposes.

The difference regarding the existence of route_specific shows that the cycling tourism situation in Karawang Regency is still developing and still needs to be standardized. The presence of existing routes, especially those that include various types such as mountains, rice fields, and culinary delights, is a good asset for the development of cycling tourism because it creates a variety of experiences for cyclists, including those who like challenges and prefer to relax. Challenges can be seen in the fact that there are no permanent routes or are only made for specific events. This shows the need for more consistent and sustainable route planning and development. The opinion of Bappeda and Academics about existing shows the local government's awareness of the importance of particular routes for cycling tourism. Disparbud 3's opinion states that the route has yet to be available for tourist purposes. This shows that the potential for developing tourist routes has not been maximized. Even though there is no route-specific, comparison, in Girona (Spain), travel agents and tourists organize cycling tourism activities on the highway because there are no special bicycle lanes (Mundet et al., 2022). The diversity of regional tourism routes

and potential and the role of local government are essential in realizing cycle tourism. Slavić & Ivek (2021) explain that the development of regional cycling tourism is based on an appropriate resource base in the region, the authority's commitment to the development of cycling tourism (having and implementing strategic documents), and stakeholder coordination.

Specific routes in cycling tourism based on their characteristics can be divided into route_attractive, route_safety, and route_comfortable. Do these three characteristics exist on the specific_route in Karawang?

Route_attractiveexistence has two opinions: (1) some routes qualify as _attractive routes. According to (a) PUPR: Kuta Tandingan is a cruising route for the MTB (Mountain Bike) community with safe and comfortable parking facilities, stalls, guides (marshalls), you can cook for yourself in the forest, (b) Disparbud 1: the shape of the route in a bicycle event with a route to visit tourist attractions in Karawang, but there is no standard route yet, (c) Disparbud 2: The route is at KIIC, (d) Disparbud 3: The route has views of rice fields; (2) There are no routes that qualify as an _attractive route. According to (a) PHRI, there is no bicycle access to a safe and comfortable environment, among others. For cycling tourism in Karawang, (b) Bappeda: Not yet, (c) Academics: that so far cycling is only for ordinary exercise, (d) Bikers Community: Bikers Karawang Regency has yet to have a definite route. For example, going to Walahar, you can go via the highway. The route is smoother, but there are lots of cars, or you can go via the natural stars through the rice fields.

There is also diversity in opinions between stakeholders regarding the existence of attractive routes for cycling tourism in Karawang Regency. Some parties state that routes already attract cyclists, while others think no routes meet specific standards. Existing routes, such as mountain routes, highway routes, and routes with attractive natural views, are a positive asset in the development of cycling tourism. At the same time, cycling tourism includes cycling trips on specific routes to explore a destination for athletic activities, seeking adventure, physical, mental, and spiritual relaxation, entertainment, and being closer to nature, among others (Poljičak et al., 2021). Some routes are equipped with parking, stalls, guides, and others to create an exciting cyclist experience. Although there have been efforts to hold cycling events and create temporary routes, there are still challenges in creating established attractive routes that comply with accessibility, safety, and comfort standards.

There are two opinions of route_safety: (1) Some routes meet route_safety. According to (a) Disparbud 2: this route takes place at the Sports Arena. Karawang, (b) Disbudpar 3: A good road suitable for cycling is in the Galuh Mas area, Karawang. f (c) Bappeda: the route is only around the city / Karawang Regional Government, and there is no regulatory basis, (d) PUPR: Routes for mountain bikes are not connected to public roads; (2) There are yet to be routes that meet route_safety. According to (a) PUPR, there is still no road bike route because it is connected to a public road, with vehicle intensity tending to be high, (b) Academics: the current route still crosses the main road, (c). Disparbud 1: this route is currently only for bicycle events and must collaborate with the Transportation Service and Police to maintain safety for cyclists, (d) Bikers Community: the route can be via the highway, and the path is straighter but with lots of cars, or through the natural landscape, via rice fields, depending on the destination.

There are differences of opinion between stakeholders regarding route_safety of cycling tourism in Karawang Regency. Several parties stated that there are already safe routes, especially for mountain bikes. Meanwhile, others think bike routes connected to public roads are still unsafe. Existing routes, such as routes at the Karawang Sports Center and the Galuh Mas area, show that efforts have been made to create safe routes for cyclists. There are still challenges in creating safe routes, especially for road cyclists. The high intensity of motorized vehicles on public roads is a significant obstacle to creating safe routes. Awareness of the importance of cyclist safety already exists, but further development is needed regarding regulations, route planning, and infrastructure that supports cyclist safety. This is supported by Luekveerawattana's (2022) opinion that safety is a crucial aspect of cycling characteristics. Cycling paths must be safe for the public.

There are two opinions about the existence of route_comfortable, namely: (1) Some routes meet the requirements as route_comfortable, according to (a) Disbudpar 1: Route_comfortable, including the bicycle path on the beach; you can go along the beach because there are no other vehicles, (b) Disparbud 2: the route is in Leuweungcareuh, (c) Disparbud 3: route_comfortable is available at several points in Karawang, but maintenance is still inadequate, (d) Bappeda: Route from Rengasdengklok to Pakis Jaya Beach, the road is good, and the urban area is route_comfortable, (e) Bikers Community: route_comfortable was found because bikers already know alternative roads, (f) PUPR: route_comfortable for the MTB community, it seems that what they are looking for are those with lots of obstacles, steep descents or inclines, sharp turns or fairly wide gaps, no pavement at all or ground with a textured texture. Good. It will also be very challenging for road bikes if there is a path with a relatively high slope, not just flat. (g) Academics: Route_comfortable may differ between one view or another. Mountain bike lovers may like broken roads; they may be comfortable.

There are yet to be routes that qualify as route-comfortable. According to PHRI, many bumpy roads in Karawang are due to unstable ground surfaces.

Several parties argue that several routes are already considered comfortable for cycling in Karawang. However, it is essential to understand that perceptions of comfort can vary between cyclists based on their

preferences; for example, walking along the beach is an attractive and comfortable option, especially if no other vehicle is available. This can be the main attraction for tourists who want to enjoy the beach view while cycling. Even though there are comfortable routes, several respondents stated that maintenance was still inadequate. These findings suggest investment in maintaining existing bicycle infrastructure is needed. There is also a need to accommodate different types of cyclists, including mountain and road bike enthusiasts. Routes that present challenges, such as obstacles, steep inclines, sharp acceleration, or rough terrain, are necessary to attract cyclists of different skill levels. Meanwhile, PHRI stakeholders believe that there are many bumpy roads in Karawang due to unstable ground surfaces. This condition is a challenge that must be overcome in developing the potential of cycling tourism. With the problem of unstable ground and bumpy roads, investment is needed in improving road infrastructure to make it safe and comfortable for cycling, including road pavement suitable for the type of bicycle used.

Bicycle-friendly amenity

Respondents' opinions regarding the existence of amenities consisting of bicycle-friendly restaurants/stalls and hotels can be researched, namely: (1) There are already bicycle-friendly amenities, (a) Academic: mentions that many bikers visit stalls. The same thing was stated by, (b) Disparbud 2 & Biker Community: Bikers sometimes the purpose of their trip is to a restaurant or food stall. The term is GOCAPAN (Gowes Cari Sarapan/Cyclist Community Looking for Breakfast), (c) PUPR: some hotels support cyclist community activities along the bicycle path and many restaurants or stalls that provide food or soft drinks, (d) Disparbud 3: Tourist areas usually have restaurants. However, for accommodation, there are still many tourist destinations that still need to provide it; (2) There are no bicycle-friendly amenities yet (a) PHRI: There are no bicycle-friendly restaurants and accommodation facilities yet (b) Disparbud 1: Specifically, there are none.

The presence of existing restaurants and stalls that support cyclist activities is a valuable asset in developing cycling tourism. This reflects an understanding of cyclists' needs for food and drink during their journey. "GOCAPAN" (Gowes Cari Sarapan/Cyclist Community Looking for Breakfast) reflects consumption patterns integrated with cycling activities. Likewise, the existence of hotels that support cycling community activities also has positive potential. This could attract cyclists who want to spend more time in the area and increase their visitation. In line with Han et al. (2017)'s opinion, accommodations and restaurants are needed, especially for long-distance cycling. Tourist areas that already have restaurants are a valuable asset in developing cycling tourism. Cyclists often look for a place to relax and eat after exploring the area. The presence of restaurants in tourist areas can improve the cyclist's experience. Meanwhile, stakeholders stated no bicycle-friendly restaurant and accommodation facilities indicated significant development potential. This shows that there are business opportunities to open restaurants and hotels that meet the needs of cyclists. Development options need to take into account the wishes of biker tourists as stated by Bakogiannis et al. (2020) that the behavior of bike tourists regarding types of accommodation is generally similar; namely, they are interested in affordable accommodation, with fewer comforts, such as camping sites (organized or accessible), hostels, bringing culinary delights closer to cycling paths.

Supplements namely Cycling tourism route map and Guidebook

Cycling route maps and a cycling tourism guidebook in Karawang Regency needs to be provided. All respondents stated this. So far, travel routes have been obtained using Google and Waze. All stakeholders proposed that the Karawang Regency Tourism and Culture Department be the government institution that issues route maps and cycling tourism guidebooks for Karawang Regency. The Route Map is expected to have all PHRI route information; there are route options of interest (Academics), routes from one place to another (Bikers Community), and bicycle route recommendations (Disparbud 3). While the guidebook is expected to follow the needs of cyclists (PUPR), according to stakeholders, the guidebook contains general matters, including routes, facilities, and destinations (Figure 4).

Society Aspect

Cycling tourism has great potential to improve public health, promote positive social interactions, provide entertainment, and impart knowledge to participants. Additionally, involving local communities in rest areas can support the local economy. For example, (1) Be healthy: Cycling tourism provides health benefits to the community because it promotes activity. The trend of cycling motivates individuals to focus on protecting their health (Moslo et al., 2019). (2) Cycling events become a gathering place: Cycling tourism creates opportunities for people to gather at cycling events, encouraging positive social interactions. (3) Providing entertainment and knowledge about the Karawang Regency (4). A rest area on the bicycle route is loaded with local people (Figure 5).

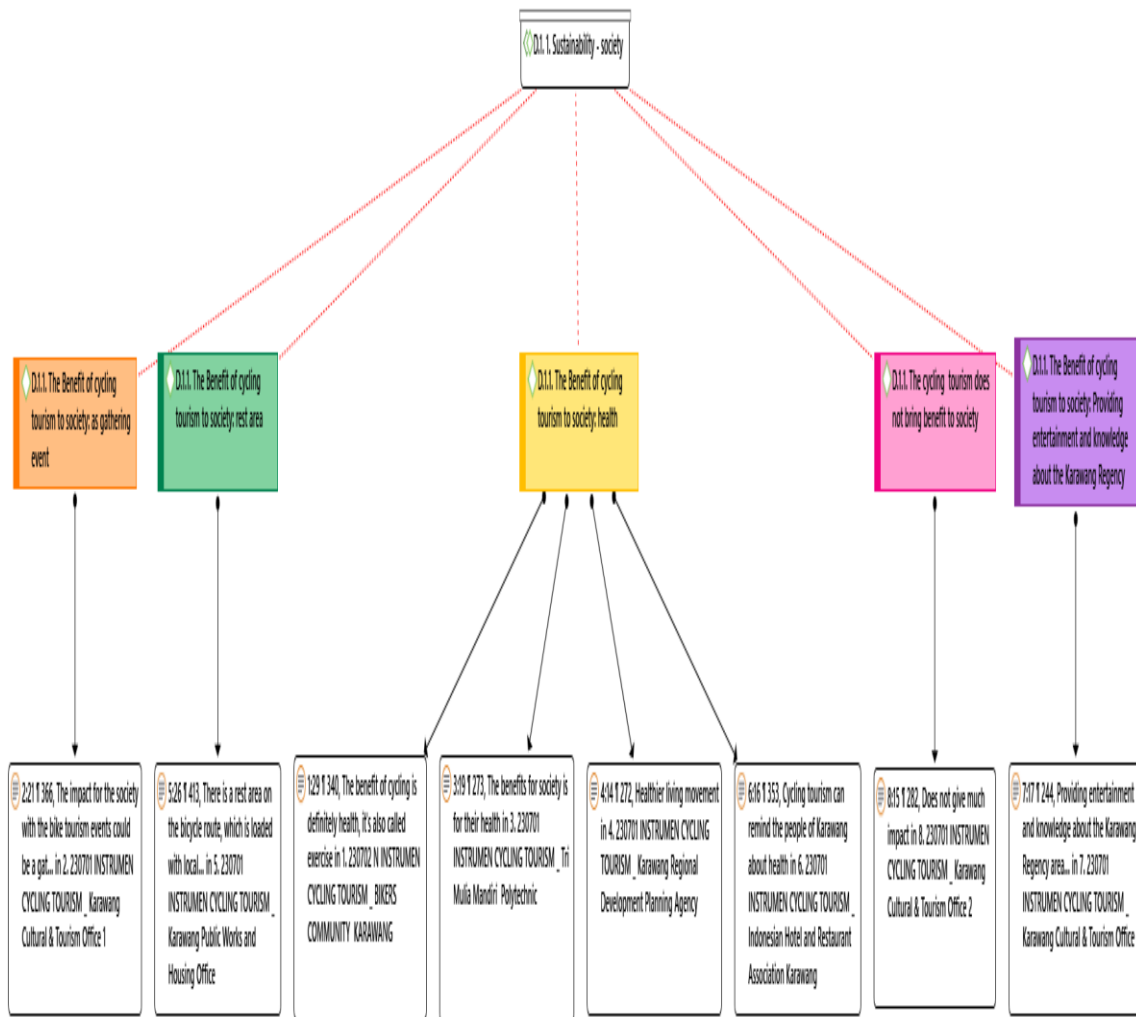


Fig 5. Sustainability – society
Source: Processed by researcher (2023)

Social-Culture Aspect

Cycling tourism has great potential in promoting tolerance, cultural understanding, and preserving the culture of local communities, namely (1) Caring for each other: Cycling tourism supports socializing and building social networks, which can help develop tolerance and concern for others. (2). As a social bridge (3). Socio-cultural preservation of the community: Cycling tourism can promote the preservation of local community culture by integrating local activities and culture into cycling events. (4) Cultural enrichment: Through cultural exchange between participants from various regions, cycling tourism can become a source of cultural enrichment; cycling tourism can train tolerance and a better understanding of cultural diversity (Figure 6). This aligns with Ciascai et al. (2022) that cycling tourism can create substantial experiential value, providing direct contact with a region's culture, history, and traditions.



Fig 6. Sustainability – social culture
Source: Processed by researcher (2023)

Local economy aspect

Cycling tourism has the potential to encourage local economic growth, increase business opportunities, and promote innovation in the local bicycle industry. As an illustration, the contribution of cycling tourism to the Italian economy in 2019 is estimated at 5.6% of total tourist consumption in Italy (Pantelaki et al., 2023). In this research, it was found (1) Economic improvement, among others, through (a) Collaboration in events with MSMEs, such as exhibition stands where cycling tourism can promote collaboration with local MSMEs, creating opportunities for them to showcase their products and increase sales, (b) Encouraging economic business actors by increasing the number of bike tour participants, local business actors such as hotels, restaurants, and bicycle rentals can experience an increase in income, (c) Increasing the number of cycling tourism participants can increase sales at local stalls and shops; (2). Produce new products: Cycling tourism can also encourage innovation in the local bicycle industry, such as creating new bicycle routes and interesting and better bicycle products (Figure 7). Integrated initiatives and actions related to MSMEs must be conceived and put into practice to empower tourism (Rahmanita et al., 2019).

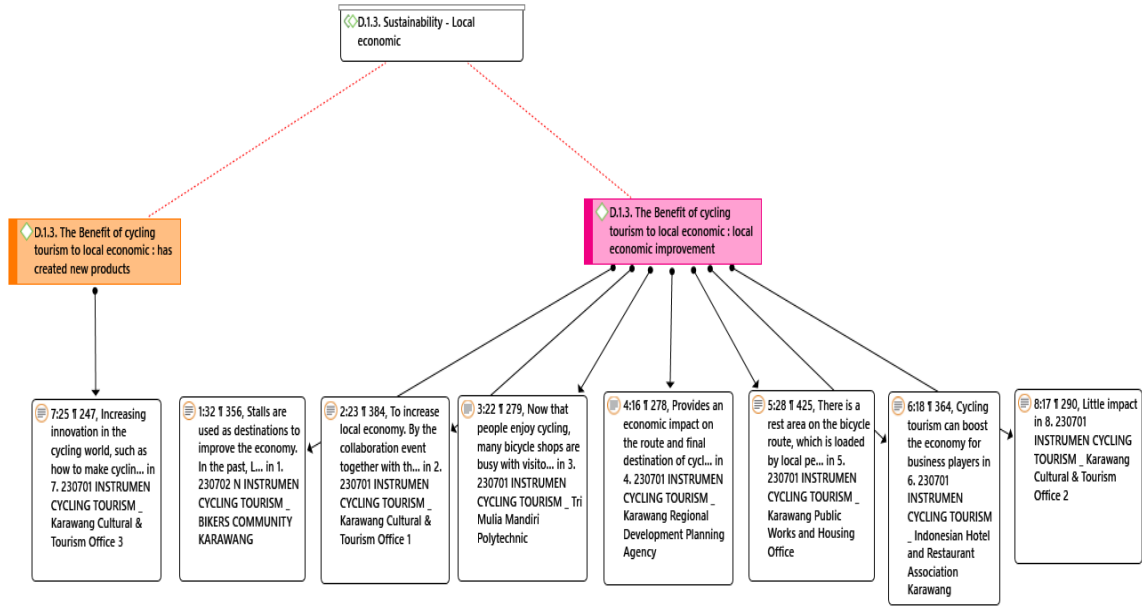


Fig 7. Sustainability – local economic
Source: Processed by researcher (2023)

Environmental Aspect

Cycling tourism positively impacts the environment by reducing pollution and supporting environmental conservation. For example: (1) Preserving the environment: Cycling tourism can support environmental preservation by promoting environmentally friendly transportation such as cycling. (2) Reducing pollution: By reducing the use of motorized vehicles, bike tours can help reduce air and noise pollution (Figure 8). This is in line with the opinion of especially those that correspond to the same aspiration of promoting principles of social and environmental sustainability (Ciascai et al., 2022). Cycling tourism can meet the national green transportation plan to reduce carbon dioxide emissions to prevent global warming. (Liu & Li, 2019), reducing traffic congestion and pollution (Sabri et al., 2019, contributing between 20 and 40% to maintaining energy balance[Technopolis-Group.com]). (3) to know more about the attractive tourist spots in Karawang Regency.

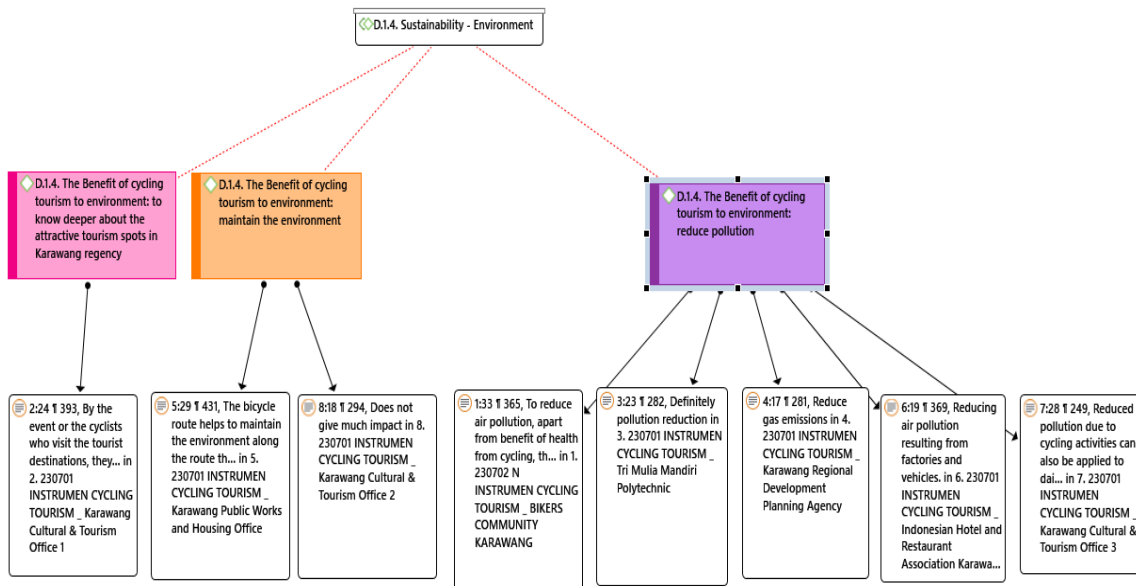


Fig 8. Sustainability – environment
Source: Processed by researcher (2023)

4. Conclusion

The results of this research underscore the considerable potential for the development of cycling tourism in Karawang Regency, manifesting across various dimensions. This potential is evident in the diversity of tourism offerings, the presence of numerous cycling tourism communities, and the sustainability indicators that support cycling tourism in the region. Despite some disparities in stakeholder perspectives concerning route-specific attributes like attractiveness, security, and convenience, the overall analysis strongly supports the feasibility of advancing cycling tourism in Karawang Regency. The region presents a promising landscape for the growth of cycling tourism, featuring an array of route options tailored to both mountain bikers and road cyclists. However, it is imperative to standardize these routes for effective development. Furthermore, Karawang Regency already boasts bicycle-friendly amenities catering to the needs of cyclists traversing bicycle paths and tourist areas. This demonstrated understanding of cyclists' requirements for sustenance, hydration, and accommodation during their journeys is a significant asset. The presence of cyclist-friendly hotels, in particular, holds positive potential, as it can attract cyclists to extend their stays in the area, ultimately resulting in increased tourist visits and economic benefits for the region. Nevertheless, challenges persist in ensuring the availability of such amenities, particularly in areas lacking bicycle-friendly restaurants and lodging facilities.

This deficiency presents a substantial business opportunity for entrepreneurs to establish these services and meet the demands of cyclists. To further enhance the implementation of cycling tourism in Karawang Regency, the development of route maps and cycling tourism guidebooks is imperative. This deficiency in providing essential information for cyclists exploring the region should prompt the Karawang Regency Tourism and Culture Department to take responsibility for compiling and disseminating route maps and cycling tourism guidebooks. Cycling tourism holds immense potential in supporting sustainability, offering benefits such as improved community health, preservation of socio-cultural heritage, economic growth, and pollution reduction. The path to realizing this potential involves several key strategies. These include standardizing cycling tourism by enhancing the appeal, safety, and comfort of specific bicycle routes, as well as improving bicycle-friendly infrastructure along these routes and within tourist areas. Additionally, the development of route maps and cycling tourism guidebooks is essential. Collaborative efforts between the local government and all cycling tourism stakeholders are pivotal for the successful development of cycling tourism in Karawang Regency. Future research endeavors should focus on assessing the potential of specific routes within Karawang Regency and the creation of routes that connect to existing tourist destinations, further enriching the cycling tourism experience.

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References

- Amri, P., Adni, D. F. & Yudilla, A. (2021). Bike sharing: pelaksanaan program Jogja Bike sebagai transportasi lokal untuk wisatawan Yogyakarta. *Jurnal Moderat*, 7(1), 197-210
- Aschauer, F., Gauster, J., Hartwig, L., Klementsitz, R., Michael, M., Pfaffenbichler, P., & Unbehaun, W. (2021). WP3 Ecotourism planning: guidelines for sustainable bicycle tourism. *Output 3.3*. Vienna: Institute for Transport Studies University of Natural Resources and Life Sciences
- Aquarita, D., Rosyidie, A., and Pratiwi, WD. (2016). Potensi pengembangan cycling tourism di kota Bandung berdasarkan persepsi dan preferensi wisatawan. *Jurnal Pengembangan Kota*, 4(1), 14-20
- Asan, K. (2021). Measuring the impacts of travel influencers on bicycle travellers. *Current Issues in Tourism*, 25(6), <https://doi.org/10.1080/13683500.2021.1914004>
- Bakogiannis, E., Vlastos, T., Athanasopoulos, K., Vassi, A., Christodouloupoulou, G., Karolemeas, C., Tzika, E. (2020). Exploring motivators and deterrents of cycling tourism using qualitative social research methods and participative analytical hierarchy process (AHP). *Sustainability*, 12(6), 1–15. <https://doi.org/10.3390/su12062418>
- Barreto, M., & Giantari, I. G. A. K. (2015). Strategi pengembangan objek wisata air panas di Desa Marobo, E-*Jurnal Ekonomi dan Bisnis Universitas Udayana*, 4(11). <https://ojs.unud.ac.id/index.php/EEB/article/view/15129>.
- Belotti, S. (2022). Bicycle tourism, from pandemic to sustainability: “Terre di Casole Bike Hub” project. *Belgeo* [Online], 3. URL: <http://journals.openedition.org/belgeo/56063> ; <https://doi.org/10.4000/belgeo.56063>

- Černá, A., Černý, J., Malucelli, F., Nonato, M., Polena, L., & Giovannini, A. (2014). Designing optimal routes for cycle-tourists. *Transportation Research Procedia*, 3, 856–865. <https://doi.org/10.1016/j.trpro.2014.10.064>
- Chen, C.-N. and Lee, H.-L. (2017), How to promote cycling tourism globally. *Tourism Hospitality and Management*, 23(1), 1–16.
- Chen, S., Chen, B. and Fath, B.D. (2014), Urban ecosystem modeling and global change: potential for rational urban management and emissions mitigation. *Environmental Pollution*, 190, 139–149
- Ciascai, O. R., Dezi, Ștefan, & Rus, K. A. (2022). Cycling tourism: a literature review to assess implications, multiple impacts, vulnerabilities, and future perspectives. *Sustainability*, 14(15), 8983. <https://doi.org/10.3390/su14158983>
- Duran, E., Sevinç, F., & Harman, S. (2018). Cycle tourism as an alternative way of tourism development in Canakkale, Turkey. *Journal of Awareness*, 3(4), 25 - 34.
- Ferreira, J. P., Isidoro, C., Moura Sá, F., & Baptista Da Mota, J. C. (2020). The economic value for cycling – a methodological assessment for starter cities. *Hábitat Sociedad*, 13, 29–45. <https://doi.org/10.12795/habitatsociedad.2020.i13.03>
- Gazzola, P., Pavione, E., Grechi, D., & Ossola, P. (2018). Cycle tourism as a driver for the sustainable development of little-known or remote territories: the experience of the Apennine Regions of Northern Italy. *Sustainability*, 10(6), 1863
- Gunter, U. and Wöber, K. (2021), Estimating transportation-related CO2 emissions of European city tourism, *Journal of Sustainable Tourism*, 30(1), 145-168. <https://doi.org/10.1080/09669582.2021.1939708>
- Hakim, RN. (2022, Kompas.com, September 18). Kadishub DKI sebut jumlah pesepeda meningkat drastic setelah dibangun jalur sepeda. <https://megapolitan.kompas.com/read/2022/11/18/17052471/kadishub-dki-sebut-jumlah-pesepeda-meningkat-drastis-setelah-dibangun>. Accessed on January 21, 2023.
- Hall, C. M., Le-Klöhn, D.-T., & Ram, Y. (2017). *Tourism, public transport and sustainable mobility*. Bristol: Channel View Publ.
- Han, H., Meng, B., & Kim, W. (2017). Emerging bicycle tourism and the theory of planned behavior. *Journal of Sustainable Tourism*, 25(2), 292–309. <https://doi.org/10.1080/09669582.2016.1202955>
- Jia, L., Liu, X., Liu, Y. (2018). Impact of different stakeholders of bike-sharing industry on users' intention of civilized use of bike-sharing. *Sustainability*, 10(5), 1437. <https://doi.org/10.3390/su10051437>
- Karawangkab.go.id.(2014) Peringati hari pahlawan wakil bupati bersama muspida ikuti karawang meminim semangat gowes pahlawan dan tabur bunga di Taman Makan Pahlawan Klari Karawang <https://www.karawangkab.go.id/headline/peringati-hari-pahlawan-wakil-bupati-bersama-muspida-ikuti-karawang-bersepeda-semangat>. Accessed on January 11, 2023.
- Kovačić, N. & Ivek, T. (2022). Cycling tourism destination development from local stakeholders' perspective. *Acta Turistica*, 34(1), 7-49. <https://doi.org/10.22598/at/2022.34.1.7>
- Luekveerawattana, R. (2022). Factors affecting the economic impact for managing cycling cultural tourism route. *Cogent Social Sciences*, 8(1). <https://doi.org/10.1080/23311886.2022.2099563>
- Liu, K., & Li, W. (2019). Current situation and prospect analysis of cycling tourism in Zhuhai City, China. *Advances in Economics, Business and Management Research*. 91, 167–171. <https://doi.org/10.2991/edmi-19.2019.25>
- Magris, M., & Ross, D. (2018). Different ways of cycling? A contrastive and translation analysis of web texts on cycling holidays. In : M. Bielenia-Grajewska & E. Cortes de los Rios (Eds.), *Innovative perspectives on tourism discourse*. 265–291. Hershey, PA: IGI Global.
- Mamrayeva, D., & Tashenova, L. (2017). Prospects of bicycle sharing in urban tourism in the Republic of Kazakhstan: myth or reality?. *Transport Problems Silesian University of Technology*, 12(2), 65-76.
- Mosko, E.M.; Młodzik, M.; Guereño, P.L.; Adamczewska, K. (2019). Male and female motivations for participating in a mass cycling race for amateurs: the skoda bike challenge case study. *Sustainability*, 11, 6635
- Mundet, L., Marin, J., & Figueroa, A. (2022). How to develop a road cycling tourism destination. Girona as a case study. *Journal of Outdoor Recreation and Tourism*, 39, 100566. <https://doi.org/10.1016/j.jort.2022.100566>
- Nilsson, J.H. (2019). Urban bicycle tourism: path dependencies and innovation in Greater Copenhagen. *Journal of Sustainable Tourism*, 27(11), 1648-1662, <https://doi.org/10.1080/09669582.2019.1650749>
- onediginews.com. (2015, December 15). Pesepedamerana, jalursepedamemudartidakdipelihara. <https://www.onediginews.com/pesepeda-merana-jalur-sepeda-memudar-tidak-dipelihara/>. Accessed on January 11, 2023.
- Pantelaki, E., Crotti, D., Maggi, E. (2023). Cycling tourism in Italy: multimodal transport behaviours in a latent class analysis. *Research in Transportation Business and Management*, 48, 100861. <https://doi.org/10.1016/j.rtbm.2022.100861>
- Poljičak, A., Šego, D., & Periša, T. (2021). Analysis of cycling tourism: case-study Croatia. *International Journal for Traffic and Transport Engineering*, 11(3), 454–464. [https://doi.org/10.7708/ijtje.2021.11\(3\).08](https://doi.org/10.7708/ijtje.2021.11(3).08)

- Qiu, L. Y., & He, L. Y. (2018). Bike sharing and the economy, the environment, and health-related externalities. *Sustainability*, 10(4), 1–10. <https://doi.org/10.3390/su10041145>
- Rahmanita, M., Asmaniati, F., & Dewi, T. R. (2020). Profiling Local Business Enterprises and Direct Effect of Tourism in Villages of Muntei, Madobag and Matotonan, South Siberut, Mentawai, Indonesia. *Tourism Research Journal*, 4(2), 199-213
- Rahmanita, R., Asmaniati, F., Agung, A.A.G., Muhardiansyah, D. & Brahmantyo, B. (2022). Analisis Pemangku Kepentingan Pada Pengelolaan Ekowisata di Siberut Selatan Kepulauan Mentawai, Indonesia. *Jurnal Ilmiah Pariwisata*, 27 (2). 128-144
- Rupaka, A. P., Sulistyo, A. B., and Punia, D. (2021). Pemetaan perilaku pesepeda pra dan pasca pandemi covid-19 di provinsi Bali menggunakan data strava metro. *Jurnal Teknologi Transportasi Dan Logistik*, 2(2), 119–126. <https://doi.org/10.52920/jttl.v2i2.32>
- Roojai Indonesia (2023, April 13). Kecelakaan Sepeda-Ini faktanya untuk kamu hindari. <https://www.roojai.co.id/article/gaya-hidup-kesehatan/kecelakaan-diri/>. Accessed on January 3, 2023
- Sabri, N.A.M., Anuar, F.I., Adib, A.M., & Azahar, N. (2019). A systematic review on bicycle tourism: concept, issues, and future directions. *TEAM Journal of Hospitality and Tourism*, 16(1), 49-66.
- sergap.co.id. (2022), September 19). Gowes fun bike, Bupati Karawang: Sebagaiupayamengolahragakanmasyarakat. <https://sergap.co.id/2022/09/19/gowes-fun-bike-bupati-karawang-sebagai-upaya-mengolahragakan-masyarakat/>. Accessed on May 3, 2023.
- spiritnews.co.id. (2019, March 24). Fun Bike Perdana IJTI Korda Karawang dipadati kerumunan Goweserdari 150 Komunitas Sepeda <https://spiritnews.co.id/2019/03/24/fun-bike-perdana-ijti-korda-karawang-dipadati-ribuan-goweser-dari-150-komunitas-sepeda>. Accessed on April 5, 2023.
- Slavić, N., Ivek, T. (2021, December). *Standardization of services as key components of cycling tourism destination development* [Paper presentation]. 6th International Scientific Conference TOSEE & TOFEEL. Opatija, Croatia: University of Rijeka, Faculty of Tourism and Hospitality Management, 679-694. <https://doi.org/10.20867/tosee.06.45>
- Technopolis. Evaluating the Economic and Social Impact of Cycling Infrastructure: Considerations for an Evaluation Framework (Technopolis-Group.com). Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/509391/evaluating-economic-social-impacts-cycling-infrastructure-evaluation-framework.pdf. Accessed on July 02, 2023
- Tripoli, B., Djamaluddin, R., Amin, J.(2018,). Efektifitas kinerja laju khusus sepeda di kawasan kota Meulaboh. *Jurnal Teknik Sipil Universitas Teuku Umar*, 1(1), 13–24
- Vedel, S. E., Jacobsen, J. B., & Skov-Petersen, H. (2017). Bicyclist's preferences for route characteristics and crowding in Copenhagen. *Transportation Research Part A: Policy and Practice*, 100, 53–64. <https://doi.org/10.1016/i.tra.2017.04.006>
- Wiyatiningsih., Oentoro, K., & Amijaya, S. Y. (2022). Tren cycling tourism urban masa pandemi: kesiapan ruang di perkampungan bantaran sungai Gajahwong Yogyakarta. *RUANG-SPACE JurnalLingkunganBinaan (Space : Journal of the Built Environment)*, 9(1), 37. <https://doi.org/10.24843/jrs.2022.v09.i01.p04>
- Wiyoso, D. &Prमितasari, P. (2021).Urban tourism space based on bike-sharing tourist in Yogyakarta City. *JurnalTeknosains*, 11(1), 76-89
- Zoltán, P (ed.) (2015). *Cross-border bike cycling tourism in the Hungary-Croatia border area : Summary report on the workshop series*. STRDA South Trans dan ubian Regional Development Agency Nonprofit Ltd.

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