

Production Of Spatial Geosite Itinerary Maps as Tourism Destinations

Jasman¹, Masri Ridwan^{1*} , Moh Khairul Amri Kamarudin² , Darwin Parlaungan Lubis³ 

¹Tourism Destinations Study Program, Makassar Tourism Polytechnic, Makassar, Sulawesi Selatan, Indonesia

²Faculty of Applied Social Sciences, Gong Badak Campus, University Sultan Zainal Abidin, Kuala Nerus, Terengganu, Malaysia

³Department of Geography Education, Faculty of Social Science, Universitas Negeri Medan, Sumatera Utara, Indonesia

ARTICLE INFO

Article History:

Received: July 19, 2023

Revision: August 21, 2023

Accepted: August 23, 2023

Keywords:

Tourism Geography

Ethnography

Benteng Alla'

GIS

Corresponding Author

E-mail:

masriridwan10@gmail.com

ABSTRACT

The availability of tourist maps so far has experienced limitations in presenting attribute data in the form of non-spatial characteristics. Tourism is called quality if it can convey the information the community needs. Among them are location attributes, land use, natural and cultural phenomena history, and interrelationships between spaces. Geographical and cultural features are essential to be used in realizing quality tourism through the availability of information on tourism space areas, such as visualization of landscapes and depth of local cultural knowledge. This study used a qualitative method with data collection techniques carried out through interviews, focus group discussions, landscape documentation, surveys, and observations to determine the geographical position of spatial elements. The results of the study produced Itinerary Maps and geosite distribution, including the Saddang River, Buntu Lindo Batu, Lo'ko Malillin, Buntu Lingkobo, Mount Benteng Alla', Buntu Karua, and Kalosi Arabica Coffee Cultivation. The row of geosites has a chronology and chronology of formation and is related to the social culture of the people in the Fort Alla' area. The findings from this study are expected to provide exposure to the public, tourists, and the government to preserve natural and cultural heritage to become a reference in implementing sustainable tourism development in Enrekang Regency. It is necessary to develop a digital-based information system that presents spatial attribute data and ethnographic records that can be accessed online.

INTRODUCTION

A geological tourism map is a tool that can achieve many (or even all) purposes by establishing visual relationships between landscape features, geological heritage, tourist perceptions, millennial needs, and tourism activists (Bouzekraoui et al., 2018; Gordon, 2018; Piacentini et al., 2019; Sacchini et al., 2018; Stibral & Faktorová, 2021). Tourism is a socioeconomic activity related to space (Kang et al., 2019) where tourism activities occur, so maps become a tool for tourists, managers, route planning, economic

analysis, and others (Kalvet et al., 2020). GIS has been used in natural resource management, land use planning, natural disasters, transportation, health care, public services, area market analysis, and urban planning since the 1970s (Lubis et al., 2017; Garb & Wait, 2011; Kumar et al., 2023; Munthali et al., 2020). The field of tourism is now developing dynamically, utilizing the latest technologies, such as geoinformatics and digital cartography, which present modern maps of tourist destinations in a more modern way

(Brokou et al., 2021). Travelers use maps to navigate during their journey and to prepare their routes (Jovanović & Njeguš, 2008), GIS plays a crucial role in addressing the growing need for obtaining adequate data for transportation models (Hosseini et al., 2021).

Using ICT tools, digital maps are becoming increasingly popular, allowing users to create maps with information based on education and interests, which requires the application of sound aesthetic judgment (Brokou et al., 2021; Kent, 2013). Touch connects us with an object physically and emotionally (Kent, 2019). The Google Earth map and the Flash version achieved the highest interactivity scores and led to more mental imagery (Hanyoung Go & Ulrike Gretzel, 2010). However, current tourism travel planning practices need to be more integrated with the location information that tourists need (Pan et al., 2007).

Today's profile of modern tourists in making tourist trips is by utilizing interactive technology. Interaction, among other factors, is an essential issue for tourism, for example, e-commerce hotel bookings (Bilgihan et al., 2014). The prospects for tourism development are influenced by interactive information technology, databases, and technology adapted to the needs of tourists (Pavlovic & Krstić, 2020). In addition, information technology must show the quality of existing tourism products in tourist destinations. In this context, the availability of technology in a goal is a facilitator between tourist object managers and tourists. (Agag & A. El-Masry, 2016) Ideally, tourism information can link service providers and the demand and supply of tourism activities.

A geographic-based information system is an interactive platform capable of providing the information needs of tourists. According to (Brokou et al., 2021), the availability of an online map platform was used (by 81.4%) of respondents for the function of tourist locations (65.8%) to find

out distances and (72.8 %) for navigation purposes. Tourism has a vital geographical attribute. GIS is an information system offering services to geographic research and decision-making, which can play roles in tourism management. Possessing functions such as data collection, storage, processing, spatial analysis, and so on, GIS directly provides services for tourism management (Wei, 2012). Eboy (2017) defines maps as vehicles that are indispensable for communicating spatial information with the availability of images of space and place. The destination manager should ideally be able to provide more detailed information about the historical background, giving travel guidance with flowcharts or map objects (Kirom et al., 2018).

The challenge currently being experienced by cartographers is presenting a tourist map full of meaning and rich information. Tour maps for planning are developed for the public and private bodies in charge of managing tourism activities; meanwhile, the guide map is directly related to the movement of tourists in tourist areas (Salomão Graça & Fiori, 2015). First, the production of tourist maps has so far been judged to be too static. The tourist maps presented on several tourism platforms differ from tourist destinations' conditions. (Brokou et al., 2021) argued that online maps cannot know local characteristics and potential in tourist destinations, as many (80.1%) of respondents need help finding enough information about the local community, the protection of cultural heritage, and information on tourism development, which is getting out of control. Moreover, tourist information in remote areas has very little information about landscapes and natural panoramas incredibly remote places (Ghorbanzadeh et al., 2019). In addition, according to (Fiori, 2010), tourist maps are produced with internal guidelines in three essential aspects: information means dissemination and development for understanding.

Second, tourist maps are mainly focused on interests and power. (Pearce, 1995) detects a significant shift from spatial-based tourist modeling in that many tourist maps have been developed subjectively without the involvement of cartography. In addition, only a few tourist maps have received critical assessment or empirical testing based on cartographic principles. Fagence (Boers & Cottrell, 2007) argues that the contribution of tourism maps so far lies in establishing the relevance of certain geographic concepts, such as spatial interactions between tourism components, distance information from origin to destination, transportation spots, tourist routes, and tour package maps. Natural disasters seriously impact tourism, so hazard mapping provides information to authorities/residents about various possible changes and disaster management activities at tourist sites (Singh, 2015). The availability of maps can be a tool for developing tourist destinations. Geographic Information Systems provide a technical and technological toolbox for achieving sustainable tourism (Pareta, 2013).

Geosite and Geomorphosite are landscapes that have potential as tourism sites and have value based on the point of view of human judgment (Bahar et al., 2020). The possibility of a site can become a tourist attraction and a sustainable tourism development effort (Krishna et al., 2016; Marlina & Natalia, 2016). Geosite and Geomorphosite tourist attractions are developed using an appropriate spatial approach based on cartographic principles. The development of tourism destinations through a spatial system plays a role in determining directions for destination managers in determining tourism policies, such as areas with geological, biological, and cultural diversity characteristics directed as geo-tourism destinations or geo-parks (Wulung et al., 2020). Geosites are those parts of the geosphere important for understanding the earth's history. These geological or geomorphological

objects have acquired scientific, cultural/historical, aesthetic, and social/economic value due to human perception or exploitation (Reynard, 2004).

The Benteng *Alla'* area in Enrekang district, South Sulawesi, has the potential as a geosite-based tourist attraction. However, all the potential that exists has not been appropriately managed. As a result of discussions and observations in the field, it is difficult for the community to construct information about the history, geological processes, and the links between existing landscape phenomena. So far, visitors can only interpret the appearance of the landscape based on their understanding without any reinforcement from the local community as the party that "guards" this natural heritage. The pattern of visitor movement in the Fort *Alla'* area does not yet have a model integrated with the three village areas, so it can potentially cause social inequality.

The historical site of Benteng *Alla'* is a rock formation resembling a fortress with a length of up to 6 km and an area of 80 ha, placing the Benteng *Alla'* space administratively spread across Baroko, Massale, *Alla'* Districts to the Tana Toraja Regency area. Benteng *Alla'* is located in the northern part of Enrekang Regency. Apart from the landscape potential, there is also Kalosi coffee from the Arabica coffee species (*Coffea Arabica* Linn), one of the central coffees in Indonesia (Bulan, 2021). So far, the *Alla'* Fortress area has not been optimized to become a tourist attraction even though it is on the path of the National Tourism Area and National Tourism Destinations, namely the Toraja KPPN and its surroundings and the Toraja-Lorelindu DPN and its surroundings (Permen RI No. 50 of 2011).

The development of the Benteng *Alla'* Geosite as a destination is carried out by visualizing the area's landscape and descriptive socio-cultural sites. Therefore, the approach used for geosite development is through ethnographic area mapping. Ethnographic mapping – that can collect

both spatial (maps) and narrative (descriptions) information in tandem and across cultural groups living (Parent, 2020). Ethnography is in line with cartography (Wainwright & Bryan, 2009), who mention that cartography represents the world, doing geography in the literal sense of 'writing the world. Ethnographic mapping is locating geographic spaces for activities and locations of individuals or groups (Tripathi et al., 2010). It plays an essential role in studying geographic areas and provides new information about changes in social structure, networks, and demographics within societies (Oliver-Velez et al., 2002).

On the other hand, it was found that there was a tendency for millennial tourists to enjoy traveling with cultural experiences (Xu et al., 2022). Millennials are a demographic segment with significant participation in business trips (Starčević & Konjikušić, 2018). Millennial travelers are interested in authenticity, fulfillment, and sustainability (Sofronov, 2018). Millennials were born in the digital era and are known for always relying on internal technology in every aspect of their life (Pramono et al., 2020). Travel experiences increase when various sites are combined with visiting (Ershad & Ali, 2020). It can be concluded that Millennials are very close to culture immersion, where they want to experience local nuances with the availability of specific information about the attractions in sight. Thus, regional visualization support and information depth are needed in travel planning.

This study aims to identify the spatial elements in designing a tourism destination model. In addition, classifications of tourist attractions are scattered in the geosite area of Benteng *Alla'*, Enrekang Regency. It can further explore the meaning of a landscape and cultural phenomenon through ethnographic studies that show performative practices that shape tourism identity. It is hoped that the integration of

research across geographic and ethnographic disciplines can represent a space that gives meaning to the essence of a destination as a tourism space.

RESEARCH METHODS

Ethnography is knowledge that includes research techniques, ethnographic theories, and various cultural descriptions (Spradley, 1997). Them (2013) defines culture as an organic system in which all tangible or intangible values are created and extended by humans in interacting with nature and the social environment. Meanwhile, ethnographic features include language, technological systems, economic systems, social organizations, knowledge systems, and arts and religious systems (Koentjaraningrat, 1997). Ethnographic mapping is a process for locating geographic spaces, which are the places for the main activities and locations of individuals or groups of people studied (Tripathi et al., 2010) It describes culture within the boundaries of space and provides a basis for contemporary understanding of how culture is set (Burrell, 2009).

The presence of an ethnographic approach in location studies can provide new information related to changes in social, network, and demographic structures in a destination area. The distinguishing feature of tourism is that an individual wants to find something different from his daily activities (Arief, 2013). Collection of references in the field, notes, and transcripts from observations through semi-structured interviews with respondents can describe in detail how human influences or actions within their "ethnic" sphere are always related to the historical background of their efforts (Miles & Huberman, 1994; Fatchan, 2015), this study builds an ethnographic-based tourism information system for destinations with geosite attractions.

Geosite boundaries for this study include rocks, geological structures, and

landscapes, which provide an overview of unique geological processes and represent the study area's evolution. Biodiversity is linked to the economy, the use of local communities, and the history that underlies the toponymy of the landscape as a unique thing for tourist attractions. When using the space of geological areas, the importance of geological sites and their use and maintenance must be considered (Ansori et al., 2022). All geoscientists recognize the importance of accessing representative geodiversity elements (minerals, rocks, fossils, soils, landforms, etc.) (Brilha, 2016). Geotourism, as 'geological tourism,' is a form of tourism that focuses specifically on geology and natural landscapes (Dowling, 2014).

A Geographic Information System (GIS) is an efficient tool for maintaining natural and cultural tourism resources. (Kasiannan, 2007), revealed that GIS is a valuable tool for mapping cultural heritage. Meanwhile, (Sieng & Ebo, 2021) showed that the introduction of GIS in the mapping field helps to produce maps of ethnographic patterns, indirectly preserving the heritage of the people of Kadazan Hamlet, Kalimantan Island. The map created by this study shows various ethnographic features that can be used to describe the cultural heritage of the Kadazan Hamlet community, including local musical instruments, traditional clothing, handicrafts, and local products. Thus, this cultural heritage can be mitigated through maps.



(a) Research Team



(b) Research Informants

Figure 1. Focus Group Discussions

Table 1. List of Informants in Benteng *Alla'*

Informant Subject	Interview Time and Place	Information Needs
District of Baroko		Tourism Policy in Baroko District, Enrekang Regency
Head of the Youth Sports and Tourism Office of Enrekang Regency	Baroko District Office Hall;	Tourism Policy and Direction of Enrekang Regency
Ketua Aliasi Adat Massenrempulu (AMAN)	Wednesday,	Information on customs and culture of the Benteng <i>Alla'</i> area
Head of Benteng <i>Alla'</i> Utara Village; patongloan; Tongko: Benten <i>Alla'</i>	March 30, 2022; 09.00-17.30 WITA	The distribution of tourism potential in villages in the Benteng <i>Alla'</i> area
Traditional Figure A'Pa Tepona Bua		Historical information on the background of Benteng <i>Alla'</i>

ISBA chairman

Innovation and Development Program for the Benteng *Alla'* area

Farmers' Land managers at the destination location of Benteng *Alla'*

Information about Kalosi arabica coffee and agricultural/plantation products

Geology Researcher

Hasanuddin University;
 Thursday, April 3, 2022

Geological Information of Benteng *Alla'* Area

Source: Researcher (2022); FGD "Benteng *Alla'* Development Planning Meeting (2023).

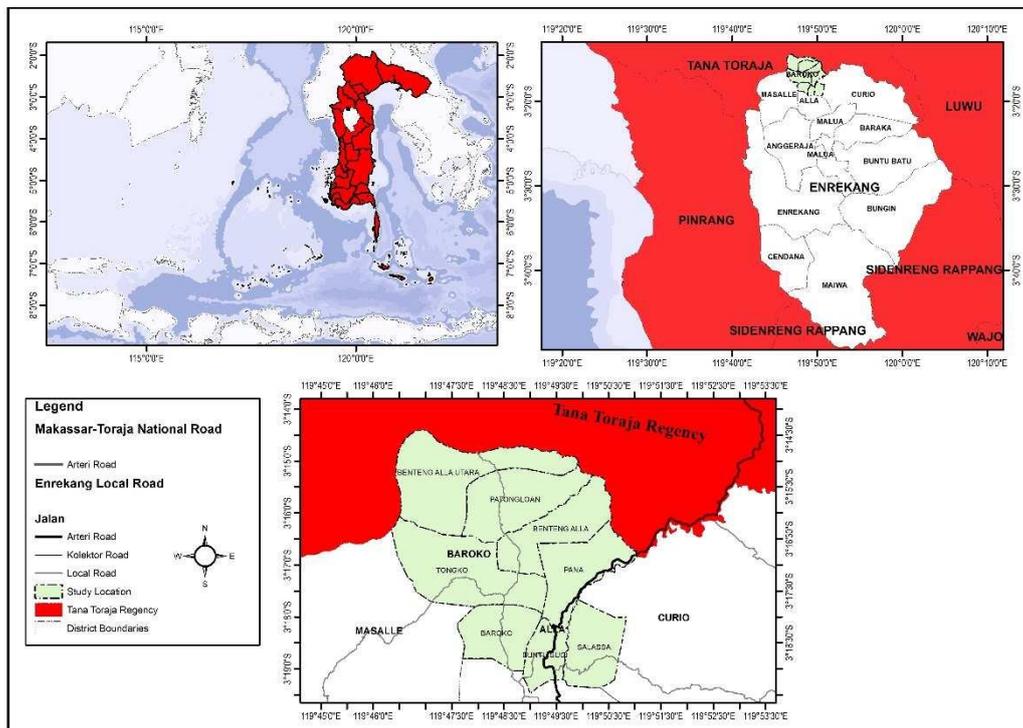


Figure 2. Study Area Map (Source: Researchers, 2023).

RESULTS AND DISCUSSION

Analysis techniques in ArcGIS software are used to determine the distribution of ethnographic characteristics on geosite features and socio-cultural phenomena in the Benteng *Alla'* area. The results of this analysis are in the form of distribution point features and areas. Spatial data was generated through surveys on the location of the Destination Components, Ethnographic notes and reports, and the distribution of geosites based on Figure 5. The themes of the

supporting components of tourism destinations include the distribution of attractions (geosite), accommodation, amenities, accessibility, and ancillaries. In comparison, the themes of ethnographic features include culture, history, landscape, tourism policy, and land use. Overlays between ethnographic feature groups and destination features are overlaid to produce ethnographic data-based geosite distribution maps.

Table 2. The Geo-Ethnographic-Based Tourism Fort Alla' Mapping Component

	Spatial Data	Destination Component	Non Spasial Data: Histori Geosite:
Input	Attribute Data: Line; Polygon: Point	Attraction 	1. Cultural Theme 2. Historical Theme 3. Landscape Theme 4. The theme of land use 5. Theme of Tourism Policy
		Accommodation Accessibility Amenities Ancillary 	Homestay Location Features; Restaurant; Mode of transportation; Information Center; Footpath; Souvenir Center; Other Supporting Facilities and Infrastructure
Process			Overlays (combine, erase, modify, or update spatial features): Location of Destination Components, Geosite and Ethnographic Description of the Benteng <i>Alla'</i> Community
Output			<ul style="list-style-type: none"> • Ethnographic-based Geosite Map • Ethnographic Records

Figure 3. GIS Workflow; Scope of Study

(Source: GIS Workflow, 2022; Sieng & Eboj, 2021; Researchers, 2023).

Benteng *Alla'* or Mount Benteng *Alla'* is located in the administrative area of Baroko District in 1 sub-district and three villages, namely Baroko Sub-District, Patongloan Village, Tongko, North of Benteng *Alla'*, Patongloan; *Alla'* District, which is in the Buntu Sugi Village, Pana Village; as well as in the District of Curio which is in the village of Salassa and part of it is in the western part of Pabaloran village. Based on the results of field observations, there are six geosites (Figure 3) in the Benteng *Alla'* area. Each geosite is described in terms of detailed location, characteristics and existing conditions, geological overview, and tourist attraction products. This potential can complement the development of the tourist area in the northern part of Enrekang. Among them is

- 1) the Saddang River, which flows through Pana village, *Alla'* sub-district, and 2) Buntu Lindo Batu, which is in the Buntu Sugi sub-district, *Alla'* sub-district. In the *Duri* language (*Massenrempulu*), *Buntu Lindo Batu* means a Stone-faced Mountain
- 3) *Lo'ko Malillin*, which is in *Pana* village, *Alla'* sub-district
- 4) *Buntu Lingkobo*, which is in *Pana* village, *Alla'* sub-district and *Salassa*, Curio sub-district, the *Lingkobo* geosite is the delineation boundary for the two sub-districts
- 5) Mount of Benteng *Alla'* is located in 4 (four) administrative areas of the village, namely North Benteng *Alla'*; Patongloan; Tongko: *Benten Alla'* Baroko District
- 6) Buntu Karua is located in *Pana* Village, *Alla'* District. The following is an inventory of geosite characteristics at the study site.

Table 2 Inventory of Landscape Potential in the Benteng *Alla'* Area, Enrekang Regency

Geosite	Morphology Identification / Geology	Coordinate		Potential Attractions/ Activities	Location		
		BT	LS		Village/ Subdistrict	Subdistrict	Regency
Buntu	Tower/ Reef	119°	3°	Natural attraction	Pana;	<i>Alla'</i> ;	Enrekang
Lingkobo	Limestone	49.956'E	17.821'S		Salassa	Curio	
Buntu	Tower/ Shale	119°	3°	Natural attraction	Pana	<i>Alla'</i>	Enrekang
Karua		49.482'E	17.594'S				
Buntu Lindobatu	Tower Karst / Limestone Reef	119°	3°	Natural attraction	Buntu Sugi	<i>Alla'</i>	Enrekang
		48.946'E	18.864'S				
Mount of Benteng <i>Alla'</i>	Tower/ Reef Limestone	119°	3°	Natural attraction	North Benteng <i>Alla'</i> ;	Baroko	Enrekang
		48.160'E	15.166'S		Patongloan; Tongko: Benteng <i>Alla'</i>		
Loko Maliling	Goa / Limestone Reef	119°	3°	Natural attraction	Pana	<i>Alla'</i>	Enrekang
		49.798'E	17.991'S				
Saddang River Stream	River/Shale	119°	3°	Natural attraction	Pana	<i>Alla'</i>	Enrekang
		49.772'E	17.957'S				

Source: Processed Data, (2022).

The results of identification, interviews, and field surveys provide an overview of chorology and landscape formation in the study area. Shale and Limestone are part of the appearance of the Region. The physical phenomenon of the landscape is in the form of karst rocks that form towers, caves, and rivers. The components of these unusual karst formations are non-renewable natural resources, meaning that the existence of karst and its unique architectural structures, including the environmental function they carry out, is a resource that cannot be repeated in the same place or the process of its formation. Takes thousands or millions of years. These natural buildings are categorized as natural tourism resources. The map here helps tourists to interpret geosites and is the most relevant media to promote geotourism at Fort *Alla'* Geosite.

(Bouzekraoui et al., 2018) Suggests that the presentation of map proportions must be balanced between scientific geosite information and tourism. It is used to communicate geoscientific themes with a non-specialist public to provide the opportunity to understand geomorphology or geological phenomenon, formation, or evolution. Tourist information is of secondary importance (Rodrigues et al., 2011). Map derived from an exact simplification of the geomorphological map. It combines the most observable geological and geomorphological natural and anthropic features and is recognized even by non-experts and tourists' information (Erharti, 2010). This means that tourists are presented and facilitated with panoramas to enjoy artistic phenomena created by nature that cannot be found anywhere else in the world.

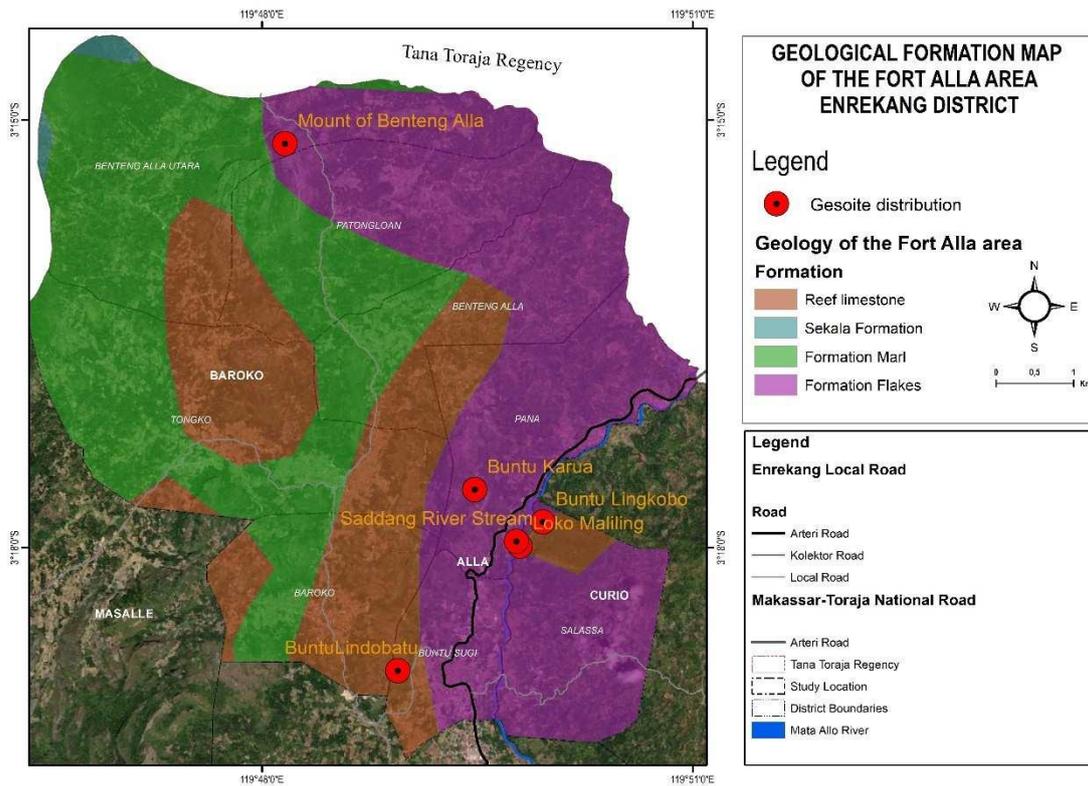
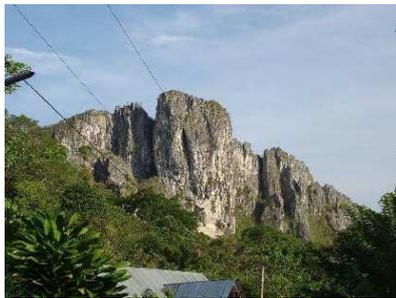


Figure 4. Geological Formation Map of The Research Area (Source: Researchers, 2023)



Benteng *Alla'*, Mount Benteng *Alla'* is in the administrative area of Baroko District in 1 sub-district and three villages, namely Baroko Sub-District, Patongloan Village, Tongko, North Benteng *Alla'*, Patongloan.



Mount Londo Batu, Buntu Sugi Village, *Alla'* District, Enrekang Regency. Located right on the edge of the Enrekang-Makale axis road and between the road and the tower is the Bubun Salle spring.



Mount Lingkobo: Mount Lingkobo karst tower, Pana Village, *Alla'*



Mount Karua karst tower, Pana Village, *Alla'*

District, Enrekang Regency. Located right on the edge of the Enrekang-Makale axis road and between the road body and the karst tower is the Saddang River



Saddang River, The Saddang River flow limits the Lingkobo Karst tower and the Enrekang-Makale axis road. This river is a stream from Toraja and empties into Pinrang Regency.

District, Enrekang Regency. It is located right on the edge of the Enrekang-Makale axis road.



Lo'ko Malilin, Malillin Cave in Pana Village, *Alla'* District, is on the east side of the axis road. This cave was used as a hiding place for Japanese soldiers.

Figure 5. Geosite Descriptive Theme based on the proposition of the Key Informant (Source: Researchers, 2023).

In a narrow sense, geotourism is a tourism segment focusing on sustainability results (by geotourists and local people) of geoheritage results. In a broad sense, geotourism can be considered as a tourism segment that primarily focuses on sustainable outcomes (by geotourists and local communities) of fruitful geoheritage, that is, cultural heritage (material and immaterial) can be added from the area (Rodrigues et al., 2011; Štrba et al., 2020) In this research, we only do data inventory available to meet the definition of geotourism in the narrow sense, namely to do village community geoheritage inventory. After we conducted a list, the following are the results of the Focus group discussions with residents and farmers in the *Alla'* fort area:

"This natural phenomenon was used as a stronghold by the community together with the extended family of *Bo'dik*,

Tabbakka' BF Puang Garutuk, BE, namely Biritta Bin BE Puang Tosang who came from the *Tidalun* kingdom and families from the community in the Durian complex which is named *Tallu Batu Papan* in the struggle against the invaders. In 1906, Benteng *Alla'* became the base for the defense of the *Alla'* kingdom and was also used by warriors from the land of Toraja. The form of utilizing the Benteng *Alla'* was carried out by strengthening the Benteng from all directions. Doors or entrances to the north, south, west, and east are piled in layers and stones. Each route or gate is strictly guarded. The exit from the north is entrusted to *Ottong* and *So'Bo*. The west door was assigned to *Bo'dik* and Grandma *So Asu* from *Tangsa*. The South Gate was charged to *Uban* from *Patongloan (Redak)*. The east gate was given authority to *Wa' Saruran* and *Bombing* from *Bonggakaradeng (Tana Toraja)*".

Table 3 Inventory Locations for Historical and Cultural Potential in the Benteng *Alla'* Area, Enrekang Regency

Geosite	Potential Attractions/ Activities	Location		
		Village/ Subdistrict	District	Regency
Benteng Kambiolangi	History	Sumillan	<i>Alla'</i> ;	Enrekang
Benteng Buntu Rajan	History	Pana	<i>Alla'</i> ;	Enrekang
Benteng <i>Alla'</i>	History	Benteng <i>Alla'</i> Pamolongan	Baroko	Enrekang-Toraja
Tondok Redak Old Settlement	History			Enrekang
Issong Batu	History	Tondon, Redak	Baroko	Enrekang
Tongkonan	History	Tangsa, Benteng <i>Alla'</i>	Baroko	Enrekang-Toraja
Kalosi Arabica Coffee	Culture-Agrotourism	Tangsa, Benteng <i>Alla'</i>	Baroko	Enrekang

Source: Processed Data, (2022).

Geosites in the form of historical remains and community cultivation are found in the Benteng *Alla'* Area. The results of interviews with key informants are included in the ethnographic report as follows:

"First, on the Enrekang-Toraja axis road, which crosses the village of Pana, *Alla'* District, this area has the potential for natural geosites and panoramas. Second, the Baroko District includes the villages of North Benteng *Alla'*, Patongloan, and Benteng *Alla'*. In addition to the Geosite, the potential of this area includes community activities and local wisdom that are packaged using agro-tourism and eco-tourism models. The third is the northern part of Pana Village, *Alla'* District.

This area is the gateway to Tona Toraja Regency (leading destination). Infrastructure development in accommodation facilities, restaurants, restaurants, and homestays is directed at this area.

Agro-tourism potential areas in Baroko District include Patongloan Village, *Alla'* Utara Benteng, and *Alla'* Benteng. These three areas are areas with natural attractions and the development of artificial lures. The beauty and panorama of Benteng *Alla'* mountain is the main attraction in these three villages. Apart from that, community activities in the agricultural sector are a potential for agro-tourism, and the local wisdom of the people is still vital.



(a) Natural panorama and rice fields in Benteng *Alla'* Village



(b) Kalosi Arabica Coffee

Figure 6. Benteng *Alla'* Agrotourism Potential (Source: Researchers, 2023).

The current location is open land with community activities in the agricultural sector – cultivating horticultural crops such as potatoes, carrots, tomatoes, onions, and other vegetables. In addition, the village of Benteng *Alla'* Utara is dominated by rain-fed terracing rice fields. The formation of the paddy fields adds to the beauty of *Alla'* Benteng and is a tourist attraction. The development of the agro-tourism area in Benteng *Alla'* is based on the issue of tourism development policy in Enrekang Regency, which a local government representative informant conveyed. Among them 1) Enrekang Regency Regional Regulation Number 14 of 2011 concerning the Enrekang Regency Spatial Plan for 2011 – 2031 that the area for developing alternative cultivation of superior plantation commodities is coffee plantation areas in the Districts of Masalle, Baroko, *Alla'*, Curio, Baraka, Buntu Batu, Malua, Bungin, Maiwa, Cendana District, and Enrekang District 2) Planning zoning in the Benteng *Alla'* area refers to the directions of the RTRW of Enrekang Regency.

The division of blocks controls and directs the development of the Benteng *Alla'* area. Some area block functions are based on the spatial use directives from the RTRW of the Enrekang Regency. Areas developed as agro-tourism zones in Baroko District include Patongloan Village, North Benteng *Alla'*, and Benteng *Alla'*. In addition to agro-tourism activities in Baroko District, they are also directed at

exploiting the potential of geosites scattered around the Makassar-Toraja axis road (the case in Figure 3). The absolute location is along the road in Pana village and Sugi sub-district, *Alla'* sub-district: Supporting facilities specifically serving tourists at *Alla'* Benteng is centered at the Enrekang-Toraja gate, in Salubarani Pana Village, *Alla'* District, Enrekang. The existence of this facility aims to make tourists feel at home, spending time in this area and adding value to the services offered.

Some planned facility items include lodging, homestays, parking areas, entrances, restaurants, prayer rooms, public toilets, information centers, gazebos, etc. The suggested concepts and designs are made by considering aspects of natural balance and applying elements of the local culture of the local community. Apart from being a supporting facility for the *Alla'* Fortress area, it is hoped that it can be an alternative for tourists visiting Toraja to choose a place at this location, both for eating/drinking overnight and resting.

The use of spatial approaches and ethnographic records in developing tourism destinations in the bending *Alla'* Area of Enrekang Regency is to facilitate the Enrekang Regency government to determine the direction of sustainable tourism planning policies and as a tool for tourism potential marketing. A spatial approach can spread tourist activities across tourism destinations, thus triggering the spread of the economic benefits of tourism in the form of income

for local communities (Wulung et al., 2020). In addition, Tourism marketing based on local wisdom can build a destination's brand image (Brown et al., 2015). This application focuses on local storytelling by highlighting elements that characterize cultural heritage values to develop unique marketing (Zhang et al., 2022).

Despite the distribution and description of geosite potential based on an ethnographic approach, mapping can produce an ethnographic map with an in-depth explanation of the socio-cultural characteristics of the geosite location. This research adds to the repertoire of

developing geosite areas in Indonesia. The challenges of compiling tourist maps so far can be overcome by developing digital maps based on an ethnographic approach. As stated by (Brokou et al., 2021), a tourist map must include the following characteristics: arranged according to cartographic rules; contains compatible information; development policy, if needed; uses cartographically accepted symbology; Contains all the information required by the user; Contains reliable historical and cultural knowledge. Thus, a tourist map with such characteristics can meet tourists' needs and develop quality tourist destination areas.

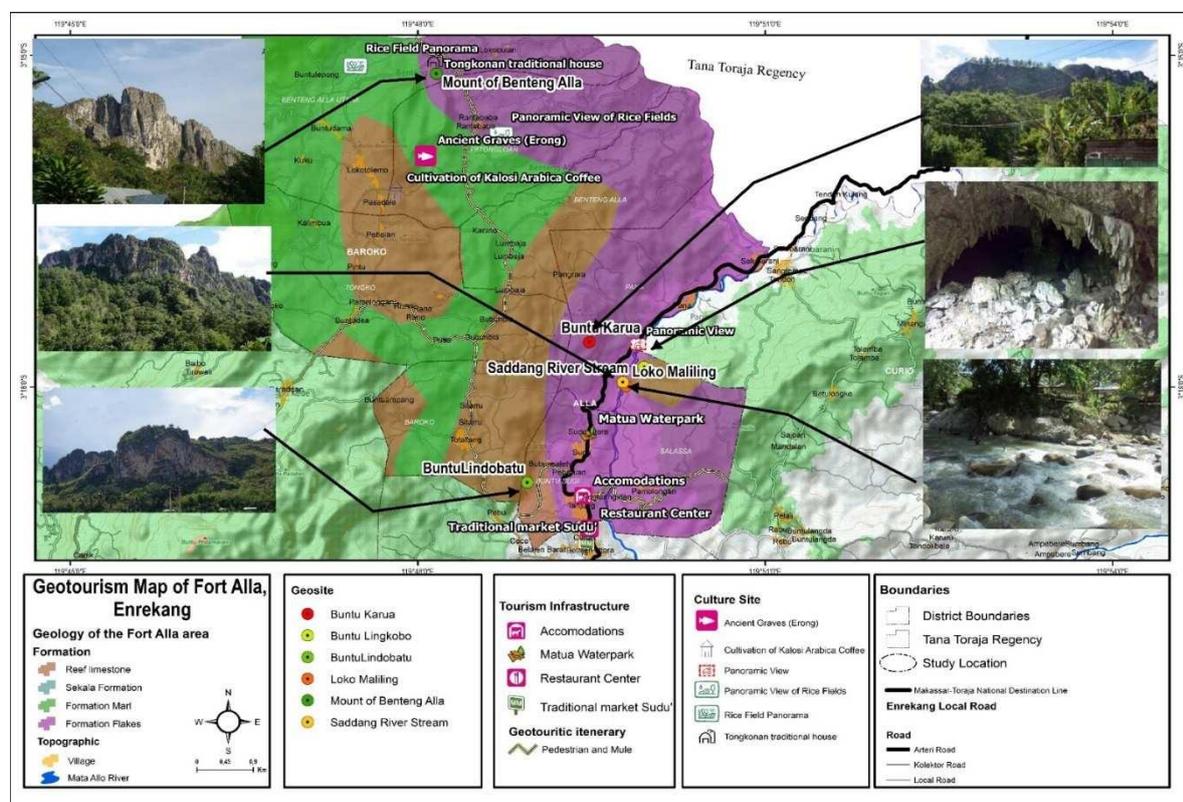


Figure 7. Itinerary Maps Benteng (Source: Researchers, 2023).

Based on the Geosite Distribution Itinerary Maps at Fort Alla' (Figure 7), this study offers a proposed geotourism itinerary connecting the impressive series of outcrops distributed between Tower/ Reef Limestone in the west and Shale in the east. Apart from that, Fort Alla' has landscape-based tourism resources that can be visited with an attractive and

unique appearance. The tour packages are arranged according to history and chorology that stretches like a book describing natural processes and the meaning behind the phenomena of the people of the Alla' Fort area. The proposed itinerary and geotourism route has a length of about 25 km and can be completed with multiple pattern models in the form of

chaining loops. The Geographic Information System documents spatial-temporal tourist movements through mapping (Lau & McKercher, 2006). This geotourism route can be reached by four-wheeled vehicles, two-wheeled motorbikes, or walking tours for 8 hours.

From the sub-district center at Pasar Sudu to the village of Fort *Alla'*, tourists can travel on four or two wheels. Through this route, visitors can travel, in 8 hours, to the most unique and wide-ranging geosite in Fort *Alla'*. The Gathering Point is at Pasar Sudu, *Alla'* District Center. This itinerary covers important historic natural monuments such as Mount Londo Batu, Lo'ko Malilin karst landscape, and the sa'dang river with its gateway as Fort *Alla'*. At the Benteng *Alla'* location, tourists will witness the activities of processed Arabica Kalosi coffee and farmers who are still traditional in processing natural products.

The availability of easily accessible geotourism can increase the number of visitors. In addition, the availability of geographic and geomorphological information can enhance the tourist experience. Another primary goal of this map and geotourism trip is to attract more investment to improve the economic conditions of the most disadvantaged Enrekang people and government and to increase the number of visitors, especially those who claim to be geotourists. In addition, some sites have not been inventoried by the government, so it is advisable to add these geosites to the list of geoheritage at the district, national and international levels and are recorded in the Geopark.

Finally, the development of the Benteng *Alla'* geosite is hoped to encourage residents to maintain their natural and cultural heritage. The study of the development of the Fort *Alla'* geosite needs to be explored further to include this sector in the geotourism route, an alternative for tourists to and from Toraja as a national destination. Another aspect that needs to be developed is carrying out

a systematic inventory of all potential places and points of view that tourists can pass through to see the landscape in the area. These viewpoints will be included in the path of geotourism, and, for each of them, there will be a sheet that interprets landscape phenomena.

Therefore, we will continue to survey Fort *Alla'*'s geomorphological heritage. Our further research includes aspects related to the landscape (hills, valleys, edges, etc.) and landscapes (viewpoints and landscape interpretation sheets). We are sure that Fort *Alla'* Geotourism Route in the future, which will explore, educationally and entertainingly, the interaction possibilities of geological heritage, geomorphological heritage, cultural heritage, and tourism, can be essential incentives to promote, among existing and potential stakeholders in Enrekang District of South Sulawesi Province, Indonesia an increasingly important segment of tourism, both for the regional economy, and regional and environmental management. Several studies confirm that geosites contribute to environmental protection and community economic improvement. Geotourism-related activities can undoubtedly contribute to promoting the safety of geosites in protected areas. In addition, through a geotourism approach, geodiversity can gain public attention and positively influence the condition of protected areas through its activities (Štrba et al., 2020). The scientific, educational, and aesthetic value of these resources can create an image of the geosite area following the principles of environmental protection (Górska-Zabielska & Zabielski, 2017).

The development of the Benteng *Alla'* Geotourism innovation is pursued through digital-based technology. The e-tourism application will later provide information related to tourist attractions to become the primary guide for tourists before visiting a tourist attraction (Suciani et al., 2022). Tourists can access this via a

smartphone to make tourism activities safe and comfortable (Jasman et al., 2021).

CONCLUSION

The proposed itinerary and tourism route in the Fort *Alla'* area has a length of about 25 km and can be done with several patterns, including chaining loops. The geosites of the Benteng *Alla'* place are spread over the following areas: 1) the Saddang River, which flows through Pana village, *Alla'* sub-district; 2) Buntu Lindo Batu, which is in the Buntu Sugi sub-district, *Alla'* sub-district. In the Duri language (Massenrempulu), Buntu Lindo Batu means a Stone-faced Mountain 3) Lo'ko Malillin, which is in Pana village, *Alla'* sub-district 4) Buntu Lingkobo, which is in Pana village, *Alla'* sub-district and Salassa, Curio sub-district, the Lingkobo geosite is the delineation boundary for the two sub-districts 5) Mount Benteng *Alla'* is located in 4 (four) administrative areas of the village, namely North Benteng *Alla'*; Patongloan; Tongko: Benteng *Alla'* Baroko District 6) Buntu Karua is located in Pana Village, *Alla'* District. Availability of non-spatial information on the geosite for the Benteng *Alla'* area in the form of ethnographic records presenting the history and chorology of the formation of the geosite and the socio-cultural characteristics of the people in the research area. This study recommends developing a digital information system for the *Alla'* Benteng area with GIS visualization, spatial attributes, and ethnographic records.

ACKNOWLEDGMENTS

Thank you to the Makassar State Tourism Polytechnic for contributing to funding this research through the Decree of the Director of the Makassar Tourism Polytechnic Number: KP.00.00/157/PTP-III/Kempar/2022 dated March 28, 2022, Regarding Individual/Group /Institutional Research in the Environment Makassar Tourism Polytechnic in 2022.

REFERENCE LIST

- Achmad Bahar, A. M., Udin, W. S., Hussin, H., Sulaiman, N., & Sulaiman, N. (2020). Geomorphosite Assessment of Renyok River, Jeli, Kelantan. IOP Conference Series: Earth and Environmental Science, 549(1), 012023.
<https://doi.org/10.1088/1755-1315/549/1/012023>
- Darwin P Lubis, Mbina Pinem, & M. Ali N Simanjuntak. (2017). Analisis Perubahan Garis Pantai Dengan Menggunakan Citra Penginderaan Jauh (Studi Kasus Di Kecamatan Talawi Kabupaten Batubara). Jurnal Geografi, 9(1), 21-31.
<https://doi.org/https://doi.org/10.24114/jg.v9i1.6044>
- Ansori, C., Setiawan, N. I., Warmada, I. W., & Yogaswara, H. (2022). Identifying geodiversity and evaluating geosites to determine geopark themes of the Karangsambung-Karangbolong National Geopark, Kebumen, Indonesia. International Journal of Geoheritage and Parks, 10(1), 1-15.
<https://doi.org/10.1016/j.ijgeop.2022.01.001>
- Bilgihan, A., Okumus, F., Nusair, K., & Bujisic, M. (2014). Online experiences: flow theory, measuring online customer experience in e-commerce and managerial implications for the lodging industry. Information Technology & Tourism, 14(1), 49-71.
<https://doi.org/10.1007/s40558-013-0003-3>
- Boers, B., & Cottrell, S. (2007). Sustainable Tourism Infrastructure Planning: A GIS-Supported Approach. Tourism Geographies, 9(1), 1-21.
<https://doi.org/10.1080/14616680601092824>
- Bouzekraoui, H., Barakat, A., El Youssi, M., Touhami, F., Mouaddine, A., Hafid, A., & Zwoliński, Z. (2018). Mapping Geosites as Gateways to the Geotourism Management in Central

- High-Atlas (Morocco). *Quaestiones Geographicae*, 37(1), 87–102. <https://doi.org/doi:10.2478/quageo-2018-0007>
- Brilha, J. (2016). Inventory and Quantitative Assessment of Geosites and Geodiversity Sites: a Review. *Geoh Heritage*, 8(2), 119–134. <https://doi.org/10.1007/s12371-014-0139-3>
- Brokou, D., Darra, A., & Kavouras, M. (2021). The new role of cartography in modern tourism. *AGILE: GIScience Series*, 2, 19. <https://doi.org/10.5194/agile-giss-2-19-2021>
- Brown, S., Baldwin, C., & Chandler, L. (2015). Representation of Butchulla cultural heritage values in communicating K'gari (Fraser Island) as a tourism destination. *Australasian Journal of Environmental Management*, 22(2), 163–180. <https://doi.org/10.1080/14486563.2014.985266>
- Bulan, C. D. (2021). Kopi Arabika Kalosi Enrekang. Pangadereng: *Jurnal Hasil Penelitian Ilmu Sosial Dan Humaniora*, 7(2), 269–284. <https://doi.org/10.36869/pjhpish.v7i2.203>
- Burrell, J. (2009). The Field Site as a Network: A Strategy for Locating Ethnographic Research. *Field Methods*, 21(2), 181–199. <https://doi.org/10.1177/1525822X08329699>
- Dowling, R. K. (2014). Global Geotourism – An Emerging Form of Sustainable Tourism. *Czech Journal of Tourism*, 2(2). <https://doi.org/10.2478/cjot-2013-0004>
- Eboy, O. (2017). Tourism Mapping: An Overview of Cartography and The Use Of Gis. *BIMP-EAGA Journal for Sustainable Tourism Development*, 6, 61–67. https://doi.org/10.51200/bimpega_jtsd.v6i1.3068
- Erharti, B. (2010). Conserving geoheritage in Slovenia through geomorphosite mapping. https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=0CAIQw7AJahcKEwiosYe2zfl-AhUAAAAAHQAAAAAQAg&url=https%3A%2F%2Fwww.unil.ch%2Ffiles%2Flive%2Fsites%2Ffigd%2Ffiles%2Fshared%2FGeovisions%2FGeovisions35%2FGeovisions35_IGUL_4_Erhartic.pdf&psig=AOvVaw3KTnjnTdvpv64F4HwPQ3lbe&ust=1684077418155735
- Ershad, M., & Ali, E. (2020). Geographic Information System (GIS): Definition, Development, Applications & Components. <https://doi.org/DOI.10.36869/Pjhpish.v7i2.203>
- Fatchan, A. (2015). Metode Penelitian Kualitatif: Pendekatan Etnografi dan Etnometodelogi untuk Penelitian Ilmu-ilmu Sosial. Yogyakarta: Ombak.
- Fiori, S. (2010). Cartografia E As Dimensões Do Lazer E Turismo: O Potencial Dos Tipos De Representação Cartográfica. *Revista Brasileira de Cartografia*, 62(3), 527–542. <https://doi.org/10.14393/rbcv62n3-43688>
- Garb, J. L., & Wait, R. B. (2011). Using Spatial Analysis to Improve Health Care Services and Delivery at Baystate Health. *Journal of Map & Geography Libraries*, 7(3), 330–348. <https://doi.org/10.1080/15420353.2011.599768>
- Ghorbanzadeh, O., Pourmoradian, S., Blaschke, T., & Feizizadeh, B. (2019). Mapping potential nature-based tourism areas by applying GIS-decision-making systems in East Azerbaijan Province, Iran. *Journal of Ecotourism*, 18(3), 261–283. <https://doi.org/10.1080/14724049.2019.1597876>

- Gomaa Agag, & Ahmed A. El-Masry. (2016). Why Do Consumers Trust Online Travel Websites? Drivers and Outcomes of Consumer Trust toward Online Travel Websites. *Journal of Travel Research*, 56 (3), 1-22.
- Gordon, J. E. (2018). Geoheritage, geotourism, and the cultural landscape: Enhancing the visitor experience and promoting geoconservation. In *Geosciences (Switzerland)* (Vol. 8, Issue 4). MDPI AG. <https://doi.org/10.3390/geosciences8040136>
- Górska-Zabielska, M., & Zabielski, R. (2017). Potential Values of Urban Geotourism Development in a Small Polish Town (Pruszków, Central Mazovia, Poland). *Quaestiones Geographicae*, 36(3), 75-86. <https://doi.org/doi:10.1515/quageo-2017-0025>
- Hanyoung Go, & Ulrike Gretzel. (2010). The Role of Interactive Maps and Spatial Ability in Creating Virtual Tourism Experiences: A Measurement Framework. 2010 TTRA INTERNATIONAL CONFERENCE, 1-11. <https://scholarworks.umass.edu/ttra/2010/Visual/24/>
- Hosseini, S., Baziyad, H., Norouzi, R., Jabbedari Khiabani, S., Gidófalvi, G., Albadvi, A., Alimohammadi, A., & Seyedabrishami, S. (2021). Mapping the intellectual structure of GIS-T field (2008-2019): a dynamic co-word analysis. *Scientometrics*, 126(4), 2667-2688. <https://doi.org/10.1007/s11192-020-03840-8>
- Jasman, Ridwan, M., & Guntara, F. (2021). Utilization of Geographic Information Systems in Applying Smart Tourism in the Nona Mountain Area. *Jurnal Kepariwisata Indonesia*, 15(1). <https://doi.org/https://doi.org/10.47608/jki.v15i12021.36-48>
- Jovanović, V., & Njeguš, A. (2008). The application of gis and its components in tourism. *Yugoslav Journal of Operations Research*, 18(2), 261-272. <https://doi.org/10.2298/YJOR0802261J>
- Kalvet, T., Olesk, M., Tiits, M., & Raun, J. (2020). Innovative tools for tourism and cultural tourism impact assessment. *Sustainability (Switzerland)*, 12(18). <https://doi.org/10.3390/SU12187470>
- Kang, S., Kim, W. G., & Song, H. (2019). Exploring the Role of Travel and Tourism in Sharing Economy Activities: A Case Study of South Korea. *Journal of Quality Assurance in Hospitality & Tourism*, 20(5), 599-616. <https://doi.org/10.1080/1528008X.2019.1579079>
- Kasiannan, S. (2007). Mapping Traditional Belief Systems and Establishing Contemporary Connections In A Historical Landscape. In *International Committee of Architectural Photogrammetry & Andreas Georgopoulos (Eds.), XXI International CIPA Symposium* (pp. 1-6). CIPA. <https://www.isprs.org/proceedings/XXXVI/5-C53/papers/FP082.pdf>
- Kent, A. J. (2013). Understanding Aesthetics: The Cartographers' Response the Aesthetics of Cartography View project Mapping for Sustainability View project. *Bulletin of the Society of Cartographers*, 46(1-2), 31-43. <https://www.researchgate.net/publication/282122834>
- Kent, A. J. (2019). Maps, materiality, and tactile aesthetics. *Cartographic Journal*, 56(1), 1-3. <https://doi.org/10.1080/00087041.2019.1601932>

- Kirom, N. R., Sudarmiati, ., & Putra, I. W. J. A. (2018). The Influence of Tourist Attractions Towards the Tourists' Satisfaction. *KnE Social Sciences*, 3(3).
<https://doi.org/10.18502/kss.v3i3.1889>
- Koentjaraningrat. (1997). *People and Culture in Indonesia*. Djambatan.
- Krishna, A., Hadian, M., Agus, R., & Hurriyati, R. (2016). Developing geotourism as part of sustainable development at Ciletuh Sukabumi, West Java, Indonesia. *Journal of Environmental Management and Tourism*, 7.
[https://doi.org/10.14505/jemt.v7.1\(13\).05](https://doi.org/10.14505/jemt.v7.1(13).05)
- Lau, G., & McKercher, B. (2006). Understanding tourist movement patterns in a destination: A GIS approach. *Tourism and Hospitality Research*, 7(1), 39–49.
<http://www.jstor.org/stable/23745380>
- Manish Kumar, R. B. Singh, Anju Singh, Ram Pravesh, Syed Irtiza Majid, & Akash Tiwari. (2023). *Geographic Information Systems in Urban Planning and Management* (Springer Nature Singapore, Ed.; XVII, 252, Vol. 1). Springer Singapore.
<https://doi.org/https://doi.org/10.1007/978-981-19-7855-5>
- Marlina, E., & Natalia, D. (2016, January 21). Geotourism Potential Based Analysis Tourism Development Concept towards Sustainable Tourism. *International Language and Tourism Conference 2016 (ILTC) "Roles of Research in Language and Tourism in Turning Insight into Action."*
https://www.researchgate.net/publication/328684847_Geotourism_Potential_Based_Analysis_Tourism_Development_Concept_towards_Sustainable_Tourism?enrichId=rgreq-58b33edfe1fee26ea58f19f8c1d9c053-XXX&enrichSource=Y292ZXJQYWdIOzMyODY4NDg0NztBUzo2ODgzMTgwNjQ4ODU3NjBAMTU0MTEOTIyMzAyOQ%3D%3D&el=1_x_2&_esc=publicationCoverPdf
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis; An Expanded Sourcebook* (Second Edition). Sage.
https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=0CAIQw7AJahcKEwj4roKXm_T-AhUAAAAAHQAAAAAQAg&url=https%3A%2F%2Fvivauniversity.files.wordpress.com%2F2013%2F11%2Fmilesandhuberman1994.pdf&psig=AOvVaw1cVKbXdHSgCMj4tNqz1bez&ust=1684133152830869
- Munthali, M. G., Davis, N., Adeola, A. M., & Botai, J. O. (2020). The impacts of land use and land cover dynamics on natural resources and rural livelihoods in Dedza District, Malawi. *Geocarto International*, 37(6), 1–18.
<https://doi.org/10.1080/10106049.2020.1791978>
- Oliver-Velez, D., Finlinson, H., Deren, S., Robles, R., Shedlin, M., Andia, J., & Colon, H. (2002). Mapping the Air-Bridge Locations: The Application of Ethnographic Mapping Techniques to a Study of HIV Risk Behavior Determinants in East Harlem, New York, and Bayamón, Puerto Rico. *Human Organization*, 61(3), 262–276.
<https://doi.org/10.17730/humo.61.3.99nm1tuxan9yd7ap>
- Pan, B., Crotts, J. C., & Muller, B. (2007). Developing Web-Based Tourist Information Tools Using Google Maps. In M. Sigala, L. Mich, & J. Murphy (Eds.), *Information and Communication Technologies in Tourism 2007* (pp. 503–512). Springer Vienna.
- Parent, N. (2020). From Exile to Homeland Return: Ethnographic Mapping to Inform Peacebuilding from Afar. *Stability: International Journal of*

- Security and Development, 9(1), 1-23. <https://doi.org/10.5334/sta.772>
- Pareta, K. (2013). Remote Sensing and Gis-Based Site Suitability Analysis for Tourism Development. *International Journal of Advanced Research in Engineering and Applied Sciences*, 2(5), 43-58. www.garph.co.uk
- Pavlovic, N., & Krstić, M. (2020). The Impact of Information Technology on Tourism Development. *International Thematic Monograph - Thematic Proceedings Digital Edition*, 293-309.
- Pearce, D. (1995). *Tourism Today: A Geographical Analysis* (2nd ed. Longman.
- Piacentini, T., Miccadei, E., Berardini, G., Aratari, L., De Ioris, A., Calista, M., Carabella, C., D'arielli, R., Mancinelli, V., Paglia, G., & Buccolini, M. (2019). Geological tourist mapping of the mount serrone fault geosite (Gioia dei Marsi, central Apennines, Italy). *Journal of Maps*, 15(2), 298-309. <https://doi.org/10.1080/17445647.2019.1592718>
- Pramono, J., Sumartana, I. M., Santosa, I. M., Denny Herlambang, P. G., & Purwantoro, B. (2020). Destination Success Factors for Millennial Travelers Case Study of Tanah Lot Temple, Tabanan, Bali. *ADI Journal on Recent Innovation*, 1(2), 136-146. <https://doi.org/10.34306/ajri.v1i2.44>
- Rachman F. Arief. (2013). *Geografi Pariwisata Jawa Dan Bali*. Media Bangsa.
- Reynard, E. (2004). Geosite. In Goudie, A. S. (Ed.), *Encyclopedia of geomorphology*. Routledge.
- Rodrigues, M., Russo Machado, C., & Freire, E. (2011). Geotourism routes in urban areas: A preliminary approach to the Lisbon geoheritage survey. *GeoJournal of Tourism and Geosites*, 8(2), 281-294. https://www.researchgate.net/publication/233816905_Geotourism_routes_in_urban_areas_A_preliminary_approach_to_the_Lisbon_geoheritage_survey
- Sacchini, A., Imbrogio Ponaro, M., Paliaga, G., Piana, P., Faccini, F., & Coratza, P. (2018). Geological landscape and stone heritage of the Genoa Walls Urban Park and surrounding area (Italy). *Journal of Maps*, 14(2), 528-541. <https://doi.org/10.1080/17445647.2018.1508378>
- Salomão Graça, A., & Fiori, S. (2015). Proposal for a Tourist Web Map Of The South Area Of Rio: Cartographic Communication And The Act Of Representing The Landscape In Different Scales And Levels Of Abstraction. *Revista Brasileira de Cartografia*, 67, 1079-1090. <https://doi.org/10.14393/rbcv67n5-44629>
- Sieng, K., & Eboy, O. (2021). Ethnographic Patterns Map for Ethnographic Patterns Map for Traditional Heritage of Kadazan Dusun Community Using GIS Analysis. *International Journal of Geoinformatics*, 17, 69-78. <https://doi.org/10.52939/ijg.v17i2.1761>
- Singh, P. (2015). Role of geographical information systems in tourism decision-making process: a review. In *Information Technology and Tourism* (Vol. 15, Issue 2, pp. 131-179). Springer Berlin Heidelberg. <https://doi.org/10.1007/s40558-015-0025-0>
- Slačana Starčević, & Snežana Konjikušić. (2018). Why Millenials as Digital Travelers Transformed Marketing Strategy In Tourism Industry. *International Thematic Monograph Tourism in Function of Development of the Republic of Serbia - Tourism in the Era of Digital Transformation*, 221-240.

- https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3280320
- Sofronov, B. (2018). Millennials: A New Trend for The Tourism Industry. *Annals of Spiru Haret University. Economic Series*, 18, 109–122. <https://doi.org/10.26458/1838>
- Spradley, J. P. (1997). *Ethnography Method*. Misbah Zulfa Elizabeth, Tiara Wacana.
- Stibral, K., & Faktorová, V. (2021). The origins of the aesthetic appreciation and artistic depiction of the industrial landscape. *Journal of Heritage Tourism*, 16(2), 151–163. <https://doi.org/10.1080/1743873X.2020.1778009>
- Štrba, L., Kolackovská, J., Kudelas, D., Kršák, B., & Sidor, C. (2020). Geoheritage and geotourism contribution to tourism development in protected areas of Slovakia-theoretical considerations. *Sustainability (Switzerland)*, 12(7). <https://doi.org/10.3390/su12072979>
- Suciani, A., Parlaungan Lubis, D., Pinem, M., Sidauruk, T., Berutu, N., Fadhira, C., & Febriana Sihaloho, S. (2022). Analisis Manajemen Wisata Halal Berbasis Smart Tourism di Pulau Weh (Sabang). *Journal of Laguna Geography*, 01(2). <http://journal.moripublishing.com/index.php/joulage>
- Tran Ngoc Them. (2013). *Defenisi Tentang Budaya*. Pusat kurikulum dan Perbukuan, Balitbang.
- Tripathi, B., Sharma, H., Pelto, P., & Tripathi, S. (2010). Ethnographic Mapping of Alcohol Use and Risk Behaviors in Delhi. *AIDS and Behavior*, 1(4), 94–103. <https://doi.org/10.1007/s10461-010-9730-z>
- Wainwright, J., & Bryan, J. (2009). Cartography, territory, property: Postcolonial reflections on indigenous counter-mapping in Nicaragua and Belize. *Cultural Geographies*, 16(2), 153–178. <https://doi.org/10.1177/1474474008101515>
- Wei, W. (2012). Research on the Application of Geographic Information Systems in Tourism Management. *Procedia Environmental Sciences*, 12, 1104–1109. <https://doi.org/10.1016/j.proenv.2012.01.394>
- Wulung, S., Putra, R., Permadi, R., & Maulana, M. (2020). Concentration-Dispersal Strategies to Assist Geotourism Destination Planning: A Case Study of Ciletuh-Palabuhanratu UNESCO Global Geopark. *Journal of Indonesian Tourism and Development Studies*, 8(3), 156–164. <https://doi.org/10.21776/ub.jitode.2020.008.03.05>
- Xu, L., Zhang, J., & Nie, Z. (2022). Role of Cultural Tendency and Involvement in Heritage Tourism Experience: Developing a Cultural Tourism Tendency-Involvement-Experience (TIE) Model. *Land*, 11(3), 2–16. <https://doi.org/10.3390/land11030370>
- Zhang, J., Xiong, K., Liu, Z., & He, L. (2022). Research progress and knowledge system of world heritage tourism: a bibliometric analysis. *Heritage Science*, 10(1), 42. <https://doi.org/10.1186/s40494-022-00654-0>