

Geotourism Reinterpretation towards Natural Tourist Attractions in Bandung Basin, West Java, Indonesia

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Abstract—Geotourism is one form of alternative tourism for tourists visiting Bandung, to support the development of geotourism in the Bandung Basin, the first thing to do is to adjust the understanding of the scope of geotourism to nature-based tourist attraction through geotourism reinterpretation in policy documents of tourism development master plan. This study aims to reinterpret geotourism on the attraction of nature-based tourism in Bandung Basin area. The research approach used is qualitative research with an analysis unit based on the six elements of geotourism box concept, namely process, form, tourism, geobasic, geohistory, and geo +. Primary data acquisition is carried out through field observations and semi-structured interviews on four natural tourist attractions in Bandung Basin, namely Lembang Fault Area, Pawon Cave, White Crater, and Mount Tangkubanparahu Natural Tourism Park. While secondary data is obtained through the desk study method. Data analysis methods use qualitative content analysis method and descriptive analysis, this analysis is used as a method in the study to consider the shape of the data and information collected in the form of interviews, survey and official documents that require techniques to understand and interpret the data. The results found that nature-based tourist attraction contained in the Tourism Development Master Plan of West Java Province, West Bandung Regency, and Bandung Regency, as a whole is a geotourism attraction based on reinterpretation that refers to the geotourism box concept. Lembang Fault, Pawon Cave, White Crater, and Mount Tangkubanparahu Natural Tourism Park as a natural tourist attraction in the Bandung Basin area meet all elements of the geotourism box, this can be interpreted as a geotourism attraction.

Keywords—*bandung basin; geotourism reinterpretation; natural tourist attraction*

I. INTRODUCTION

Nature-based tourism is a form of tourism that uses natural resources as its main attraction [1] with tourism as its activity. Based on its main resources, natural tourist attraction includes elements of topography, climate, hydrology, flora and fauna [2] which are categorized into forms of ecotourism (natural environment), wildlife tourism (flora and fauna), geotourism (geology and landscape), and adventure tourism (activity) [3]. Geotourism is closely related to ecotourism and cultural tourism [4], the link between geotourism and ecotourism can be done through learning about nature, passive activities such as geotourism routes, and appreciation of flora and fauna. While the relationship between geotourism and cultural tourism can be seen from the arts and cultural tools of the local community who use geological materials such as rocks. In addition, geotourism also has links with adventure tourism that makes geological features as a backdrop for mountain climbing, rock climbing, and some other extreme sports activities.

Geotourism appears as a form of alternative nature-based tourism which is a global phenomenon [5] and in Indonesia [6] which is currently a new niche market [7] and has a great potential in Indonesia [8]. Understanding characteristics and identity of an area is important in developing geotourism [9]. In Bandung Basin area geotourism is an alternative tourism form for tourists visiting Bandung [10], and offers new educational experiences for tourists by introducing geological environmental aspects [11]. Geotourism development must be planned comprehensively in order to contribute to the sustainability of the geosite and the destination [12].

Determination of nature-based tourism as one of the leading forms of tourism in the Bandung Basin area has not been fully directed towards geotourism, due to an understanding of the scope of geotourism. The fragmentation and lack of research regarding various forms of natural tourism has caused high complexity [13], the proposed geotourism approach makes it easy to deal with and the reinterpretation of geotourism as an approach in overcoming fragmentation is a precise and comprehensive mode structure [14]. Reinterpretation must take place to create a fundamental understanding [15]. In general, geotourism in Bandung Basin area is classified in the form of nature-based tourism in the direction of the policy of the Tourism Development Master Plan of West Java Province [16]. Meanwhile, West Bandung Regency through the policy of the Tourism Development Master Plan is categorized as tourist attractions that have elements of geological form and process into natural tourist attractions, including Pawon Cave, Malela Waterfall, Mount Tangkubanparahu Natural Tourism Park and Citatah Stone Garden [17].

In contrast to the policy, the Tourism Development Master Plan of Bandung Regency explains that natural tourism is directed towards geotourism and has a theme of developing tourism areas that include the Geotourism Area of Geothermal Kamojang, Geotourism Area of Cimendan-Cilengkrang (Lembang Fault), and Geotourism Area of Former Ancient Crater (White Crater) [18]. Based on the explanation, this study aims to reinterpretation geotourism on the attraction of nature-based tourism in Bandung Basin area.

II. LITERATURE REVIEW

The first statement related to the definition of geotourism was published by [19], which explained that geotourism is a service and facility for tourists in obtaining knowledge and understanding geology and geomorphology of a geosite. In Indonesia, the publication of geotourism has existed since 1999 by the Center for Geological Survey which defines geotourism as a tour activity that utilizes all aspects of geology, especially non-living features such as landscapes, rocks, fossils, minerals and waters, and processes the formation of these geological features [6]. More specifically, geotourism is defined as an element of commercialization for tourism activities which is largely based on geological elements [20].

Geotourism is an approach to interpret and study the interactions between the natural environment and tourism. Geotourism is reinterpreted as an approach to discuss the gap between the perspective of tourism and the natural environment. The adapted geotourism is presented here, in which geotourism is a reinterpreted approach to understand forms of natural tourism that have geological elements, furthermore, reinterpretation means explaining or understanding in a new or different way that has already existed [14]. Geotourism attraction is something that has unique geological and geomorphological processes and forms supported by elements of tourism that are visited by geotourist [21]. Natural tourist attraction can be interpreted as a geotourism attraction through the concept of geotourism

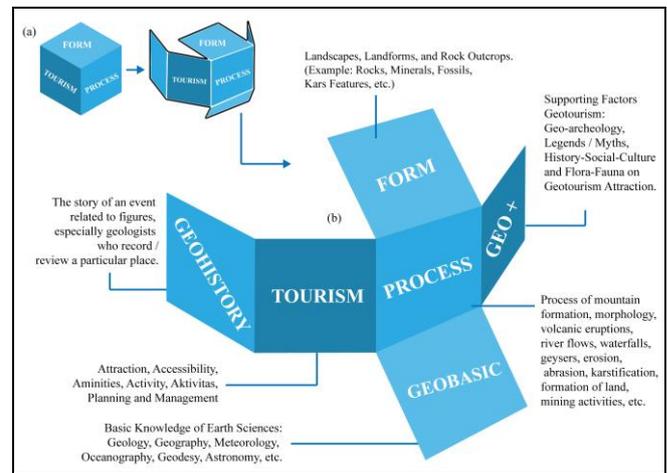


Fig. 1. Geotourism Box, adaptation based on (a) [22] and (b) [6] in [21]

boxes (Fig. 1), there are six elements that become the scope of geotourism attraction which include:

1. Process, geological and geomorphological activities that observed during volcanic activity, floods from river flows, and landslides.
2. Form, presenting landscapes (cliffs, volcanoes, karst landscapes), geomorphology (glacial, fluvial, coastal features), and rock outcrops.
3. Tourism, this element includes: a) attractions, b) accessibility, c) amenities, d) activities, and e) planning and management.
4. Geobasic, basic knowledge of geology that has an important role in understanding the processes and forms of geological events conveyed through active (tour guides) and passive (guidebooks, brochures, and internet) interpretations.
5. Geohistory, an explanation of the story of an event related to figures, especially geologists who record their names in studying a region.
6. Geo +, supporting factors for geotourism activities such as the relationship between geology and archeology, geological phenomena used as legends and myths of society, flora and fauna on the geosite, and geosite linkages to the history, social and culture of local communities.

III. METHODOLOGY

The approach used in this study is qualitative research with an analysis unit that includes elements of the geotourism box concept, namely process, form, tourism, geobasic, geohistory, and geo +. Primary data collection methods are carried out through field observations in assessing natural tourist attractions and semi-structured interviews with related actors including government institutions in charge of tourism, community institutions related to tourism, and managers of four natural tourist attractions in Bandung Basin, namely Lembang Fault Area, Pawon Cave, White Crater, and Mount Tangkubanparahu Nature Tourism Park. Meanwhile, secondary data collection uses a desk study method that aims to obtain

data and information from various policy documents, literatures, and previous researches on the natural tourism attraction and geotourism.

In conducting the data analysis, qualitative content analysis method and descriptive analysis are used. This analysis is used as a method in the study to consider the shape of the data and information collected in the form of interviews, survey and official documents that require techniques to understand and interpret the data. Descriptive methods used here is analytic description. Analytic description is a description that is done by connecting the data that has been obtained by categories on existing theory so as to produce a new description.

IV. FINDINGS AND DISCUSSION

Referring to the concept of Box Geotourism, the nature-based tourist attraction contained in the Tourism Development Master Plan of West Java Province, West Bandung Regency, and Bandung Regency, all of them are geotourism attractions. Reinterpretation of geotourism towards four natural-based attractions in the Bandung Basin area can be seen in the following table.

TABLE I. REINTERPRETATION OF GEOTOURISM TOWARDS FOUR NATURAL-BASED TOURIST ATTRACTIONS IN THE BANDUNG BASIN AREA

Attraction	Nature-based	Geotourism Reinterpretation
Lembang Fault (Bandung Regency-West Bandung Regency)	A straight slope and valley that is a destination for tourists to enjoy the beauty of Lembang and Bandung Basin landscapes.	<ol style="list-style-type: none"> 1. Process: Tectonic cracks in the earth's crust that extends more than 22 km (Padalarang - Cilengkrang) have shifted the northern block (Lembang-Maribaya-Cibodas) which moves relatively downward and the southern part (Dago, Cigadung, Cimenyan) is raised. 2. Form: A stretch of straight slope fault with a straight slope wall facing north. 3. Tourism: explore Lembang Fault through geotrek activities, appreciate the landscape of Lembang and Bandung Basin, the food and beverage facilities provided by the local community, and the sky bridge at Tebing Keraton as supporting built attraction. 4. Geobasic: Basic knowledge of disaster mitigation. 5. Geohistory: Research on lembang fault by R.W. van Bemmelen in 1949 and Nossin et al. in 1996. 6. Geo +: The ancestral sites of Bell Stone and Ax Stone are located at the eastern end of Lembang Fault as a supporting cultural attraction.
Pawon Cave (West Bandung Regency)	Natural cave is located in Gunungmasigit Village which is inhabited by apes and bats. At this time Pawon Cave became an	<ol style="list-style-type: none"> 1. Process: Deposition of rocks in shallow seas in reef ecosystems (tertiary period) which subsequently experience shallow sea lift to form like a hill today. 2. Form: Limestone which forms a Pawon Hill (Pawon Cave). 3. Tourism: Activities to explore Pawon Cave and Pawon Cave

Attraction	Nature-based	Geotourism Reinterpretation
	ancient site with the discovery of ancient human fossils.	<p>Cultural Village, food and beverage facilities, tourist information centers, and guides.</p> <ol style="list-style-type: none"> 4. Geobasic: Basic knowledge of archeology and fauna. 5. Geohistory: Bandung Basin Research Group in 2000 conducted a study in Pawon Cave until finally found ancient human fossils. 6. Geo +: There are groups of apes and bats that inhabit the cave area; Pawon Cave Cultural Village which became an indigenous community in Pawon Cave area; and Pawon Cave Nature Museum, the connection between the legend of Sangkuriang (pawon means kitchen).
White Crater (Bandung Regency)	A crater in the Patuha Mountain region that has white and green water, and white soil	<ol style="list-style-type: none"> 1. Process: The white color is caused by volcanic ash (tuff) while the green color is a mixture of sulfur with rainwater. 2. Form: Caldera results from the eruption of Patuha Mountain which forms a lake 3. Tourism: Geotrek activities in the Patuha Mountain area, food and beverages facilities, accommodation facilities, tourist information center, and good tourist accessibility. 4. Geobasic: Basic knowledge of geography naming places and biology. 5. Geohistory: Dr. Franz Wilhelm Junghuhn in 1883 to look for sulfur to find a crater at the top of Patuha Mountain. 6. Geo +: The story of the journey of Bujangga Manik; and community stories that mention the white crater as a gathering place for the spirits of the ancestors.
Mount Tangkubanparahu Natural Tourism Park	One of the volcanoes that is still active in West Java, has an altitude of 2,084 masl and has a unique shape like an upsidedown boat.	<ol style="list-style-type: none"> 1. Process: Tangkubanparahu Volcano is formed from the eruption of Ancient Sunda Mountain which started its first eruption in 1829 and ended erupting in 1929. 2. Form: Landscapes in the form of strato-composite volcanoes (layered volcanoes between lava and pyroclastic) that resemble a reversed boat shape when viewed from the south of the mountain. 3. Tourism: Tourist attraction Ratu Crater, Upas Crater, Baru Crater, and Domas Crater equipped with outbound facilities, geotrail, tourism information center, accessibility in the area, to guides. 4. Geobasic: Basic knowledge related to the geological history of the formation of Mount Tangkubanparahu; anthropology and biodiversity. 5. Geohistory: Abraham van Riebeeck in 1713 climbed Mount Tangkubanparahu in order to find sulfur. Stehn in 1929 was

Attraction	Nature-based	Geotourism Reinterpretation
		<p>conducted a study of several craters of Mount Tangkubanparahu. M.A.C Dam in 1996 analyzed rocks resulted from the eruption of Mount Tangkubanparahu.</p> <p>6. Geo +: Sangkuriang legend that kicks the boat upside down (Tangkuban means upside down and parahu means boat), Tangkubanparahu Festival, typical flora and fauna (Javanese Eagle, Surili monkeys, to Forest Orchid).</p>

The analysis explains that nature-based tourist attraction that has geological diversity in the Bandung Basin can be interpreted as a geotourism attraction. This makes understanding the nature-based tourism become more comprehensive and has the opportunity to create sustainable tourism. The 6 elements of Geowisata Box make it easier to interpret nature-based tourist attraction and integrate the linkages between geodiversity, biodiversity, and cultural diversity in Bandung Basin. Geotourism reinterpretation creates a geotourist understanding of geodiversity through information about the process of creation and forms of geotourism attraction, information about biodiversity (flora and fauna) and cultural diversity (history, legend, indigenous peoples) that have links with geodiversity. In addition, it is for tourists to carry out activities (interpreters activities, guide maps, and geotrail), accessibility and amenities while in a geotourism destination, and facilitate local government in planning and management of geotourism attractions.

V. CONCLUSIONS

Lembang Fault, Pawon Cave, White Crater, and Mount Tangkubanparahu Natural Tourism Park as a natural tourist attraction in the Bandung Basin area meet all elements of the geotourism box, this can be interpreted as a geotourism attraction. The reinterpretation of geotourism can be a basic reference in identifying geological diversity through the Geotourism Box as an geotourism attraction which is currently classified as a nature-based tourist attraction in the tourism development master plan in Bandung Basin area. In addition, hopefully it will be a learning and consideration for other regions in Indonesia and global that have geological diversity that needs to be considered properly in planning tourism development.

The integrated approach of geotourism presented in this study has implications for future research, especially in relation to regional tourism development capacity and studies related to the aspiring geopark or geotourism destination planning. The natural environment, especially geodiversity, can indirectly influence regional development opportunities because it has a direct impact on the lives of local people and tourism production and consumption. Based on this, the development of geotourism in Bandung Basin can be directed as a geotourism destination with the theme of urban geotourism as a manifestation of sustainable tourism. Not only the local government, inclusive involvement of other actors is

also needed in the construction of geotourism destinations. These actors are private, local communities, academics, and information media.

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