

## **Geotourism as a Strategy of Geosite Empowerment Towards the Tourism Sustainability in Gunungkidul Regency, Indonesia**

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### **Abstract**

*The enactment of the region of Mount Sewu as a Global Geopark Network (GNN) on 19 September 2015 has given a responsibility for governments and communities to develop this region with a proper concept. The karst of Mount Sewu surrounding the Gunungkidul Regency, Wonogiri Regency and Pacitan Regency is one of the most well-known karst regions in Java Island for its uniqueness. Geoheritage and social-cultural wealth in this region becomes the base of its enactment as GGN. This study presents geotourism as a strategy of geosite empowerment towards the tourism sustainability in Gunungkidul regency. It is found that the Geotourism development comes to be an appropriate strategy in developing 13 geosites in Gunungkidul for fulfilling the directive of the policy on the local and national tourism development, demands of the development trend towards the tourism interest among community and the directive of GGN in accordance with the concept as outlined in UNESCO. The directive of the development of this geotourism has been formulated through a synthesis of various analyses including the analysis of government, analysis of potential tourist attraction, and SWOT analysis. The dialogue from a variety of analyses required to produce the formula of geotourism development of various analyses is needed to guarantee the production of a formulation of the proper and synergic directive for the geotourism development analysis necessary to guarantee the formulation of appropriate and synergic Geotourism development with various existing development guidelines.*

**Keywords:** *Analysis of potential tourist attraction, SWOT Analysis, Geotourism, policy studies*

### **1. Introduction**

The integrated and sustainable tourism development needs to concern with the impact and aspiration of the social custom surrounding the tourism destination. Ideally, all stakeholders directly related to the tourism world are involved in the development planning of a tourism destination region object (locally abbreviated as ODTW/*Objek Daerah TujuanWisata*) and integrally and optimally attempt to develop the potential of tourism by evaluating the profit and benefits for most of people. A well-developed tourism industry will create an opportunity for business, entrepreneurship and wide job opportunity for the locals, even those from outside the region. Directly, given the facilities and infrastructure of tourism in the tourism destination, there will be many labours required by the projects such as the road development to the tourism objects, electricity, fresh water supply, the development of recreational locations, tourism transportation, terminals, airports, hotels, restaurant, travel agents, shopping centres; arts galleries and other amusements. By doing so, there will be an increase of money circle due to the visitation of the domestic or foreign tourists. This then obviously will bring an increase of foreign exchange for state, and national and local income. However, there are some points outside the economic factors deemed necessary to be well considered in the tourism

development such as maintaining the preservation of social culture of the locals, beauty of nature and harmony of the perception of all social components related to the directive of the tourism development.

The issue on the empowerment of living environment and natural resources today is mostly used as a base of the regional development. This is in line with the Law of Spatial Planning No. 26 of 2007 stating that the spatial planning is an effort to manage the distribution of the activities in space giving the geographical expressions towards the economic, social, cultural and ecological policies. To support the achievement of this objective, the capacity and the independence of the society need to be improved and facilitated as regulated in the Law No 23 of 1997 mentioning that society has an equal chance to participate in the management of living environment directed to improve the independence, empowerment and partnership with the society. Gunungkidul Regency in Special District of Yogyakarta is located in the Southern Java Island, Indonesia as shown in Figure 1. This regency has a tropical climate with the area topography dominated by the Karst hills. Some places even have some natural caves and underwater rivers.

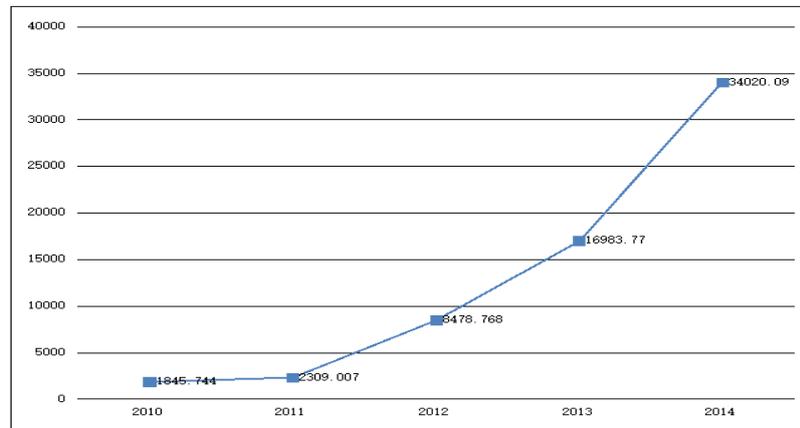


**Figure 1. Position of Gunungkidul in Java Island in Indonesia**

Gunungkidul is located in the spread of Mount Sewu that is spread covering the regency of Gunungkidul, Pacitan and Wonogiri. This region becomes special for having 33 geosites, spread in 33 geosites; 13 of which are located in Gunungkidul Regency in Special District of Yogyakarta; 7 geosites in Wonogiri Regency (Central Java) and 13 geosites in Pacitan (East Java). The karst region of Mount Sewu has been defined as National Geopark since 13 May 2013 – even in 19 September 2015 it was also defined as the Geopark Global Network. To support this, the geopark management in Gunungkidul Regency is well planned in accordance with the direction of the concept of geopark development as regulated by UNESCO. This concept integrates the management of geological *heritages* with *cultural heritages* of a region for three main purposes: conservation, education and sustainable development. Thus, the existence of geopark not only brings a mission of conservation and economy like a park that has various attractions but also must be able to be an educative media and local community empowerment.

One of the ways of the geopark use that can accommodate these roles is by developing it as a tourism attraction object. This is in line with the directive of the development of Gunungkidul Regency in which most of its local incomes are from the tourism sector.

Since the last decade, the tourism sector has been becoming a mainstay sector in Gunungkidul Regency for its significant increase, as shown in Figure 2.



**Figure 2. The Increase of Locally-Generated Revenue (LGR) of the Sub-Sector of Tourism in Gunungkidul Regency in the Period of 2010 -2014 (in Million Rupiah)**

Source: Book of Tourism Statistics in Special District of Yogyakarta, processed.

UNESCO recommends the concept of Geopark management with the main target of the sustainable use of *geodiversity*, *geoheritage*, and *bio-cultural diversities* for the interest of public and environment surrounding. In line with this, to support the recognition of UNESCO towards the geopark of Mount Sewu – particularly in the area of Gunungkidul Regency, this research is purposely to obtain a formula of geosite development in Gunungkidul Regency. This comes to be important as the issue on the environment sustainability is one of national strategic issues. The urgency of this research includes a number of aspects:

- a. Research urgency in the perspective of environmental aspect:
  - 1) *Geodiversity* and *Geoheritage* as the nonrenewable resource
  - 2) *Geodiversity* and *Geoheritage* have valuable knowledge useful for human and environment surrounding.
  - 3) *Geodiversity* and *Geoheritage* is vulnerable towards any disturbances and highly prone for any anthropogenic activity
  - 4) *Biodiversity* is an environment wealth that has an absolute role towards the environment balance.
- b. Research urgency in the perspective of social-cultural aspect:
  - 1) *Cultural diversities* contains the local wisdom that has a big power in the development
  - 2) The independence of tourism enterprise is a basic capital that is able to support the achievement of development purpose.
- c. Research urgency in the perspective of economic aspect:
  - 1) Database of the potential of *geodiversity*, *geoheritage*, and *bio-cultural diversities* is the basic capital in the tourism enterprise development in Gunungkidul Regency in line with Main Plan of the Tourism Development in Gunungkidul Regency in the period of 2011 to 2025 mandating the local tourism development to be directed to realize Gunungkidul as a natural-based tourism destination with the support of a sustainable culture, competitive to advanced, independent and prosperous society.
  - 2) A previous research showed the existing magnitude of tourism in one side and challenge to enhance the community independence in attempting to improve their welfare.

- 3) The independence of tourism enterprise comes to be an accurate strategy in the program of social prosperity improvement.

The rest of this paper is organized as follow. Section 2 describes material and proposed methodology. Section 3 presents results following by discussion. Section 4 presents conclusion and highlight future works.

## 2. Materials and Methodology

The keyword in the recommendation of UNESCO towards the management of Geopark is the sustainable utilization. This is supposed to be balanced with a sustainable development, referring to a development to fulfil the today needs without lessening the competency of the future generation to fulfil their needs. The principles of sustainable development include (1) giving guarantee the even distribution and social justice; (2) respect the diversity; (3) Using an integrative approach and (4) Asking the long-term perspective (Djajadiningrat, 2001).

There are two essential concepts in the sustainable development: (1) the concept of needs – an essential need to sustain human life and (2) the concept of limitation coming from the condition of technology and social organization towards the ability of environment to fulfill the today and future needs. To meet those two concepts, it is necessary to fulfil the following requirements (Djajadiningrat, 2001): (1) Ecological sustainability, (2) Economic Sustainability, (3) Social-Cultural Sustainability, (4) Political Sustainability and (5) Sustainability of Defense and Security. In relation to the sustainable tourism development, it needs to concern with how the tourism destination object (ODTW) can be developed without disturbing the existing environmental ecosystem and ignoring the interest of the local community for a better life.

As stated by Mathieson and Wall (1982), tourism is a complex phenomenon that involves a movement of people to one place outside the place they are living in which the activities conducted involves various parties including the activity that uses certain tourism facilities. According to Gartner (1996) as cited by Sudiarta (2011), tourism is also seen in many aspects including physical or environmental aspect. This activity is not apart from the effect emerged particularly the one impacting the social-cultural, economic and physical environment aspects. Tourism has a wider spectrum that is an open system of a number of main elements that have a direct interaction with nature, those are human, tourists, area doing the activity, destination of area and economic-industrial elements (Leiper cited by Gartner, 1996). Entirely, this element is arranged in various functions that interact physically, technologically, socially, culturally, economically and even politically.

Given the enactment of Law No. 32 of 2004 on Regional Government, various efforts for the development of regional potential come to be interesting and even this has been attempted by various parties for the optimal utilization. Many possibilities in all sectors are sought to be developed in a way to contribute to the success in the governance implementation as also occurred in tourism sector. In many cases, tourism comes to be the potential of the focus on the policy orientations to boost the contribution of regional revenue. This then will create the excessive exploitation of the tourism assets in certain areas. In general, there are still many obstacles that cause the tourism management in the area of Gunungkidul Regency not optimal, including:

- a. Low added-value. This is related to the creativity, innovation and lack of competency in interpreting an opportunity. In many considerations in tourism development, sometimes, it is not realized that actually there is a tourism asset that, if well managed, can have a promising added value. However, many today assets or objects that still have a low added-value making them less noticed. This cannot be apart from the lack of creativity, innovation and interpretation of government, actors or even the society itself.

- b. The low involvement of the stakeholders. It is related to the unpreparedness of society and lack of facilities from the related parties. To see whether potency can be a tourism object is always related to the willingness of society to actively and positively participate in development, management and maintenance for it. If one of the elements is not fulfilled, it then can cause the tourism development unbeneficial. Hence, the local community must be given an access or facilitation to be ready to be involved in developing, managing and using the existing objects as active participants – not as the passive ones.
- c. Physical orientation, being lulled for the natural wealth and culture as a power considered as a given. This can make the parties competent in tourism view that the asset merely is as a finding; then implementing a policy that the finding needs to be commercialized simply with beauty covering the object as the only one criterion to determine the prospect of its development and marketing. The success of a tourism potential to be a tourism object or to be commercialized actually needs more requirements both in technical, administrative and local values aspects.
- d. Lack of understanding from a number of stakeholders. Given the existence of various changes, including the change in government, institution and policy as an impact of the local autonomy, culture shock occurs in any levels. If this occurs continually, then it possibly can emerge a disadvantageous dilemma in the tourism development.
- e. Short-term orientation to obtain the profit. Continuity in long-term thought needs to be enhanced in responding the tourism development particularly for non-renewable tourism objects. Sometimes, the short-term interest seems to be more promising but this obviously must consider about its long-term utility.
- f. Lack of togetherness among the tourism actors with other sectors. It is important to note that the complement excellence of a tourism asset is also necessary to be a consideration for the tourism developers that may come from any elements such as government, travel agents, or tour guide. To make tourism better, there is a need to create an equal implementing step in accordance with each competency to prevent any overlap in utilizing the existing tourism asset. Without any togetherness in a tourism development, the outcome in tourism development will not be optimal.

Cited from Holden (2000), Peter Mason (2003) in his writing, it is stated that the environment or physical condition is one of the important factors in tourism. This has been realized in last decade in which the tourism is highly reliant upon the physical condition and environment both as the main attraction of tourism itself and as a place where the tourism activity occurs. The interaction between environment and tourism is complex and symbiotic; both are dependent to each other.

## **2.1. Mechanism of Tourism Implementation**

The authoritative implementation of Local Government related to the local autonomy particularly in tourism sector needs to be supported and stimulates the achievement of local autonomy by improving a mechanism in the main implementation of tourism in terms of the quality of public service that is competence in developing a better, faster and simpler service. In the tourism implementation, based upon the administration of tourism development, the government only acts as a regulator/facilitator and booster. It only runs the function of technical guidance; while the private parties are given a wider authority and supports. The mechanism expected is when the private parties act as the frontline and dominates in the tourism development.

In the tourism implementation, the first measure needed to be done is to understand some issues that will be the base in developing the following tourism. These issues can be in the form of issues, positive impact, negative impact and willingness of a group of societies/entrepreneurs and the development planning as the potential and drawbacks in tourism development. Then, the issues are inventoried and all parties related to tourism

must be in agreement and are able to unanimously answer the issues objectively and logically.

The identification of potential and drawback is conducted to collect the data and information about the potency and drawback as well as a general condition of a region that will be developed as a tourism destination area. The activity of identification of potency and drawback includes the aspects of attraction and uniqueness of nature, ecological/environmental condition, social, cultural and economic condition, region allocation, facilities and infrastructure, potency of market share of ecotourism and funding.

From the result of identification of potency and drawback, furthermore, the analysis of potency and drawbacks is given covering the following points: legality aspect and legal bases, resource potential and nature uniqueness, business analysis, analysis on environmental impact, economic analysis (cost and benefit analysis), social analysis (community participation), and analysis on lay-out.

The development of geosite as geotourism is an accurate strategy in line with the government directive. This is stated in Regulation of Indonesia Republic No.5 of 2011 on the Master Plan of National Tourism Development in the Period of 2010-2025 explicitly stating that one of the tourism potencies that can be developed in Indonesia is the type of natural tourism. Meanwhile, in the Strategic Plan of Directorate of Tourism Destination Development in 2012-2014, it is mentioned the development of one of tourism destinations is the geotourism destination related to the geological formations or sites. In line with this policy, in the Master Plan of Local Tourism Development in Gunungkidul Regency in the period of 2011-2025 it is said that the local tourism development is directed to realize Gunungkidul as the natural-based tourism destination supported by a sustainable culture, competitive to advanced, independent and prosperous society.

As stated in Law No. 10/2009, tourism is a kind of activity supported by any facilities and service provided by society, entrepreneurs, Government and Local Government. Also stated by Surjanto (1985), to fulfil the needs and service, tourism must be supported by any components including (1) Tourism Object and Attraction, also called as tourism attraction in the form of all cultural and natural attraction, and any activities that can attract the tourists to come; (2) Transportation and Infrastructure to support the accessibility in term of the issue on reaching the tourism site and (3) Amenities, covering a number of facilities provided by tourism object. With different ways, as stated by Yoeti (1983), the development of a tourism destination object must fulfil 3 requirements:

- a. The area must have “*something to see*”, meaning that in that area, there must be a different tourism object and tourism attraction different from other places or it must have a specific attraction.
- b. The area must be provided “*something to do*” meaning that in that area, in addition to many things to see; it also must be supported by the recreational facilities making the visitors comfortable to stay longer.
- c. There must be “*something to buy*” in the area, meaning that there are facilities for buying gifts.

In line with the development of local tourism, the geotourism in Gunungkidul Regency that is based on natural potential needs to be developed with a sustainable principle. This principle makes a balance between social purpose, economic purpose and environmental purpose; all of which are directed to how the tourism development can give a long-term profit for society and stimulate the responsibility, ethics and attitude improvement. Based on the explanations above, the geotourism in Gunungkidul Regency is highly suitable to be developed using the Geotourism concept.

Summarizing all policies and directives of the existing development, the geotourism development needs to fulfil the following points:

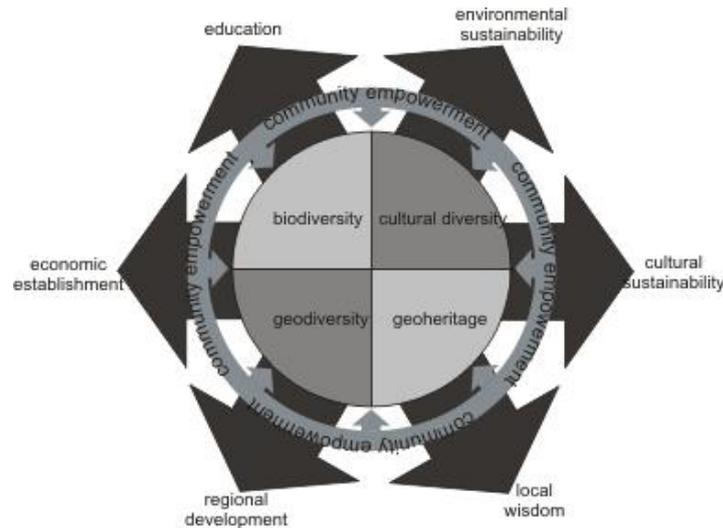
- a. *Geologically based*. It means that the object/place/location used as a geotourism area is the formation of the geological process.

Based on the geological condition, 13 geosites in Gunungkidul Regency are the natural wealth with the high potential of tourism attraction. As a geological wealth, moreover defined as a Geopark Global Network, this potency must be protected to make the conservation principle will be a strong base in its development. This is in line with the opinion of Hose (1996, 2000) saying that the definition of Geopark can be understood through its essence, function and implementation as the components interacted with nature and life on earth. The tourism attraction in the development of geotourism includes the potentials of *geodiversity*, *geoheritage*, and *bio-cultural diversities* in Geosite in Gunungkidul Regency. Therefore, the concept of Geopark comprises three basic essences:

- 1) As a region that has an essence as a geological inheritance that needs to be preserved as a place to apply the strategy of sustainable economic development conducted through the good and realistic management structure.
  - 2) Geopark implements to give an opportunity for the creation of job vacancy for the local community in terms of gaining the real economic benefits commonly through the sustainable tourism activities.
  - 3) In the frame of geopark, the geological inheritance object and the geological knowledge share with the public. The existing geological elements and natural spread are correlated to the natural and cultural aspect.
- b. Sustainable, the development and the management of geotourism site must be sustainable to maintain its preservation.
  - c. Geologically informative, equipped with the information about the history of the geological formation. Thus, the tourists are able to understand about occurrence of the natural process.
  - d. Locally beneficial, providing benefits for society/community living nearby.
  - e. Tourist satisfaction, providing satisfaction physically and psychologically for the visitors.

The concept of geotourism is a new concept of tourism development in Indonesia. A natural-based tourism development concept previously known is Ecotourism. As stated by Ministry of Tourism and Creative Economy of Indonesia Republic, Ecotourism is a concept of a sustainable tourism development concept aimed to support any efforts of environmental preservation (nature and culture) and to improve the economic benefit for local community and local government. In general ecotourism can be defined as a form of nature-based tourism. Meanwhile, according to Ceballos-Lascurain, ecotourism is a form of travelling in which the natural environment becomes the main focus. However, much more than that, ecotourism, as stated by IUCN (now to be World Conservation Union, 1996), is a travelling and visitation to a natural areas that are mostly untouched before with an aim to enjoy and respect the nature (and any social aspects on it) to encourage other activities; namely natural conservation that has a negative impact on the minimum environment and give a maximum social-economic impact on society nearby. Ecotourism is a sub-component of a sustainable tourism.

Ecotourism and nature-based tourism in common takes the areas in the protected zone, conservation areas, remote areas with exceptional nature beauty, ecological area and cultural heritage area. Citing Chafe (2005, 2007) in the writing of Wearing and Neil (2009), though many conflicts in the interpretation about ecotourism in the tourism industry, one thing to be highlighted is about the increasing awareness and global growth in the ecotourism sector in which this cannot be seen merely as a trend in tourism but this reflects a fundamental change in terms of how people interact with nature. Compared with this concept, geotourism has a higher complexity and wider scope of development as seen in Figure 3.



**Figure 3. Scope of Tourism Development with the Geotourism Concept**

Karst of Mount Sewu covering the region of Gunungkidul, Wonosari and Pacitan is one of the most famous karst areas in Java Island for its uniqueness and typicality. Karst is a landscape commonly characterized with the closed depression, surface drainage and caves. This area is formed particularly by the stone dissolution, mostly limestone. Geologically, Mount Sewu has been formed from the Neogene limestone (Middle Miocene) with the thickness at more than 200 m. Its morphological typicality has made Mount Sewu to be established as *Geopark* (Earth Park) in Indonesia.

Seen from the Plate Tectonic Theory, Indonesia is located in the joint of three big plates. The dynamics of earth crust has caused the geological disaster in the form of volcano eruption, earthquake, tsunami and slide. It also results in geological resource and the emergence of geological phenomena in the form of landscape, structure and any types of abundant stone/mineral and fossils later forming the geosite wealth potential to be developed to be a geopark in Indonesia. Geology has a significant influence towards the civilization and diversity on earth. Since the paradigm shift in the utilization of the geological resources from extractive to conservative, a number of geologists competitively arrange a concept of geological conservation that can be in synergy with the sustainable development without declining the meaning of the protection towards the stone exposure (geosite), landscape (*morfosite*), and all elements contained in it (Permadi, Reza, 2014). The initiative of UNESCO (*United Nation Educational, Scientific and Cultural Organization*) to support the geopark is a response towards the big needs for the international framework as aspirated by a number of countries to enhance the protection of *geoheritage*.

Planning refers to a process of making decision about what thing must be done in future and how to do it. As stated by Kusmayadi (2004), planning must consider with the today state realistically and potential factor that can be developed. Page and Ross (2002) defined the plan as a process with certain purpose that will be targeted, controlling and monitoring any changes that will occur for maintaining the sustainability of the area and for adding the experiences of tourists towards the region or location. In this case, Hall (2000) revealed that if the tourism plan has been suitable/in line with the trend of regional plan, then the tourism is not always seen as the main focus in the planning process. In Gunungkidul regency, there are 13 geosites established as an international geopark. With this wealth, as an initial plan step, it is necessary to do a study on the potency to formulate a development plan suitable with the existing condition and in line with the directive of local and national tourism directives. The tourism plan covers the following aspects (Dimjati, 1999):

- a. Tourist aspect – it is necessary to be analysed for the characteristics of the tourists that are expected to come
- b. Transportation aspect – it is about how the available transportation facility is good either from the home land or the transportation to the tourism object.
- c. *Attraction*/tourism object in term of what is seen, done and bought in the tourism destination area visited.
- d. *Service facilities*.
- e. Information and promotion aspect – it is about the promotion methods to be done through the advertisement and available packet.

### 3. Results & Discussion

The tourism development needs to be well planned to minimize any impacts that might occur. The impact of tourism according to Prajogo (1976) refers to the tourism indication that can be in the form of conflict or significantly positive or negative impacts. At best, the positive impacts can be duplicated and the negative ones can be prevented. Of the impacts that might occur, it is the physical impact including the environmental impact. The environmental impact can be about the condition that can impact the ecological condition and original habitat of the tourism area. Some of negative impacts of tourism are related to the more increasing number of tourists compared to the capacity of the environment to accommodate the utility or know as *carrying capacity*; as a consequence, there will be a significant pressure towards the nature. According Mason, (2003), the positive impacts can be in the following forms:

- a. Tourism can stimulate the growth of the monitoring and applied steps for the protection of environment and /or landscape and/or wild life
- b. Tourism can help to introduce the existence of the National Park or Conservation area
- c. Tourism can introduce and promote the existence of heritage building and/or area
- d. Tourism can bring a profit as a funding source of a region

On the other hand, a number of negative impacts commonly occurred include (Mason, 2003):

- a. Tourists tend to litter the rubbish and makes the tourism site dirty
- b. Tourism can make people or vehicles more crowded
- c. Tourism contributes to the water pollution and coastal areas.
- d. Tourism can create erosion
- e. Tourism can create some unintended developments
- f. Tourism can create any disturbances and damage on the habitat of wild life

An uncontrolled tourism activity can be a threat to environment. As revealed by UNEP (United Nations Environment Programme), the main impact of tourism on environment is divided into three main points: lack of natural resources, increasing pollution and impact on ecosystem. The tourism activity can create a great pressure for the local resources such as energy, water, forest, soil and wild life. Frequently, forest is negatively affected due to the deforestation and land clearing for parking area or public facilities.

Tourism also can create other impacts such as pollution (air emission, noise, solid waste, liquid waste or visual pollution). Emission from the transportation and energy production can create acid rain and photochemical pollution. At the global level, it will impact on the global warming. The noise pollution can also change the attitude of animals towards the pattern of their natural activities. This indirectly can change the nature and its attitude.

Based on the explanation above, in general, the physical impact of tourism can be divided based upon *area of effect*, including biodiversity, erosion, physical damage, pollution, issues on resources, and changes or visual or structural damages. An interesting tourism area can surely have a landscape together with a variety of ecosystems. However, the development of supporting facilities of tourism such as infrastructure development can

cause soil and mineral degradation. In addition, the infrastructure development also annihilates the population of certain habitat in the area.

Different from other tourisms in which the impact is commonly directly seen and felt, nature-based ecotourism or tourism has an assumption that there will be no physical impact from the development of ecotourism. Coincided with the more increasing number of ecotourism, it cannot be denied that ecotourism will gradually bring an impact on economic, social or cultural dimension as well as on physical impact.

The impact can be in the form of negative or positive impact. As stated by Spillane (1996), the impacts of nature-based tourism are the water and air pollution, traffic density affecting the road condition and natural scenery impairment.

As mentioned in literature of Tourism Management Plan (2009), management of nature-based impact management can be divided into a number of types of control such as natural environment, fostered environment, sociocultural, and socioeconomic. Then, these controlling types are also divided based upon the location.

In Indonesia, the management of living environmental impact has been regulated in Law No.32 of 2009 on the Protection and Management of Living Environment. The analysis on the living environment, also known as Environmental Impact Assessment (IEA), is one of important aspects in making a decision on the development of a region both for industry, education and tourism. Some points studied in the EIA include physical-chemical, social, economic, sociocultural and community health aspects. Meanwhile, the aim of the protection and management of living environment is stated in Article 3 including:

- a. Protecting the territory of United State of Indonesia Republic from any contamination and/or the damage of living environment;
- b. Ensuring the safety, health and human life;
- c. Guaranteeing the life sustainability of living creatures and preservation of ecosystem;
- d. Maintaining the preservation of living environmental functions;
- e. Reaching harmony, alignment, and balance of living environment;
- f. Ensuring the fulfilment of justice for the today and future generation;
- g. Ensuring the fulfilment and protection of rights for living environment as a part of human rights;
- h. Controlling the utility of natural resources wisely;
- i. Realizing a sustainable development and
- j. Anticipating the global environmental issues

The initial step that needs to be done in the implementation of tourism is to observe the issues and identify the potentials of tourism development. The identification of the potential and drawbacks is conducted to collect the data and information that will be developed as a tourism destination area. The activity of the identification of the potentials and drawbacks includes the aspects of attraction and uniqueness of nature, ecological/environmental condition, social, cultural and economic condition and facilities and infrastructure of tourism activity.

Having identified the potentials and the drawbacks, the result of it is then analysed to obtain the priority description of the tourism development and the recommendation or directive of tourism development.

The analysis on the tourism potential is the strategy of the assessment of the potentials of the existing tourism attraction to obtain a description of strengths and weaknesses of any geosites in Gunungkidul Regency for drafting the priority of the tourism development from 13 geosites. In the analysis of the tourism potentials, the assessment given on the components of tourism in each geosite includes: (1) Attraction in the form of all attractions such as from nature, culture, things or activities that can attract the tourists to visit; (2) Amenities covering the facilities provided by the tourism object; and 3)

Accessibilities, an issue to reach the tourism location. Based on the result of the analysis on the potential of tourism, the assessment can be obtained as seen in Table 1 below.

**Table 1. Study on the Potency of Tourism Attraction from 13 Geosites in Gunungkidul Regency**

No	Geosite	Component	Sub-Component	Score	Weight	Score
1	Ancient Volcano Nglanggeran	Attraction	Resource	5	20	100
			Tourism activity	5	20	100
			Cleanness of geosite	2	10	20
			Comfort of geosite region	5	10	50
		Accessibility	3	20	60	
		Supporting facilities and Infrastructure	8	20	160	
		Total Score		28	100	490
2	Sea Deposit of Beginning Miocene of Sambipitu	Attraction	Resource	2	20	40
			Tourism Activity	0	20	0
			Cleanness of geosite	1	10	10
			Comfort of geosite region	1	10	10
		Accessibility	3	20	60	
		Supporting facilities and infrastructure	2	20	40	
		Total Score		9	100	160
3	Pindul Cave	Attraction	Resource	7	20	140
			Tourism activities	5	20	100
			Cleanness of geosite	3	10	30
			Comfort of Geosite region	5	10	50
		Accessibility	3	20	60	
		Supporting facilities and infrastructure	9	20	180	
		Total Score		32	100	560
4	Kalisuci Cave	Attraction	Resource	6	20	120
			Tourism activities	5	20	100
			Cleanness of Geosite	2	10	20
			Comfort of Geosite region	4	10	40
		Accessibility	3	20	60	
		Supporting facilities and infrastructure	6	20	120	
		Total Score		26	100	460
5	LuwengJomblang	Attraction	Resource	6	20	120
			Tourism activities	5	20	100
			Cleanness of geosite	2	10	20
			Comfort of geosite region	4	10	40
		Accessibility	3	20	60	
		Supporting facilities and infrastructure	4	20	80	
		Total Score		24	100	420
6	Siung Beach and Wediombo	Attraction	Resource	6	20	120
			Tourism activities	4	20	80
			Cleanness of geosite	2	10	20

	Beach	Comfort of geosite region		5	10	50
		Accessibility		1	20	20
		Supporting facilities and infrastructure		9	20	180
		Total Score		27	100	470
7	PurbaSaden g Valley	Attraction	Resource	3	20	60
			Tourism activities	3	20	60
			Cleanness of geosite	2	10	20
			Comfort of geosite region	4	10	40
		Accessibility			20	60
		Supporting facilities and infrastructure			20	40
Total Score		17	100	280		
8	Bleberan Waterfall (Sri Gethuk Waterfall)	Attraction	Resource	4	20	80
			Tourism activities	4	20	80
			Cleanness of geosite	2	10	20
			Comfort of geosite region	5	10	50
		Accessibility			20	60
		Supporting facilities and infrastructure			20	180
Total Score		27	100	470		
9	Jlamprong Cave	Attraction	Resource	4	20	80
			Tourism activities	5	20	100
			Cleanness of geosite	2	10	20
			Comfort of geosite region	4	10	40
		Accessibility			20	60
		Supporting facilities and infrastructure			20	60
Total Score		21	100	360		
10	LuwengCok ro	Attraction	Resource	4	20	80
			Tourism activities	5	20	100
			Cleanness of geosite	2	10	20
			Comfort of geosite region	4	10	40
		Accessibility			20	60
		Supporting facilities and infrastructure			20	60
Total Score		21	100	360		
11	Ngingrong Cave	Attraction	Resource	7	20	140
			Tourism activities	6	20	120
			Cleanness of geosite	2	10	20
			Comfort of geosite region	4	10	40
		Accessibility			20	60
		Supporting facilities and infrastructure			20	80
Total Score			100	460		
12	Wanagama Forest	Attraction	Resource	6	20	120
			Tourism activities	5	20	100
			Cleanness of geosite	2	10	20
			Comfort of geosite region	4	10	40
		Accessibility			20	60

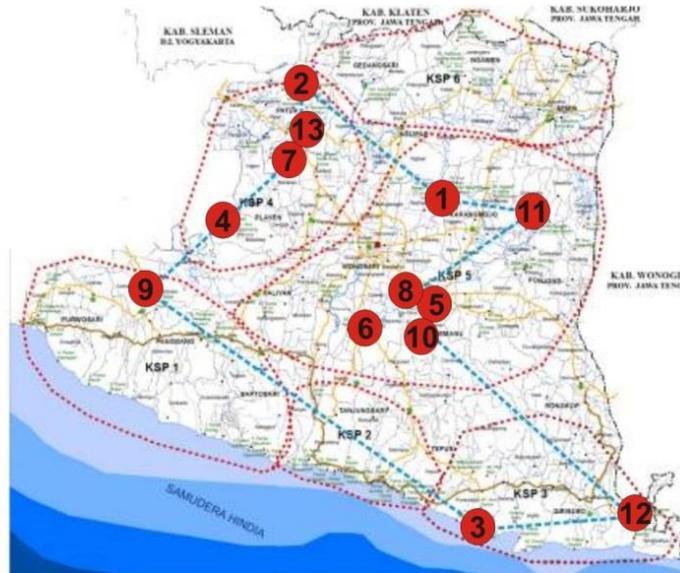
		Supporting facilities and infrastructure		20	100
		Total Score	25	100	440
13	Derivative Forest	Attraction	Resource	5	100
			Tourism activities	5	100
			Cleanness of geosite	2	20
			Comfort of geosite region	4	40
	Accessibility		20	60	
	Supporting facilities and infrastructure		20	80	
	Total Score	23	100	400	

The abundance of geosite wealth in Gunungkidul regency needs to be responded through the accurate draft of development to make it entirely in line with the development plan of Gunungkidul Regency and in general can be beneficial for the improvement of community prosperity. Based on the assessment of potential of the development above, the priority of the development of the existing 13 geosites can be arranged as listed in Table 2.

**Table 2. List of Priority of Geosite Development in Gunungkidul Regency**

No	Geosite	Total Score
1	Pindul Cave	560
2	PurbaNglanggeran volcano	490
3	Siung Beach and Wediombo Beach	470
4	Bleberan Waterfall (Sri Gethuk Waterfall)	470
5	Kalisuci Cave	460
6	Ngingrong Cave	460
7	Wanagama Forest	440
8	LuwengJomblang	420
9	Derivative Forest	400
10	Jlamprong Cave	360
11	LuwengCokro	360
12	Ancient valley of Sadeng	280
13	Sea Deposit of beginning Miocene Sambipitu	160

Spatially, the list of priority can be seen in Figure 4.



**Figure 4. The Priority of Geosite Development in Gunungkidul Regency**

Each of geosites in Gunungkidul Regency has its own uniqueness and high attraction to be developed as a geotourism. Geosite of Pindul Cave, in this case, has some excellences for being greatly supported by community in its potential development making the assessment in the sociocultural aspect so high. Recently, geosite of Pindul Cave has been developed as a tourism object by local community through a number of KelompokSadarWisata (Tourism-Aware Group) developed in Bejiharjo Village, an area in which the Pindul cave is located in. This group independently organizes and develops a tourism offer in the geosite of Pindul Cave and correlate with some other potential nearby. The commitment of community to manage the tourism activity here shows their awareness and concern to the potential of the existing geosite. Even, it proves their concern in the social and economic improvement in this area. This then brings an opportunity for the highly significant tourism development that gives an assurance for the achievement of the development of this potency as a tourism attraction. This condition is in line with the statement of Page and Ross (2002) that the support of the stakeholder plays a significant role in the achievement of the development of tourism attraction of an area.

From the general description about the condition and profile of geosite in Gunungkidul Regency and by considering the external factor (opportunity and threat), the SWOT analysis on the development of geotourism of Pindul Cave is formulated as follows:

a. Strength (S)

- 1) Abundant geosite wealth
- 2) High *geodiversity*
- 3) Variation of potential of other tourism attractions around the geosite of Pindul Cave
- 4) The more increasing number of visitors to geosite of PindulGeosite
- 5) The development of community commitment to manage the geosite of Pindul Cave as the tourism object
- 6) Great support and development of geotourism
- 7) Rapidly developed promotion of geosite of Pindul Cave for tourists

b. Weaknesses (W)

- 1) Low understanding of community about the geopark concept
- 2) The poor effort of geotourism management
- 3) The low coordination in geotourism management among the stakeholders

- 4) Lack of geotourism promotion
  - 5) Less developed diversification of tourism in responding *geodiversity*
- c. Opportunity (O)
- 1) The support of Regulation of Minister of ESDM RI No. 17 of 2012 on the Establishment of Karst Landscape Region
  - 2) The support of Law No.11 of 2010 on Tourism
  - 3) The support of Law No. 26 of 2007 on Spatial Plan
  - 4) The support of Law No. 23 of 2014 on the Local Government of the Chapter of Mining Permit
  - 5) The support of Law No. 11 of 2013 on Cultural Site
  - 6) The support of Local Regulation of Special District of Yogyakarta (DIY) No.1 of 2012 on the Master Plan of Tourism Development in the period of 2012-2015.
  - 7) The support of Local Regulation of DIY No. 62 of 2012 on the Conservation of Cultural Heritage and Cultural Site
  - 8) The support of local regulation of Gunungkidul Regency No. 5 of 2013 on the Tourism Implementation
  - 9) Geopark Region of Mount Sewu listed in Global Geopark Network
  - 10) The increase of tourist interest both as domestic and as foreign tourists
  - 11) Advanced technology
- d. Threat (T)
- 1) The high interest of community to mine the geosite
  - 2) Lack of monitoring and protection to the areas surrounding the geosite
  - 3) Lack of understanding and awareness of community towards the environment conservation

From the SWOT analysis above, a strategy of geosite development can be formulated as seen in Table 3 below.

**Table 3. Strategy of Geosite Development Based Upon SWOT Analysis**

Strategy of SO Development	Strategy of ST Development
<ol style="list-style-type: none"> <li>1. Identifying the geosite condition</li> <li>2. Documenting and publishing the uniqueness of geosite</li> <li>3. Formulating the plan of geotourism development in a synergic manner with any potentials of other tourism attraction by maintaining the conservation and sustainability of geosites</li> <li>4. Formulating a model of geotourism management with community involvement</li> <li>5. Using the advanced technology in the efforts of geotourism management</li> </ol>	<ol style="list-style-type: none"> <li>1. Improving the understanding and awareness of community about the importance of environment conservation</li> <li>2. Formulating the plan of geosite conservation/preservation</li> <li>3. Formulating the plan of restoration of damaged geosite</li> <li>4. Formulating the plan of management and development of tourism areas under an integrated management</li> </ol>
Strategy of WO Development	Strategy of WT Development
<ol style="list-style-type: none"> <li>1. Improving the understanding of community about the geopark concept</li> <li>2. Formulating the plan of geotourism management in accordance with the geopark concept</li> <li>3. Formulating the model of integration of geotourism management</li> <li>4. Formulating the plan of promotion and marketing the geotourism</li> <li>5. Developing the diversification in</li> </ol>	<ol style="list-style-type: none"> <li>1. Improving the understanding and awareness of community about the importance of environmental preservation</li> <li>2. Formulating the plan of geosite conservation</li> <li>3. Developing the diversification in responding <i>geodiversity</i></li> </ol>

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responding <i>geodiversity</i>	
6. Utilizing the advance of technology in the effort of geotourism management	

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## 4. Conclusion & Future Works

The high spread of geosites and a number of other non-geosite tourism attraction objects in Gunungkidul Regency become the base of needs for the directive issuance towards the tourism development both in macro and micro scope. The directive of the macro development refers to a directive of tourism development in Gunungkidul regency to ensure the synergy of the tourism development with the development of Gunungkidul regency in general. It also to ensure the implementation of the development of the tourism attraction objects in Gunungkidul regency integrally. The directive of the micro development, meanwhile, is the one of tourism developments in a smaller scope in which later it needs to be detailed to be a more technical directive of development of tourism attraction object.

### 4.1. Directive of Macro Geotourism Development

Viewed from the potential and the directive of the tourism development by Local Government of Gunungkidul Regency particularly related to the destination of nature tourism, the geotourism area is more appropriate to be developed as the sustainable environment and community culture-based tourism objects in accordance with the geopark concept - a concept of a sustainable tourism development aimed to support any attempts of environmental preservation (nature and culture) and to enhance the community participation in management. By doing so, it can bring a benefit in terms of economic education to the community and local government.

Based on the consideration above, the directive of the macro development of Geotourism is formulated as follows.

- a. **Providing experience and education to tourists** that can broaden the understanding and appreciation towards the tourism destination. The education is given through the understanding about how important the environmental preservation is. This can be done by providing the nature and environment as an original, beautiful and preserved tourism object. The experience is given through the creative tourism activities along with the prima service.
- b. **Minimizing the negative impact on the environmental characteristics and culture** in the area visited. This can be done through the tourism plan that does not damage the environment but still considers the environmental preservation in its attraction development.
- c. **Involving the community in the management and implementation of tourism activities** in some areas of geosite, community has been involved as the active actor in tourism area; hence, the community development in further tourism development is no longer something new.
- d. **Providing economic benefits particularly for local community.** For this, the ecotourism activity must be profitable. The involvement of community as an active manager of tourism activity is an evidence that the tourism development in this village can bring an economic benefit in the real improvement of community prosperity.
- e. **Being survivable and sustainable.** This can be a main concern in the effort of further development of tourism activity and facilities in Gunungkidul Regency

From the directives above, the geotourism development must consider 5 (five) basic principles:

a. **Conservation**

The principle of conservation in ecotourism refers to an activity of ecotourism that does not impact on the damage and contamination of local environment and culture. One of the ways to implement this principle is by utilizing the energy-saving local resources managed by people nearby. It is not only community but also tourists to respect and participate in the natural and cultural conservation in the area visited. Much better, if the revenue from the ecotourism can be used for the preservation activity at the local level. For example, certain percent of the profit is contributed to buy garbage cans and pay someone managing the waste.

b. **Education**

The tourism activity should provide an educational element. This can be done through a number of ways including by providing interesting information such as the name and the advantage of plants and animals living around the tourism area, leaves used for medicine or in daily life or the trust and custom of local community. The educational activity for the tourists will encourage the effort of natural or cultural conservation. This activity can be supported by some tools such as brochure, leaflet, and booklet or information board.

c. **Tourism**

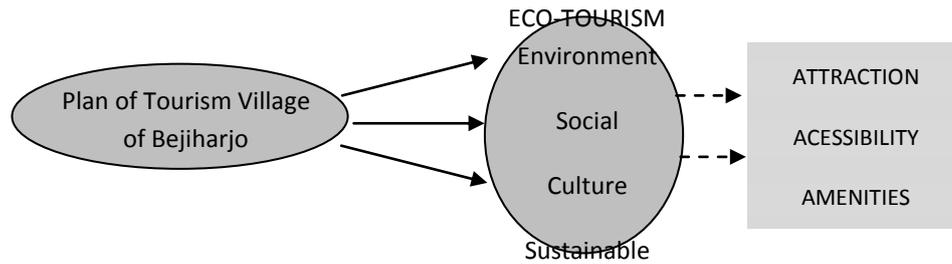
Tourism is an activity containing the recreational elements with various motivations of tourists to visit a location. Ecotourism also must contain this element. Therefore, the product and tourism service located nearby must provide an enjoyable element to be marketable and acceptable in market.

d. **Economy**

Ecotourism also provides an economic opportunity for the community and even a number of the tourism travels can use some local resources such as transportation, accommodation and guide service. The ecotourism implemented must provide revenues and profit to survive. To realize it, the most important thing is by providing the best and qualified service and product of tourism. To do so, it will be better if the revenue from tourism is not only used for the conservation program but also to help to broaden the knowledge of local community such as the development of competency through the training to improving the types of business/attraction presented at village level.

e. **Participation of Local Community**

Participation of community might appear when the nature/culture has given a direct benefit for the community. To do so, they need to be managed and maintained. This is a mutual relation between tourism attraction and management of benefits obtained from ecotourism and participation. The community participation plays an essential role for the success of ecotourism in a tourism destination area. This can be started from awareness by not expecting too much that government will do anything as the community also have an equal role in doing the development in their area. Participation in tourism activity will bring a direct benefit for community both from natural preservation and from economic sector. If the nature is kept preserved and clean, the natural preservation could be enjoyed well. Being participated in the tourism activity can also bring some benefits economically.



**Figure 5. Macro Concept of Geotourism Development**

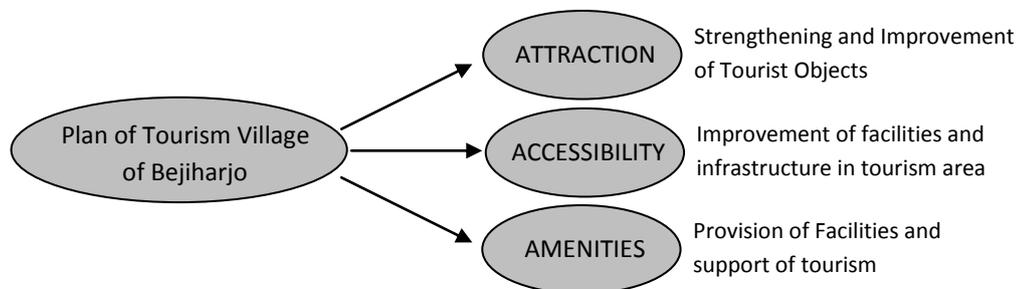
The directive above becomes a consideration in formulating the concept of geotourism development in accordance with the geopark concept. Based on this concept, the geotourism development must include the physical environment, social and cultural aspects as seen in Figure 5.

Environment and Sociocultural-Based Tourism is a tourism activity conducted in the natural places and brings a contribution to the natural preservation and the improvement of local community welfare. The development of this concept directly gives an access to all people to see, know and enjoy the natural, intellectual and local cultural experience for more focused on three main things:

- a. The natural or ecological sustainability
- b. Providing economic benefit
- c. Acceptable in social life of community

#### 4.2. The Directives of the Micro Development of Geotourism

In addition to the macro concept, the geosite management a tourism destination must also be implemented in terms of attraction, accessibility and amenities as seen in Figure 6.



**Figure 6. Macro Concept of Geotourism Development**

- a. **Concept of the Development of Geotourism Attraction**  
 The development of the tourism attraction in the area of geosite needs to be prioritized on the attraction related to the environment and integrated with any potentials of the tourism attraction surrounding. Thus, the development of the attraction is planned in macro and can be managed in the form of tourism package. With this concept, it is expected that the potential of the tourism attraction can improve the economic level of the area using the cross-subsidy.
- b. **Concept of the Development of Geotourism Accessibility**  
 The development of tourism accessibility needs to consider the directive of the development of macro accessibility in the region of Gunungkidul in common. The

access in the area of geosite is also necessary to be developed integrally and linked with other tourism objects.

c. The Concept of Geotourism Amenities Development

Amenities or supporting facilities of tourism in the area of geosite are developed by providing a very wide opportunity for the improvement of social prosperity in general.

## Acknowledgment

This research is supported by the grant from Ministry of Higher Education (DIKTI) of the Republic of Indonesia according to the letter of agreement on the national strategic research assignment for private college lecturer number 014/HB-LIT/III/2015, March 25, 2015.

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