



INTERCONNECTEDNESS BETWEEN GLOBAL GEOPARK AND LOCAL ECONOMIC DEVELOPMENT: A LESSON FROM INDONESIA

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ABSTRACT

This study aims to examine the role of several parties in enhancing global geopark in Batur Bali of Indonesia as well as promoting local economic welfare. The study adopted a qualitative study with a case study approach to gain a comprehensive result of the phenomenon. This study focuses in Global Geopark Batur Bali in Indonesia as the first and most successful in creating a better economic welfare primarily during the Covid-19 pandemic. The findings indicate that the Penta helix model can be used to develop Geopark Batur Bali and Indonesia in general in which each party plays their role in this development tourism and local economic development.

Keywords: Geopark, Local economic development, Pentahelix model, sustainable development

1 INTRODUCTION

Indonesia has abundant resources in natural, cultural, and human resources that have the potential to promote economic development. However, poverty, household economic fragility, and sustainability have been an Indonesian challenge (Santika et al., 2021). The Indonesian government has responded to these issues by enlarging the tourism sector. Some scholars believe that the tourism sector can drive more job opportunities (Kakoudakis et al., 2017; Adie & Falk, 2020). Additionally, a recent study by





Aquino et al. (2018); Utomo et al. (2020) mentioned a robust correlation between tourism and local community development. The wealth of tourist destinations owned by Indonesia is indeed interesting to visit for local and international tourists.

The development of the tourism sector sometimes sacrifices other components primarily related to conservation and sustainability issues (Moneva et al., 2020). Therefore, Geopark being the potential to both manage sustainability concerns and promoting economic wellbeing (Idris & Mansur, 2020; Wadhawan, 2021). Geopark is an area that has outstanding geological elements, including archaeological, ecological, and cultural values, where local people are invited to participate in protecting and enhancing the function of natural heritage (Rios et al., 2020). The main elements in a Geopark are divided into three elements: Geodiversity, Biodiversity, and Cultural-diversity (Catana & Brilha, 2020). The establishment of geopark has two primary purposes: conservation and community enhancement. The creation of the UNESCO Global Geopark (UGG) label at the end of 2015, as part of the UNESCO system, was the result of a long process of negotiations between the United Nations Education Science and Culture Organization (UNESCO), an epistemic community (International Union of Geological Sciences, IUGS) and NGOs Global Geopark Network (GGN).

Geoparks are established through a bottom-up process involving all relevant local and regional parties, including local authorities such as community groups, tourism service providers, indigenous peoples, local organizations (Lukac et al., 2021). Furthermore, Geoparks also need to empower local communities through cohesive partnership activities to promote important geological processes in the area such as features, periods, history related to geology, or extraordinary geological beauty (Dowling, 2018). This process requires commitment from the local community, strong partnerships, political support, and a strategy that will meet all of the community's goals when displaying and protecting the area's geological heritage.

The creation of local economic competitiveness can be achieved by optimizing all potential economic resources, including natural, human, artificial, and social resources, to support development financing and local economic independence (Khambule, 2018). For this matter, regional policies are needed that can provide stimulants and encourage the exploration of regional economic potential into a solid form (Sukmawati et al., 2019). The





region will optimize the abundance of resources (resources endowment) as the basis for driving the wheels of regional development. Local economic construction has a strong argument and rationality to be implemented (Rogerson & Rogerson, 2019) Various countries that have emerged from adversity, local economic development in practice has succeeded in growing the performance of the national economy (Fiorentino, 2019; Rogerson & Rogerson, 2019; Khambule, 2018; Abrahams, 2018).

Indonesian Geopark is an area with a beautiful landscape that has an essential role in education with science value and comprises rare features (Ardiansyah et al., 2019). The main component of Geopark covers three elements, including geological heritage, biological diversity, and cultural expression. To present, Indonesia has six areas that include to Indonesian geopark: Toba lake in North Sumatera, Merangin in Jambi, Batur in Bali, Rinjani in West Nusa Tenggara, and Ciletuh in West Java. Indonesia has great potential in developing Geoparks but Indonesia is still lagging behind in terms of numbers compared to other countries. Indonesia already has five UNESCO Global Geoparks/UGG 15 National Geoparks/GN which are being sought to become UNESCO Global Geoparks and approximately 110 locations that have the potential to be developed into Geoparks and the number continues to increase. A new geopark will be built when the area in question has a sustainable development plan for the people who live in it.

Since the important role of Geopark, whether for sustainability, geology, and economy, the study on this theme is on the rise. For Instance, Cai et al. (2019) noted a correlation between sustainability issues and Geopark in Yimengshan. Another study by Herrera et al. (2018) showed geotourism potential in the context of Geopark in Educator. However, there is a lack of study in the Indonesian context and its acquaintance with economic welfare. Most studies in the tourism sector are concerned with village-based tourism (Utomo et al., 2020). A recent study by Ginting et al. (2021) concerned geotourism development in Toba Caldera Geopark by maximizing public facilities. Therefore, there is a need for a better understanding on how the role of global geotourism and local economic welfare.

This study provides several contributions. First, this research provides a contribution and insight into the field of Geopark and geotourism by providing a collaboration model of Penta Helix as an enhancement model. The study in Indonesia is





unique as it has a great potential for geotourism, but it has faced community economic vulnerability. Third, the successful enhancement model can be used to develop geotourism and Geopark in other areas in Indonesia and perhaps in other countries with indifferent geographical conditions.

2 METHODOLOGY

2.1 RESEARCH DESIGN AND DATA COLLECTION

The study adopted a qualitative method using semi-structured in-depth interview to gain a comprehensive result of the phenomenon. In addition, the advantage of using qualitative approach enables researchers to obtain more naturalistic and humanistic findings. The main procedure of this study used purposeful sampling (to select cases that are considered essential), followed by a holistic analysis of the case through a detailed description of the patterns, context, and settings in which the case occurred. In this research, 13 informants are engaged to answer research questions provided. The authors collect data from informants who come from elements of academics, government, business (entrepreneurs), local community, and media. The feedback that the researchers expect to obtain from these stakeholders, including, First, how is their understanding and perception of the Batur Bali geopark. Second, what roles and efforts have they made for Geotourism. Third, what are the supporting aspects and the obstacles they face in implementing tourism in the Batur Bali Geopark, and Fourth, Cooperation in what fields have been carried out between stakeholders. The data in this study are divided into primary data and secondary data. Primary data is data obtained from the first source, both from individuals, such as the results of interviews conducted by researchers, giving questionnaires, and direct observations. To see the map of geopark development, researchers made direct observations of the Batur geopark as a basis for understanding the potential and problems faced in geopark development.





2.2 INTERVIEW PROCEDURES

The process of interview was provided in Bahasa Indonesia and each interview was presented in approximately 50 minutes, depending on the willingness informants to give information. The interview process was guided using instruments protocol that has been provided previously and it has been approved by all authors. The setting of interview has various, i.e., tourism site, government office, local entrepreneurs, tourists, and local communities in the near of location. During interview process, authors built a trust to informant in promoting more natural findings.

2.3 RESEARCH SITES AND LOCATION

The research location in this study is conducted in Batur Geopark in Bali of Indonesia. The fundamental rationale is that Batur Bali in Indonesia is the first Geopark that Global Geopark Unesco in Indonesia has acknowledged. In Figure 1, we can see the distribution of the area in the Batur Global Geopark which consists of various uses such as conservation areas (geodiversity, culture-diversity, and biodiversity), other utilization areas (utility area and sand quarry area), and hazard risk areas (landslide area). The geodiversity in Batur is unique because it is a strato mountain with two calderas and a freshwater lake. Moreover, the Batur volcano is still active and has several pyroclastic cones due to the past displacement of the eruption point. In addition, Batur has its uniqueness in cultural diversity, especially in Trunyan village, where access to get there can only be by walking or using a boat across the lake for 30 minutes. Trunyan Village is one of the Original Balinese Villages (Bali Aga), so-called because the residents there are Hindus and live side by side with nature on the slopes of the Batur Caldera. In terms of biodiversity, Batur is located in the tropics with an altitude above 1000 meters above sea level, making Batur has not only a beautiful landscape but also biological diversity. One of the most superior Batur biodiversity is the organic civet coffee and the Kintamani dog. Additionally, the community in the close research location has a unique culture and a robust social capital. Bali is also known as a tourism Island that has enormous potential





and representative of Indonesia. Furthermore, Bali is a tourism destination, both local and international.

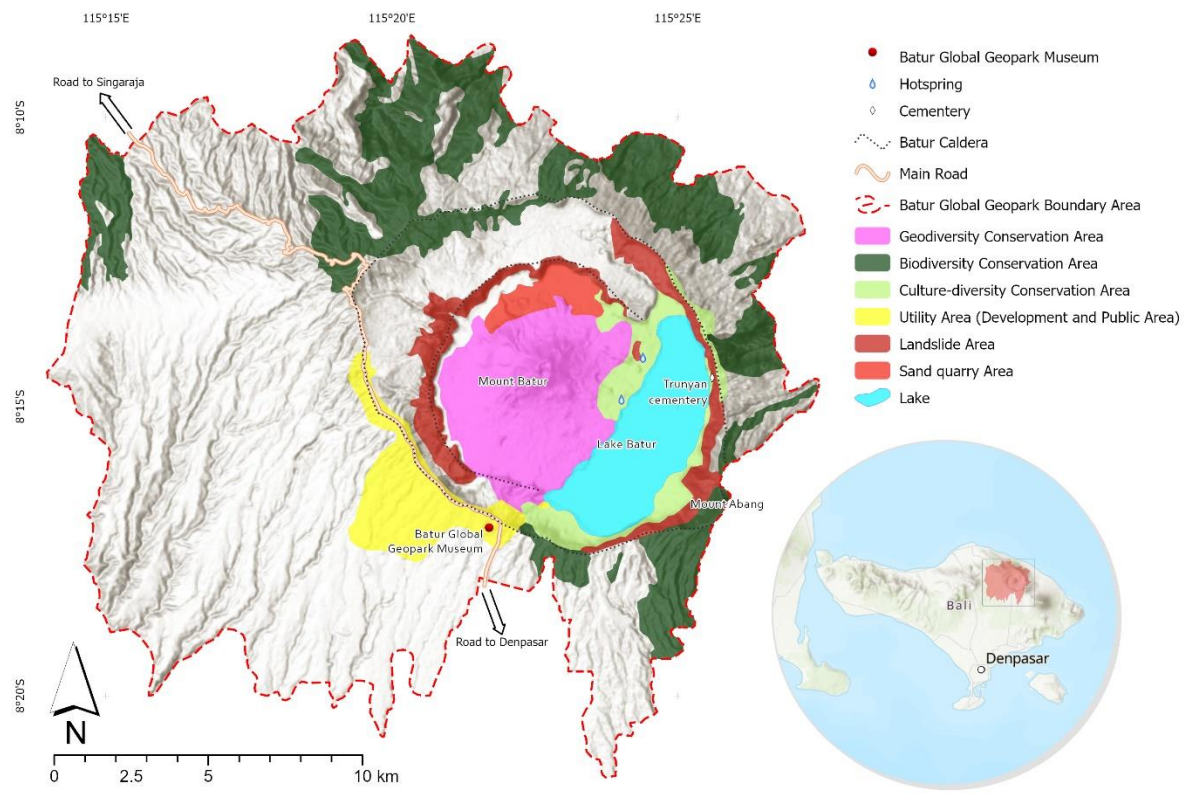


Figure 1. Map of Batur Global Geopark Area

2.4 DATA ANALYSIS

This study followed the criteria from Miles and Huberman (1984) qualitative data were gathered from data reduction, display data, and conclusion drawing/verification. Data reduction is the process of selecting, focusing on simplifying, abstracting, and transforming rough data that emerges from written notes in the field. This process continues throughout the research, even before the data is gathered, as can be seen from the research framework, study issues, and the data collection approach adopted by the researcher. Reducing data undergoing a strict selection of data, summaries, or brief data descriptions and classifying them in a broader pattern.





3 RESULTS AND DISCUSSION

3.1 STRATEGIC ISSUES IN BATUR GEOPARK

The findings of interview with informant found that geoparks with various kinds of potential have a very important role in the stability of the development of a region. In addition, the outcome of informant 1 and informant 4 mentioned that environmental factors are the main consideration in ensuring the balance of economic and social development of the community. In addition, geopark also aims to develop the local economy, develop education, especially knowledge about geology, and protect the environment. However, several issues are generally faced in the development of geoparks, including the limited understanding of various parties about Geoparks. Accessibility to and within the Geopark area is still low. The low quantity and quality of tourism amenities (public infrastructure, public facilities, and services, tourism facilities). Management institutions that have not played an optimal role. There is no clear management system for almost all geosites. The lack of synergy between policies and programs for Geopark development. This is in agreement with some prior studies by Sulistyadi et al. (2019); Nantakat and Vorachart (2021), which mentioned those issues in managing Geopark.

A preliminary interview showed that the coordination that has been established is still person to person and has been institutionalized due to there being no leading sector regarding the concept of geopark development. An example of interview citation with informant 3 “each agency tends to go its own way regarding the implementation of the geopark development plan and collaboration is an essential part of building mutual understanding as well as commitment and having a sense of responsibility in the continuity of regional development”. It is therefore, through the inclusive development paradigm, it can encourage the achievement of forms of cooperation in the development process through efforts to involve the whole community. Community economic development offers a role to build the strength of local communities through alternative economic activities so that the community has greater control over the process of social and economic activities in their area (Utomo et al., 2019).





3.2 THE PERSPECTIVE OF LOCAL ECONOMIC DEVELOPMENT

The data interpretation indicated that geopark management currently requires human resources who have the capability and acceptability of natural and cultural resources in the region. In doing so, community empowerment is needed, such as training in natural tourism management, tour guides, and entrepreneurship training to manage geopark areas and increase local community welfare. From the Geotourism perspective, there is a need for a comprehensive approach in ensuring sustainability, not only focusing on environmental conservation but also community empowerment and regional economic development. An example of interview with informant 7 noted that “professional management needs to be supported by a clear institutional system”. This is in agreement with a prior study who mentioned that professional management is responsible for managing finances and income, facility management, solving technical problems, managing daily management systems, regulating the collaboration of actors such as local businesses, academics, entrepreneurs, local governments, tourism agencies, and local communities (Yasir et al., 2021). However, several things need to be considered in the management of Geotourism, including the necessity to strengthen the urgency of environmental conservation and its topographical wealth.

The rapid development of Geotourism needs to prepare facilities according to the carrying capacity and capacity of the area. Ensuring sustainability through anticipating negative impacts with careful planning and strategy. Empowerment of local communities needs to be carried out continuously and intensively in supporting these tourism activities. Educational value and increase visitor/tourist satisfaction (Schmidt & Uriely, 2019). Local economic development is a community-centered development model through various programs aimed at self-reliance (Rogerson & Rogerson, 2019). Communities are actors who determine goals, control resources, and direct the process of resource utilization (Manaf et al., 2018). The emphasis is on the community's authority to manage resources in realizing their interests. This activity is designed based on community initiatives and participation with an orientation to the local community's needs, potential, and capabilities, taking into account the variations and differences within the community (Gurau & Dana, 2018). Community Development is a program that seeks to reach people whose socio-





economic conditions are still relatively low, and it is difficult to live a life that meets the eligibility and welfare requirements (Downs, 2017).

The creation of local economic competitiveness can be achieved by optimizing all potential economic resources, including natural, human, artificial, and social resources, to support development financing and local economic independence (Khambule, 2018). For this matter, regional policies are needed to provide stimulants and encourage the exploration of regional economic potential into a solid form (Sukmawati et al., 2019). The region will optimize the abundance of resources (resources endowment) as the basis for driving the wheels of regional development. Local economic construction has a strong argument and rationality to be implemented (Rogerson & Rogerson, 2019) Various countries that have emerged from adversity, local economic development in practice has succeeded in growing the performance of the national economy (Fiorentino, 2019; Rogerson & Rogerson, 2019; Khambule, 2018; Abrahams, 2018).

Local Economic Development covers natural resources, labor, capital, investment, entrepreneurship, transport, communication, industrial composition, technology, size, export market, international economic situation, local government capacity, national and state government spending, and development supports (Abrahams, 2018). However, the economic development practitioner is never particular which factor has tremendous weight in any given situation. Furthermore, Barraket et al. (2019) stated that the central feature of locally based economic development emphasizes endogenous development using the potential of local human and physical resources to create new employment opportunities and stimulate new, locally-based economic development activity.

According to Pike et al. (2015), Local economic development (LED) is a process that tries to formulate development institutions in the region, increase the capacity of human resources to create better products, and foster industry and business activities on a local scale. Thus, regional development is seen as an effort by the regional government and the community to build economic opportunities compatible with human resources and optimize the use of natural resources and institutions locally (Saleh et al., 2020). Such is the strategic concept of local economic development (LED) in optimizing the potential of local resources built based on industrial clusters, which are expected to encourage further regional economic growth. From the community side, Local Economic Development is





defined as an effort to free the community from all the limitations that hinder their efforts to develop welfare (Maolani, 2019).

3.3 PENTA HELIX MODEL FOR TOURISM DEVELOPMENT

The finding of this study suggested that a collaboration between parties to enhance tourism and local economic development. An example of interview with informant 7 mentioned that “there is a need a collaboration or well-known as penta helix. The Penta Helix emphasizes the socio-ecological transitions that societies and economies require in the twenty-first century”. For this reason, Penta Helix is ecologically sensitive. Within the Penta Helix innovation model framework, the natural environment of society and the economy should also be seen as a driver for knowledge production and innovation, thereby defining opportunities for the knowledge economy (Putra, 2019). Penta Helix supports the establishment of a win-win situation between ecology, knowledge, and innovation, creating synergies between economy, society, and democracy (Sumarto et al., 2020). Penta Helix is an innovation model that can overcome the existing global warming challenges by applying knowledge and knowledge because it focuses on social exchange and knowledge exchange within a particular country or country subsystem (Yasir et al., 2021).

Penta Helix combines knowledge and natural environmental systems into an interdisciplinary and transdisciplinary framework that can provide a step-by-step model for understanding effective development quality-based management, restoring balance with nature, and letting future generations have a life of plurality and diversity on earth (Chamidah et al., 2021; Yasir et al., 2021). In short, the Penta Helix provides a suitable model in theory and practice that is offered to society to comprehend the nexus between knowledge and innovation, to shape sustainable development. The Pentahelix model is the first to initiate orchestration and ensures the quality of activities, facilities, services, and to promote experiences and value for tourism advantages for community and the environment. Therefore, it is necessary to encourage the tourism system through optimizing the role of business, government, community, academic, and media (Figure 2).



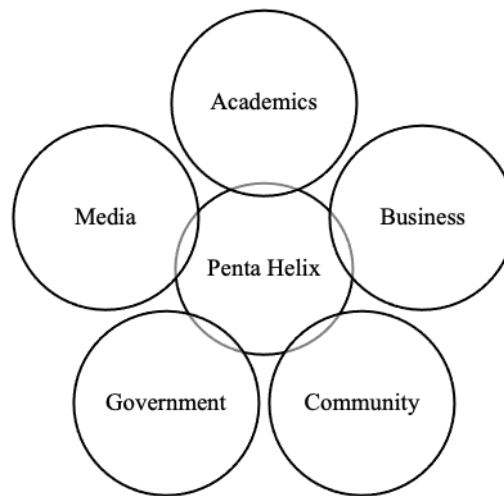


Figure 2. Penta helix Model for Geopark Development

In this case, the development process can be carried out by the campus, where the campus brings together the other four pillars, namely the government as a tourism regulator and facilitator, tourism business companies, tourism industry associations, and the media. In this case, the campus uses information from business actors, industrial associations, and the government as study material and disseminates the results of the study to the other four pillars. Meanwhile, the government formulates policies by taking into account the results of campus studies and feedback from the other three pillars. The same applies to business actors and industry associations, where they provide feedback to the government and provide information for campus research, as well as implement policies and study results. Furthermore, mass media moves to all pillars in absorbing and disseminating information. Thus, it is hoped that the interests of stakeholders can be adequately met, and the tourism industry can move in a positive direction. Based on the chart above, it can be seen that the types of relationships that exist between stakeholders in the Geopark Tourism development program vary. In accordance with the relationship and role that Academics, Community, Business, Academics as drafters have a coordinating relationship with business and community. This is due to the minimal sharing of resources with a moderate time commitment. In detail, the role of each party is provided in Table 1.



Table 1. The collaboration model for Geotourism Development

Academics	Government	Business	Community	Media
1. Provide tourism directions, policies and regulation	1. Designers , planners and guides, policies, strategies and regulations	1. Tourism service provider	1. Tourism industry operator	1. Accelerate the delivery of tourism information
2. Quality Tourism human resources	2. Tourism zoning planner	2. Investor s and implementers of tourism investment	2. Keeper s of activity conducive tourism industry	2. Covering and informing stakeholders
3. Analysis of tourism concepts, programs and strategies	3. Providers and developers of tourism infrastructure and access	3. Create markets, services, and jobs	3. Social controller in implementation of the tourism industry	3. Educational facilities for the community
4. Provider of tourism consulting services for the government, industry and the community.	4. Law enforcement, rules and regulations.	4. Forming tourism communities and entrepreneurs	4. Engage in planning, management and decision making and evaluation of tourism development	4. Channels for feedback and interaction between stakeholders
5. Provide tourism human resources according to societal needs, industrial/business needs and professional needs	5. Creating a conducive climate for tourism business development.	5. Enhance and development program	5. Explore and preserve tourism by developing local culture and the environment	5. Providing tourism information and promotion

4 CONCLUSION

This study aims to examine the strategies issues existing in the development of Batur Global Geopark in Indonesia and propose a Penta helix model for the enhancement of Geotourism as well as improving local economic welfare. The findings indicated that some issues are essential in the development, such as management, coordination, collaboration among parties. Therefore, the Penta helix model proposed can be used to develop the Geotourism that can be expected to drive community welfare. This study provides implications for government, local community and entrepreneurs to develop the tourism site by considering the findings of this paper. In the model, it can collaborate with





many parties, including academics, business, government, community, and media. However, this study facets a limitation in the geographical location in one area that can further be enlarged to other Geoparks in Indonesia and other countries to gain a comprehensive understanding of the phenomenon.

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