

Group of Community-Based Tourism Awareness (Pokdarwis) Strategies in Addressing Conflicts in Utilization and Conservation of the Environment

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Abstract

The use of natural resources is very prone to conflict because of the friction between economic motives (utility) and conservation motives (protection). This potential conflict also occurs in the use of Mount Sewu UNESCO Global Geopark where the main development is through the tourism sector. This research aims to find out the strategies of the people who are members of the Tourism Awareness Group (Pokdarwis) in dealing with potential conflicts over use and environmental conservation in the Gunung Sewu UNESCO Global Geopark area. This research is a qualitative study with a descriptive approach. The locations of this research are in Gunungkidul Regency, namely the Nglanggeran Ancient Volcano Geosite, the Pindul Cave Geosite, and the Siung Beach Geosite. This area was chosen as a representation of 2 (two) other districts in the Gunung Sewu UNESCO Global Geopark area, namely Wonogiri District and Pacitan District. In this research, researchers used participatory observation where data was collected through observation and sensing where the observer or researcher was truly involved in the respondent's daily life. The results of this research show that there is physical and non-physical damage as a result of the use of geoparks in the tourism sector. Physical damage includes damage to karst rocks, soil erosion, damage to vegetation, decreased water absorption capacity, pollution of rivers and seas, and vandalism. While non-physical damage includes economic inequality and social conflict. As a response to this damage, Pokdarwis adopted strategies and policies, including holding environmental cleanup work, building tourist attractions with environmentally friendly materials, installing signs calling for environmental cleanliness, limiting the number of tourist operators, managing waste in an integrated manner, building alternative tourist attractions, and forbid investors from entering. Based on a literature review, these strategies are classified as grassroots innovations. This research also strengthens the theory that community participation or empowerment is one of the best strategies in dealing with conflicts over environmental use and conservation.

Keywords

Community-Based Tourism; Natural Resources; Conservation

INTRODUCTION

The utilization of natural resources is highly prone to conflict. On the one hand, natural resources represent potential assets that can be economically exploited;

however, on the other hand, such utilization carries the risk of damaging the environment and even endangering humans. Mismanagement in utilizing natural attractions for tourism purposes

beyond their maximum sustainable limit, driven by the pursuit of maximal profit over time, can lead to the deterioration of the appeal of these natural attractions (Pujani & Sanjiwani, 2017). In the context of tourism, Kort *et al.* (2002) argue that, in reality, it is only possible to envision any tourism activity being developed and operated with a concurrent reduction in the quantity and quality of natural resources. The phrase "reducing the quantity of natural resources" can be interpreted as environmental damage from exploiting the tourism sector. Tensions and conflicts of interest persist between endeavors to exploit natural resources, often motivated by economic utility, and efforts to protect these resources for conservation purposes. Kort *et al.* (2002) further contend that "any kind of tourism reduces environmental quality"; in essence, all types of tourism contribute to diminishing environmental quality. Beyond the utilization of natural resources, conflicts can also arise from competition for control over these resources, stemming from their limited availability on Earth. Environmental conflicts exhibit complex dimensions involving interests among development sectors and stakeholders (Baiquni & Rijanta, 2007).

The potential for conflict and environmental damage also arises in utilizing the Gunung Sewu UNESCO Global Geopark, primarily through tourism. On the one hand, the Gunung Sewu UNESCO Global Geopark holds economic potential that can be harnessed to improve the welfare of residents in this region, which is known for its poverty. On the other hand, this area is designated as a world heritage site, demanding protection and preservation. As geosites within the park are employed as tourist destinations, residents naturally seek economic benefits from the influx of tourists. Consequently, there is competition to establish supporting

facilities for tourists, including parking lots, eateries, accommodations, bathrooms, convenience stores, souvenir shops, and more. The construction of these facilities often needs more control in quantity, and the buildings erected are generally poorly conceived or planned, posing potential harm to the environment both in the short and long term. To preempt the emergence of environmental conflicts, communities are tasked with striking a balance between conserving the geopark as a world heritage site on the one hand and utilizing it through the tourism sector to enhance the welfare of residents on the other. This paper presents research results on how local communities respond to environmental damage caused by the utilization of the tourism sector. Such conflicts are prone to arise in environmentally-based tourist attractions or those that "sell" nature, such as beaches, mountains, caves, waterfalls, and so forth.

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), a global organization focusing on education, science, and culture, a geopark is an area with remarkable geological phenomena encompassing geological and archaeological, ecological, and cultural aspects. The geopark concept, introduced by UNESCO in the early 2000s, was followed up in 2004 with the establishment of the Global Geopark Network (GGN). The Global Geopark Network, under the auspices of UNESCO and formed in 2001, aims to seek and promote the conservation of geological heritage while encouraging sustainable research and development within communities (Amelia, 2015). Gunung Sewu, formerly known as the Thousand Hills, is a hilly area stretching from west to east between Parangtritis Beach in southern Yogyakarta and Pacitan Bay (East Java). Geographically, Gunung Sewu is located between 60°10' to 60°30' S

and 99°35' to 100°0' E. The Gunung Sewu Karst region covers an area of approximately 1,300 km², extending for 85 km (west to east) with a width ranging from 10 km to 29 km (north to south) (Haryono et al., 2017). The name "Gunung Sewu" literally translates to a thousand mountains, whereas "sewu" in the Javanese language means a thousand.' In Javanese culture, the number "sewu" signifies 'many' or 'countless,' as the actual number of mountains or hills in the area amounts to about 40,000 hills (Parno, 2018). The Gunung Sewu Geopark comprises 33 sites (geosites), including 30 geological sites and three outstanding non-geological sites spread across three geo-areas: Gunungkidul Regency with 13 geosites, Wonogiri Regency with seven geosites, and Pacitan Regency with 13 geosites. Most of these geological sites have been developed into tourist attractions managed by local communities.

The term "conflict" etymologically derives from the Latin roots "con," meaning together, and "fligere," meaning collision or clash. Thus, in social life, "conflict" denotes a collision of interests, desires, opinions, and so forth involving at least two or more parties (Mulyadi, 2012). In daily life, conflict is considered inevitable at any time and in any place (Chandra, 1992). From this definition, conflict is a social process inherent in community life, inseparable from everyday interactions between two or more individuals. This is because no individual exists in isolation as a singular entity in their life. Humans are social creatures who inherently rely on others for survival. Therefore, conflict becomes an unavoidable reality. However, the intensity and complexity of these conflicts vary depending on the level and relationships of the parties involved. This complexity is often linked to the number of parties in

conflict and their engagement in conflict resolution at different levels.

RESEARCH METHOD

This research employs a qualitative approach with a descriptive orientation. According to Bogdan and Taylor (1975), as cited in Moleong (2011), qualitative research is a procedure that generates descriptive data in the form of written or spoken words from individuals and observable behaviours. The results of this research aim to describe the facts and phenomena related to potential environmental damage resulting from the utilization of geoparks in the tourism sector, as well as how the government and communities respond to these challenges. The research is conducted in Gunungkidul Regency, specifically at the Nglanggeran Ancient Volcano Geosite, Pindul Cave Geosite, and Siung Beach Geosite. This area was chosen to represent the two other regencies within the Gunung Sewu UNESCO Global Geopark area, namely Wonogiri Regency and Pacitan Regency. Gunungkidul Regency holds the most significant area within the Gunung Sewu UNESCO Global Geopark, boasting the highest number of sites (13 sites) and the most significant influx of tourists compared to the other two regencies. These factors indicate a more developed tourism sector in Gunungkidul Regency, along with the highest incorporation of geopark concepts in regional policies.

The data in this research is classified into two categories: primary data and secondary data. Primary data are obtained through in-depth interviews, while secondary data are sourced from avenues other than the primary source and used to gather information addressing the research problem (Sarwono, 2006). In this study, the researcher employs participatory observation, a data collection method used to gather research data through observation

and sensory perception, where the observer or researcher actively engages in the daily lives of respondents. The research unfolds in three stages. Initially, the researcher acts as a visitor or tourist. Subsequently, in the second stage, the researcher actively participates in community activities or tourism operations, such as environmental cleanup activities. Finally, in the third stage, the researcher conducts observations accompanied by informants. Additionally, the researcher utilizes in-depth interview techniques. This method is chosen because the researcher seeks comprehensive and in-depth information regarding the attitudes, perspectives, and knowledge of respondents on the research topic. The procedure involves contacting selected informants, determining the time and place for interviews, and conducting the interviews. In this research, some interviews were conducted more than once, either due to situational conditions or because the required information was deemed insufficient. The informants interviewed in this research include the Managers of the Gunung Sewu UNESCO Global Geopark, the Head of the Tourism Office of Gunungkidul Regency, the Head of the Environmental Agency of Gunungkidul Regency, the Chairpersons of the Tourism Awareness Groups (Pokdarwis) of Nglanggeran Ancient Volcano Geosite, Siung Beach Geosite, and Pindul Cave Geosite, the Heads of Nglanggeran Village (Nglanggeran Ancient Volcano Geosite), Bejiharjo Village (Pindul Cave Geosite), Purwodadi Village (Siung Beach Geosite), and the Chairperson of the Garden Beach Tourist Attraction at Siung Beach Geosite.

A characteristic of qualitative research is its inseparability from the role of humans as research instruments, where researchers actively shape the scenario (Moleong, 2005). In this research, the researcher actively

participates in the data collection process, conducting observations, interviews, and documentation/literature studies on the potential environmental damage due to the utilization of the Gunung Sewu Geopark and how the government and communities respond to it. The data or information obtained is then processed and analyzed to enhance understanding, and conclusions are drawn. Data obtained from literature studies on geopark policy conflicts will be analyzed using content analysis techniques. This involves comparing the content of preservation and development policies of the Gunung Sewu UNESCO Global Geopark to identify conflicts, inconsistencies, or asynchronies that may arise. In general, this research adopts the interactive analysis model of Miles & Huberman (2007), which involves several stages: data collection, data reduction, data display, and conclusion drawing or verification.

RESULTS AND DISCUSSION

The environment is defined as a spatial unit comprising all objects, forces, conditions, and living beings, including humans and their behaviours. These elements collectively impact nature, the continuity of life, and the well-being of humans and other living beings (Law of the Republic of Indonesia Number 32 Year 2009 concerning Environmental Protection and Management, 2009). Amsyari (1977) broadly categorizes the human environment into three categories: (1) Physical environment, encompassing inanimate objects such as houses, vehicles, mountains, air, sunlight, and more; (2) Biological environment, covering other living organisms besides humans, including animals, plants, plankton, and others, and (3) Social environment, involving other humans in the surroundings such as neighbours, friends, and others. In the

interaction with nature and other humans, individuals are influenced by various economic, cultural, political, and other conditions. This leads to the concept that the social environment has a broad scope, encompassing all non-physical aspects of that environment. The data obtained in this study were analyzed based on relevant theories related to environmental damage, including both physical (natural) and non-physical (social) environments. The discussion will commence with an exploration of potential environmental damage at the research site and the strategies undertaken by related parties in response to this environmental damage.

Physical Environmental Damage

Based on observations and interviews with several informants in the Geosite Gunung Api Purba Nglanggeran (GGAPN), Geosite Gua Pindul, and Geosite Pantai Siung areas, the following are environmental damages due to tourism activities:

Karst Rock Damage

Karst rock damage has been identified at three research locations. Primarily, the damage to karst rocks in these geosites is attributed to the construction process of permanent facilities serving as complementary amenities for tourist attractions, such as eateries, accommodations, convenience stores, and toilet buildings. The construction involves several stages, including excavation for building foundations, levelling and/or smoothing areas for future floors, and loosening and/or smoothing spaces for the construction of these buildings. Activities encompass pounding, drilling, and cutting of karst rocks, causing an enlargement of the pores within the existing karst rocks. The enlargement of these pores enhances the potential for absorbing substances resulting

from the activities of geosite visitors. If these substances or small materials infiltrate and accumulate within the karst rocks, the likelihood of their spreading to various geosite areas becomes more pronounced, mainly through underground river channels.

The construction of permanent facilities also induces alterations in the spatial configuration of the Gunung Sewu Geopark area. In a study titled "The Influence of Tourism on Spatial Changes in Geopark Areas (Case Study of Gunungsewu Geopark, Gunung Kidul Regency)," Vitrianto (2022) observed that the geopark tourism space constitutes a geological tourism space characterized by changes in semi-fixed elements, influenced by non-fixed elements due to the attraction of fixed elements. The development of non-fixed elements is propelled by aspects of tourism development. According to Rapoport (1982), as cited in Sativa et al. (2017), fixed elements encompass stable spatial elements that undergo minimal shift or change in shape, such as roads, buildings, cliffs, and others. Semi-fixed elements are semi-permanent physical elements with a degree of mobility, including parked vehicles, household furniture, relatively small rocks, sand, and others. Non-fixed elements pertain to humans engaging in activities within a space directly linked to their behaviour, which is inherently dynamic and subject to change.

Soil and Karst Rock Erosion

Rock erosion refers to a change in the structure or formation of rocks induced by both human and natural factors. One human-related cause is limestone mining or the extraction of these stones. Fundamentally, the erosion observed on karst rocks at the research site carries the potential to disrupt the karstification process and contribute to soil erosion. This

occurs as karst rocks, acting as retainers, diminish, ultimately posing a risk of flooding. While natural phenomena like the force of wind waves or falling trees can naturally cause the erosion or displacement of certain rocks from their original locations, human actions such as deliberate tree felling can also trigger or exacerbate this erosion.

Vegetation Damage

Vegetation damage is predominantly observed at the Gua Pindul Geosite. Despite the relatively thin soil layer in this area, the vegetation is remarkably diverse. As per Surya (2016), there are at least 31 types of vegetation thriving in this region, ranging from woody vegetation to plants with medicinal uses, such as mahogany and eucalyptus. Vulnerability to damage is higher for vegetation with heights of 2 (two) meters or less compared to woody vegetation. The forms of damage typically result from the actions of site visitors, including trampling, crashing, picking, and cutting off vegetation. Even robust trees, like teak, mahogany, and breadfruit, are prone to disturbances through scratching or incising actions on their trunks. In a broader context, damage to vegetation holds the potential to disrupt cave habitats, consequently impacting conservation and environmental preservation efforts.

Vegetation damage is a widespread issue, as evidenced in Priyanto's (2016) study on the utilization of areas as tourist attractions in Karimun Jawa. Priyadi highlighted that illegal logging and tree cutting are significant contributors to vegetation damage, often undertaken to expand new tourist areas and cater to the growing needs of incoming tourists. It is important to note that vegetation damage is not solely attributed to human factors, such as tourists, but also influenced by other factors like nature, livestock, invasive species, pests, and diseases. Given this

multifaceted context, management factors play a critical role in conservation efforts, encompassing planning, protection, conservation, utilization, and function suitability evaluation. Field observations suggest that the management of the Gua Pindul Geosite has yet to be fully optimized. This observation aligns with the findings of Khairurrahman's (2021) study, which indicates that the effectiveness of area management is relatively low, with a value of 59.78%.

Decreased Water Absorption Capacity

The decrease in groundwater absorption levels due to permanent buildings covering the ground surface is one of the causes of floods. The permanent facilities built also have an impact on reducing the quantity of open karst land. Land that was initially free to be watered and to absorb water becomes constrained due to roofs, walls, floors, and building foundations that cannot be penetrated by water maximally. Rainwater that originally irrigated those places now flows quickly to lower places without buildings. The heavy rainfall that flows down lacks areas for absorption, leading to puddles in lower areas and triggering floods. Ironically, the karst land beneath the buildings, which used to absorb rainwater and slow down its transition, has now turned into dry land even though heavy rain pours outside the permanent building space. In addition to water absorption capacity, water quality also decreases, with water flowing inside caves becoming cloudy and dirty due to the activities of numerous visitors. The decrease in water quality was observed based on field observations. This is also in line with secondary data findings, namely the study by Khrisnamurti et al. (2016), which concluded that the utilization of an area for tourism purposes, in this case, the research location on Pulau Tidung, leads to a decline

in water quality on the island. Alongside the decline in water quality, the impact of such utilization includes an increase in waste pollution, resulting in visible changes to the island.

Contamination of Rivers and Seawater

This damage primarily occurs at the Siung Beach Geosite. As a tourist destination, various businesses and service providers emerge to facilitate visitors, including bathroom services. The bathroom service industry has proliferated in response to the increasing number of tourists. Typically, visitors come to enjoy the beach and engage in water activities, resulting in them getting wet and often requiring bathroom services to clean themselves and change clothes. Based on observations and interviews, it is evident that the bathroom service industry leaves a negative impact, namely environmental pollution of rivers and the sea, due to liquid waste from the bathrooms being directly discharged into the river that flows into the sea.

The disposal of liquid waste into the river, which eventually reaches the sea, indicates a need for proper planning by bathroom service providers, especially in the management of Siung Beach utilization in general. This aligns with Hall's (2000) research that evaluates the components, issues, and outcomes of the five dimensions of the relationship between the environment and tourism. In his study, Hall states that poor tourism planning and management can significantly impact environmental degradation. Similarly, Kort et al. (2002) suggest that tourism investments must address environmental aspects because, in reality, tourism can only be developed by reducing the quantity of natural resources. In the context of water pollution, environmental impact planning

in the Siung Beach Geosite area should be improved.

Vandalism

Vandalism is an act that disturbs or damages various physical and artificial objects, whether they are private property, facilities, or public property. Vandalism involves defacement or destruction that attracts attention and is carried out as an expression of anger, creativity, or both (Kim & Bruchman, 2005, as cited in Prayogo et al., 2021). According to the Kamus Besar Bahasa Indonesia (Indonesian Dictionary, Compiler, 2008),, vandalism is the act of damaging and destroying works of art and other valuable items (natural beauty, so forth.). Vandalism, often referred to as graffiti, involves scribbling using writing tools or other instruments such as knives and other sharp objects. Based on field observations, vandalism has been found on several cliffs at the Nglanggeran Ancient Volcano Geosite and Siung Beach Geosite.

Non-Physical Environmental Damage

Economic Disparity

The opening of geosite areas as tourist attractions has attracted the local population to shift professions in the surrounding areas. Previously, they were farmers and even youth and mothers without livelihoods; they have now become traders, parking attendants, tour guides, and so forth. The existence of these tourist attractions provides direct economic benefits to the local population, especially those living near the attractions. If previously only the head of the family (father or husband) worked, now the wife and children also generate income. With the increase in income, the economic condition of these families also improves. However, this has led to social inequality because not all residents can partake in these economic benefits, especially those living far from the

geosite areas. Although there have not been open conflicts so far, based on informant data, there are indications of social inequality. One of the causes of social inequality is the varying income received.

Economic disparity is evident in three research areas. Based on field observations, those who benefit from the utilization of geosites as tourist attractions are residents who live not far from these sites. In the Nglanggeran Ancient Volcano Geosite, those involved generally come from the Nglanggeran village. Similarly, at the Gua Pindul Geosite, residents of the Bejiharjo village are the primary beneficiaries. Meanwhile, at the Siung Beach Geosite, only residents of Dusun Duwet generally enjoy economic growth, as most tourism operators and fishermen on this beach come from that hamlet. This social disparity can be observed in the form of better houses among the residents of Dusun Duwet compared to other hamlets in the Purwodadi village. The number of good houses in Dusun Duwet is significantly higher than in other hamlets. This economic disparity gradually has the potential to lead to social conflicts. This notion has been conveyed long ago by Karl Marx in his famous book *Das Kapital*, stating that economic inequality is the root of social conflict. The research findings of Perrotta & Pieroni (2018) conclude that economic inequality and social conflict in Sub-Saharan Africa affect the levels of social conflict and violence in the region. This is supported by the study of Esteban & Ray (1999), which suggests that economic inequality can influence the level of conflict and wealth distribution.

Social Conflict

The transformation of geosites into tourist attractions has triggered a flurry of activities for many members of the local community in these areas. From the general

management activities of the geosites to various income-generating activities, such as trading goods and/or services. These activities have become a significant factor causing strains in social relations within the local community. Initially, close social relationships among community members have experienced strains due to the reduced intensity of their togetherness in daily activities. Those engaged in the tourism sector often reduce the time they spend with other community members, prioritizing reasons related to their perceived busyness. Although there have not been open conflicts, according to informants, conflicts of interest among residents caused by the opening of geosites as tourist attractions are felt to exist. Local cultural factors prevent these conflicts from surfacing and causing severe problems.

At the Gua Pindul Geosite, social conflicts tend to escalate into open conflicts involving various parties, not only among the residents of Bejiharjo Village but even reaching the level of the Regional People's Representative Council (DPRD) and the Regent of Gunungkidul. The conflict involves landowners of Gua Pindul and the local community using it as a tourist attraction. This conflict emerged since the early days of Gua Pindul Geosite becoming a tourist destination and has persisted for a long time; according to informants, it has yet to be entirely resolved to date. Additionally, there are more minor conflicts among the community members, such as disputes over selling land, economic competition among traders triggered by the arrival of traders from outside the area, and others. Most of these conflicts do not escalate into open or physical conflicts but remain as sentiments or discussions behind closed doors. This finding is supported by literature reviews and other research. For example, a study by Wang, D., Li, X. R., & Hu, B. (2016) titled "When Tourism

Encounters Crisis: A Study of Residents' Perceptions in a Conflict" examines the negative impact of tourism during a crisis. The study results show a significant difference in local residents' perceptions of the impact of tourism before and after the crisis. Local residents tend to feel that tourism has a negative impact on their social relationships with tourists and their overall quality of life. However, they also recognize that tourism can bring economic benefits and job opportunities. The study concludes that proper tourism management can help mitigate its negative impact on social relationships and enhance the economic benefits brought by tourism.

One of the causes of social conflict is unhealthy competition among ride operators. This occurs at the Siung Beach Geosite, where different groups of ride operators are distinct from the Tourism Awareness Group (Pokdarwis). Based on observations and interviews, these groups emerge spontaneously, either legally, with the knowledge or permission of the village government or without permission. At least at the time of this research, there were three groups of ride providers, with each group averaging about 25 members. These groups support the completeness of tourism facilities in this geosite. However, in practice, there is competition among these groups to attract customers for the rides they offer. The negative impact of this competition has ignited conflicts among the various ride management groups. Tourists, who initially wanted to enjoy the tourist area without disturbances or persuasion, have become the objects of contention and "enticement" to become customers for a particular ride or service.

Government Strategy or Policy

Efforts to harness geoparks for tourism inevitably intersect with endeavors to preserve the environmental integrity of

these geoparks. This perspective aligns with Kort et al. (2002), who articulate the dilemma faced by the tourism industry. While tourists are attracted to clean environments and robust tourism infrastructure, the industry itself can be a significant polluter in certain regions. Consequently, investments in tourism must conscientiously address environmental aspects, acknowledging that tourism development inherently involves the reduction of natural resources. In this context, the government, as the primary actor in policy formulation, plays a pivotal role in determining the success of policy implementation. The policy of utilizing geoparks in the tourism sector aims to safeguard the natural heritage of these geoparks. However, based on interview results, the government appears to adopt a permissive rather than strict approach in terms of regulations. This leniency is influenced by the government's choice not to directly confront issues, prioritizing the economic interests of the local community. Additionally, the weakness of enforcement instruments, such as a lack of legal authority or a robust legal framework, contributes to this permissiveness. The government acknowledges the limitations of enforcement instruments, and the convoluted policy bureaucracy complicates the ability to curb violations or conflicts arising from policies, resembling what is referred to as a "paper tiger." This phenomenon is consistent with Edward III's theory (in Subarsono, 2011:90-92), which identifies bureaucratic structure as a variable affecting policy implementation. Aspects of organizational structure, including Standard Operating Procedure (SOP) and fragmentation, play a role. An excessively lengthy organizational structure tends to weaken supervision and create red tape—complex bureaucratic procedures that make organizational activities

inflexible. Consequently, the government's efforts are limited to reminders or personal approaches.

In addition to the permissive personal approach, interviews with several informants indicate that the government's strategy to develop tourism while preserving the environment incorporates the use of technology. Technology serves as a pragmatic solution to address policy conflicts between utilization and environmental preservation in the Gunung Sewu UNESCO Global Geopark area. Policies related to construction in karst areas can be effectively managed using existing or developed technology to design the structure and strength of buildings. As a party serving various interests, the government must seek technological solutions to accommodate these interests, as differences in interests often underlie conflicts (Pruitt & Rubin, 2004). Lim & Kwon's (2020) research reveals that interest conflicts dominated policy conflicts that occurred in South Korea from 1948 to 2014. One example of compromise and permissive attitudes is related to the development models adopted by the community.

Community Strategy or Policy

In addition to the government, the communities residing around the geosites used as tourist attractions also play a significant role in responding to environmental damage. Typically, these responses manifest in the form of strategies or innovations aimed at reducing or anticipating further environmental damage. The policy innovations adopted by communities fall into the category of grassroots innovations. According to Blake and Garzon (2012), as cited in Hossain (2016), grassroots innovations represent a bottom-up approach primarily led by local communities or non-profit organizations,

differentiating them from conventional top-down approaches. Grassroots innovations originate from the local community or non-governmental organizations, embodying social inclusiveness and environmental friendliness, as highlighted by Lakitan (2017). These innovations are based on local knowledge and consider the capacity of local communities, making them easily adaptable solutions. Local communities possess knowledge and experience in their areas, understanding the realities of local issues and identifying suitable, affordable innovations believed to succeed. The findings on policy innovations in this study align with the four grassroots innovation parameters proposed by Lakitan (2017), including (1) initiators being individuals or the community itself, (2) development processes involving direct experience through trial and error systems, (3) content relating to the potential of local resources, and (4) targets being local communities within a narrow scope.

After observation and interviews, many efforts to preserve the environment in the geosite areas utilized for tourism were found. These policies were adopted, implemented, and evaluated by both the government and the communities. The efforts include:

1. Regular environmental cleanup campaigns.
2. Building tourist facilities using environmentally friendly materials such as wood and bamboo.
3. Constructing tourist facilities without damaging rocks.
4. Utilizing organic waste as animal feed.
5. Waste management policies by Village-Owned Enterprises (Bumdes).
6. Anticipating visitors from littering by placing magical objects (incense, flowers).

7. Installing additional attractive informational boards made from natural materials.
8. Restricting visitors on certain days.
9. Limiting the number of visitors.
10. Creating alternative tourism activities.
11. Developing alternative tourist attractions.
12. Restricting the number of tourism operators.
13. Prohibiting investors from entering.
14. Issuing warnings against selling land.
15. Installing information boards in houses used as homestays.
16. Using technology in physical development to avoid environmental damage.
17. Tree planting policies.

This research identified several common strategies among the three geosites, showcasing shared approaches in responding to environmental challenges. These strategies include conducting environmental cleanup campaigns with the participation of all tourism stakeholders, constructing tourist facilities (such as huts and selfie spots) using environmentally friendly materials, installing signs to promote and maintain environmental cleanliness, and regulating the number of tourism operators. Furthermore, there are strategies found in two geosites, such as integrated waste management involving Village-Owned Enterprises (Bumdes), limiting the number of visitors (though its effectiveness may be limited in practice), creating or providing alternative tourist attractions to disperse tourists and prevent concentration in one area, and prohibiting investors from entering. The presence of these shared and similar strategies suggests that when facing common problems, geosites may adopt comparable solutions or strategies.

In addition to the strategies mentioned earlier, literature studies reveal that the

concept of geopark management in the tourism sector emphasizes community empowerment. This concept is outlined in the Regulation of the Minister of Tourism and Creative Economy/Head of the Tourism and Creative Economy Agency Number 2 of 2020 concerning Technical Guidelines for Geopark Development as Tourism Destinations. According to this regulation, geoparks as tourism destinations are designed not only to promote conservation efforts of geological, biological, and cultural diversity but also to foster the economic growth of communities and regions through community empowerment (Ministry of Tourism and Creative Economy/Head of the Tourism and Creative Economy Agency, 2020). Community empowerment in geopark areas is facilitated with the stipulation that communities and/or community groups must actively participate in all activities during the planning, management, and supervision stages of geopark development as tourism destinations. These communities become integral parts of the Geopark Management Organization. The involvement of community groups is organized within a framework known as Tourism Awareness Groups (Pokdarwis), typically led by local community leaders. Based on observations and interviews, it is evident that Pokdarwis, in the research area, has been actively engaged in various dynamics within the geopark area.

The critical role of community empowerment in sustainable tourism management is conveyed by several experts through theories and research findings. One of them is Hall (2000), who stated that community participation is one component of sustainable tourism. Although the concept of 'participation' is quite broad, where empowerment is one of its forms. The 'community' context, according to Hall, holds strength in terms of spatial proximity,

social cohesion, collective interaction, and values. This is beneficial when potential and competition arise, as stated by Hall (2000) as follows:

“Community has long been recognized as an ambivalent concept, encompassing notions of spatial contiguity, social cohesion, interaction, shared aspirations, and values. Nevertheless, it also tends to be employed implicitly in a consensual sense, even when potential conflict and competition, particularly in relation to the power relations involved in decision-making processes, are the reality of place-based (and non-place-based) social relations”.

The concept of community empowerment in geopark management is not only based on the Regulation of the Minister of Tourism and Creative Economy/Head of the Tourism and Creative Economy Agency Number 2 of 2020 concerning the Technical Guidelines for the Development of Geoparks as Tourism Destinations but also on various studies including Čtveráková et al. (2016), Halim & Ishak (2017), Ciobanu (2016), and Han et al. (2018). According to Čtveráková et al. (2016), the geopark and the community in the geopark area are a unified entity with a deep relationship and serve as social capital, making the role of the local community crucial. Local actors must stimulate the interest and motivation of the local population to participate in geopark development activities. Halim & Ishak (2017) add that:

“Strengthening local community engagement through active participation is pertinent to ensure the success of geopark implementation. It is pertinent that the local community are engaged in activities that would strengthen their

sense of belonging as local custodians towards promoting sustainable resource utilization in balancing conservation with development”.

Strengthening active participation and empowering local communities are pivotal for the successful implementation of geoparks. Involving local communities in various activities related to the geopark fosters a sense of ownership, promoting a balanced approach to conservation efforts and development. Empowering local communities, considering their tangible and intangible cultural aspects, can serve as a model for regional development (Ciobanu, 2016). As noted by Han et al. (2018), a sense of pride emerges among local communities when they are actively involved and empowered, contributing significantly to the protection of the geopark environment. In conclusion, grassroots innovations emerge as a viable solution to conflicts between utilization and preservation in the Gunung Sewu UNESCO Global Geopark area. Community empowerment stands as the lifeblood or fundamental principle underlying these strategies.

CONCLUSION

The utilization of natural resources is fraught with conflict, as economic potential clashes with environmental preservation. While natural resources hold economic promise, their exploitation can pose threats to the environment and human safety. Conflicts of interest arise, driven by the economic utility of resource utilization conflicting with conservation motives. This study reveals that local communities organized within Tourism Awareness Groups or Pokdarwis are active when confronted with environmental threats. They actively employ strategies to anticipate environmental damage, particularly emphasizing environmental

cleanliness. This research makes valuable contributions to the development of theories related to geopark utilization in tourism and community empowerment approaches. It challenges the conventional notion of the government as the sole commanding authority, portraying it instead as a conductor guiding and accompanying communities in determining appropriate and effective policies. When conflicts surface between resource utilization and environmental conservation, local communities, facilitated by Tourism Awareness Groups (Pokdarwis), devise innovative policy strategies. These community-driven strategies prove effective in mitigating conflicts and proactively addressing further environmental damage resulting from tourism utilization.

REFERENCES

- Amelia, D. F. (2015). Upaya Pemerintah Indonesia Menjadikan Kawasan Gunung Sewu sebagai UNESCO Global Geopark Network (GGN) Tahun 2013-2015. *JOM FISIP*, 3(2), 1–14.
- Amsyari, F. (1977). Prinsip Prinsip Masalah Pencemaran Lingkungan. Ghalia Indonesia.
- Baiquni, M., & Rijanta, R. (2007). Konflik pengelolaan lingkungan dan sumberdaya dalam era otonomi dan transisi masyarakat. *Bumi Lestari Journal of Environment*, 7(1).
- Chandra, R. I. (1992). Konflik Dalam Hidup Sehari-hari (P. Kanisius (ed.)).
- Ciobanu, C. (2016). Space and Time Perception and the Geopark's Communities. From Mythical Geography to Heritage Interpretation. *International Review of Social Research*, 6(2), 98–106.
- Čtveráková, I., Fialová, D., Kučera, Z., & Chromý, P. (2016). Barriers in functioning of czech geoparks in the context of different circumstances. *Acta Universitatis Carolinae, Geographica*, 51(2), 235–246.
- Halim, S. A., & Ishak, N. A. (2017). Examining community engagement in heritage conservation through geopark experiences from the Asia Pacific region. *Journal of Malaysian Studies*, 35, 11–38.
- Hall, D. R. (2000). Evaluating the Tourism – Environment Relationship: Central and East European Experiences. *Environment and Planning B: Planning and Design*, 27(3), 411–421.
- Han, J., Wu, F., Tian, M., & Li, W. (2018). From Geopark to Sustainable Development: Heritage Conservation and Geotourism Promotion in the Huangshan UNESCO Global Geopark (China). *Geoheritage*, 10(1), 79–91.
- Haryono, E., Barianto, D. H., & Cahyadi, A. (2017). Hidrogeologi Kawasan Karst Gunungsewu: Panduan Lapangan Fieldtrip PAAI 2017. *Pekan Ilmiah Tahunan Ahli Airtanah Indonesia, December 2018*, 1–33.
- Hossain, M. (2016). Grassroots innovation: A systematic review of two decades of research. *Journal of Cleaner Production*, 137(September 2015), 973–981.
- Khairurrahman, M. R. (2021). Efektivitas Pengelolaan Kawasan Karst Gunung Sewu Geopark Kabupaten Gunungkidul [Universitas Gadjah Mada].
- Kementerian Pariwisata dan Ekonomi Kreatif/Kepala Badan Pariwisata dan Ekonomi. (2020). Peraturan Menteri Pariwisata dan Ekonomi Kreatif/Kepala Badan Pariwisata dan Ekonomi Kreatif Republik Indonesia Nomor 2 Tahun 2020 Tentang Pedoman Teknik Pengembangan Geopark Sebagai Destinasi Pariwisata.
- Khrisnamurti, Utami, H., & Darmawan, R. (2016). Dampak Pariwisata Terhadap Lingkungan di Pulau Tidung,

- Kepulauan Seribu. *Jurnal Kajian*, 21(3), 257–273.
- Kort, P. M., Greiner, A., Feichtinger, G., Haunschmied, J. L., Novak, A., & Hartl, R. F. (2002). Environmental effects of tourism industry investments: an inter-temporal trade-off. *Optimal Control Applications and Methods*, 23(1), 1–19.
- Lakitan, B. (2017). Inovasi Akar-Rumput dan Teknologi Tepat Guna sebagai Pengungkit Ekonomi Kerakyatan. Prosiding Semiloka Grassroots Innovation 2016: Peran Inovasi Akar Rumput Dalam Meningkatkan Kapasitas Dan Daya Saing UKM, April 2017, 18–36.
- Lim, D. J., & Kwon, K. D. (2020). Policy conflicts and factors affecting conflict resolution in South Korea: Trends from the Korean public policy conflict database (1948-2014). *International Journal of Conflict Management*, 31(1).
- Miles, M. B., & Huberman, A. M. (2007). *Qualitative Data Analysis*. Universitas Indonesia.
- Moleong, L. J. (2005). *Metodologi Penelitian Kualitatif*, Bandung: PT. Remaja Rosdakarya.
- Moleong, L. J. (2011). *Metodologi Penelitian Kualitatif Edisi Revisi*. PT. Remaja Rosdakarya.
- Mulyadi. (2012). Konflik Sosial Ditinjau Dari Segi Struktur dan Fungsi. In *Humaniora* (Vol. 14, Issue 3, p. 2).
- Parno. (2018). *Gunung Sewu: UNESCO Global Geopark*. Badan Pengembangan dan Pembinaan Bahasa.
- Undang-Undang Republik Indonesia Nomor 32 Tahun 2009 tentang *Perlindungan dan Pengelolaan Lingkungan Hidup*, 110 (2009).
- Penyusun, T. (2008). *Kamus Bahasa Indonesia*. Pusat Bahasa.
- Prayogo, A., Chusniyah, T., & Tantiani, F. (2021). Kepribadian big five sebagai prediktor perilaku vandalisme pada siswa SMAN 02 Batu. *Flourishing Journal*, 1(5), 373–382.
- Priyanto, S. E. (2016). Dampak Perkembangan Pariwisata Minat Khusus Snorkeling Terhadap Lingkungan: Kasus Destinasi Wisata Karimunjawa. *Kepariwisata: Jurnal Ilmiah*, 10(03), 13–28.
- Pruitt, D. G., & Rubin, J. Z. (2004). *Teori Konflik Sosial*. Yayasan Pustaka Pelajar.
- Pujani, L. P. K., & Sanjiwani, P. K. (2017). Eksploitasi Goa Pindul sebagai Speleo Tourism di Gunung Kidul, Yogyakarta. *Jurnal Analisis Pariwisata*, 17(1), 17–23.
- Sarwono, J. (2006). *Metode Penelitian Kuantitatif dan Kualitatif*. Graha Ilmu.
- Sativa, Setiawan, B., Wijono, D., & Adiyanti. (2017). Variasi Seting Fisik Ruang Interaksi Anak Di Kampung Padat Kota Yogyakarta. *INERSIA*, 13(2), 167–177.
- Subarsono, A. (2011). *Analisis Kebijakan Publik (Konsep, Teori dan Aplikasi)*. Pustaka Pelajar.
- Vitrianto, P. N. (2022). Pengaruh Pariwisata terhadap Perubahan Ruang Kawasan Geopark (Studi Kasus Geopark Gunungsewu, Kabupaten Gunung Kidul) [Universitas Gadjah Mada].