

# THE IMPLEMENTATION OF ADAPTIVE CO-MANAGEMENT TOWARDS REVALIDATION PROGRAM: A CASE STUDY IN CILETUH-PALABUHANRATU UNESCO GLOBAL GEOPARK

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## Abstract

This study is aimed to conduct a review about the implementation of Adaptive-Co-Management in Ciletuh-Palabuhanratu UNESCO Global Geopark (CPUGG) in the context of revalidation. The method used in this research is the descriptive qualitative method. The data was collected by conducting observation, interviews, and documentation. Data analysis uses Adaptive Co-Management (ACM) with the following elements: (1) Communication and collaboration. (2) Social learning. (3) Shared rights, responsibilities, and decision-making. (4) Building Adaptive Capacity and Resilience. The results of the study show that the governance of CPUGG with the Pentahelix concept from the aspect of collaboration and communication shows that there is already a division of tasks and responsibilities so that they synergize with each other in regional development. However, by looking at the needs of the region in achieving sustainable tourism, it still requires other elements so that the CPUGG goal of becoming a sustainable area and becoming world-class tourism must add elements of tourists and environmental practitioners.

**Keywords:** Validation, Geopark, Adaptive Co-Management, Ciletuh.

## I. INTRODUCTION

The increasing number of geoparks accepted at GGN led to an astounding number of 127 geoparks in 35 countries in 2017, just 13 years after the geopark was founded [1]. Along with the development of geoparks globally, the attention and support from various world institutions began to join in a network called the Global Geopark Network (GGN). The UNESCO Global Geopark program is a strategic tool for regional development with medium to long-term outcomes [2]. Six geoparks in Indonesia that have been included in the list of UNESCO Global Geoparks program (UGGp) in 2021 are: Batur UGGp, Ciletuh-Palabuhanratu UGGp, Gunung Sewu UGGp, Rinjani-Lombok UGGp, Toba Caldera UGGp, and Belitung UGGp. The Ciletuh-Palabuhanratu Geopark was officially designated at the 204th UNESCO executive council meeting in Paris on April 17, 2018, as the Ciletuh-Palabuhanratu UNESCO Global Geopark. Ciletuh-Palabuhanratu is a UNESCO Global Geopark which is unique, it has the existence of a semi-circular landscape that looks like a horse's tread facing towards Ciletuh Bay with a diameter of more than 15 km, called The Magical of Ciletuh Amphitheater (Figure 1). In the center of the amphitheater, there is the oldest rock outcrop of land that is more than 60 million years in the form of rare rocks originating from the earth's mantle in the form of ophiolite, metaphoric rock, mélange rock, which is formed in the trough (Figure 2).

To ensure the quality of UNESCO Global Geoparks in the International Geoscience and Geoparks Program including the status of each

geopark, it must be thoroughly re-validated every 4 years. Revalidation is important as a form of sustainable tourism development. In 2021 Ciletuh-Palabuhanratu must be re-validated based on the provisions of UNESCO Global Geopark. A sector mission will be carried out by two evaluators to re-validate the quality of the UNESCO Global Geopark, with the following criteria: (1) continuing to meet the criteria that the area will continue as a UNESCO Global Geopark for the next four year period ("green card"), (2) if it does not find the criteria, the geopark will be given 2 years opportunity for repairment ("yellow card"), (3) and if within 2 years it cannot be repaired then the area will lose its status as UNESCO Global Geopark ("red card").

The criteria for management that must be met by geoparks based on validation are UNESCO Global Geopark has a management plan agreed by all relevant stakeholders and partners, which governs the organization and proper functioning of the UNESCO Global Geopark Program as well as the social and economic needs of residents.

Community empowerment is an important aspect of Community Based Tourism. The concept of empowerment applied in Ciletuh-Palabuhharatu as shown in Figure 3 aims to develop insight by involving the community directly and in good cooperation with all stakeholders. The criteria that have been set in UNESCO's validation regarding the involvement of local communities is to clarify the full and effective participation of local communities in planning, implementation, management, and development of geoparks.



FIGURE 1. THE MAGICAL OF CILETUH AMPHITHEATER  
(Source: <https://ciletuhpalabuhanratuug.id/about/Description>)

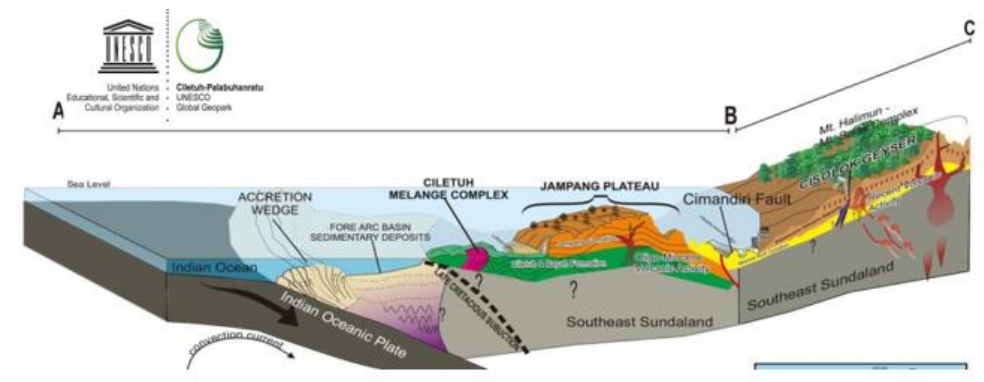


FIGURE 2. THE OLDEST ROCK OUTCROP ON THE MAINLAND OF WEST JAVA  
(Source: BP Kawasan Ciletuh-Palabuhanratu Global Geopark)



FIGURE 3. EMPOWERMENT CONCEPT APPLIED IN CILETUH-PALABUHANRATU  
(Source: Master Plan Ciletuh-Palabuhanratu UNESCO Global Geopark)

The strategies are designed by Ciletuh-Palabuhanratu to achieve these goals are to train people to become tour guides and local interpreters, develop homestays owned by residents, conduct foreign language training, community formation, and development.

Prioritizing the role of local communities is the most effective way to harmonize the tourism environment and the climate there so that the society will get the benefit from tourism. Ciletuh-Palabuhanratu for its implementation of validation has established its institutional concept with the Pentahelix concept. It was prioritizing the involvement of local communities so that they get the benefits. They also formed Ciletuh-Palabuhanratu Management Agency based on the Decree of the Sukabumi Regent Number 7 January 2020 concerning the Ciletuh-Palabuhanratu UNESCO Global Geopark Management Agency. Before being designated as UNESCO Global Geopark, Ciletuh-Palabuhanratu is institutionally located in West Java Province with the Governor as its chairman. However, after the issuance of Presidential Regulation Number 9 of 2019, institutional management was at the Sukabumi Regency level so that the roles and responsibilities at the provincial and national levels weakened. The weakening of the roles and responsibilities of the provincial government has an impact on the performance of the Ciletuh-Palabuhanratu managers who are not optimal. This requires management to regulate the roles and responsibilities of stakeholders as well as community involvement. As stated by Bramwell and Lane [3] stakeholder involvement will strengthen in terms of the environment, human resources, and physical facilities and infrastructure, which are needed to ensure sustainability for future prosperity.

Weakening of the roles and responsibilities at the level of the provincial government has hampered the development of the Ciletuh-Palabuhanratu UNESCO Global Geopark area. It has an impact on the difficulty of improving the local community's economy. The concept of Pentahelix has not run optimally, as evidenced by the lack of participation from local communities in actions and activities. The development of the area which is the starting point for the sustainability of a geopark, can be implemented if the process refers to good tourism governance (Good Tourism Governance/GTG). The formulation of the problem in this study is: How is the management of Ciletuh-Palabuhanratu UNESCO Global Geopark?

Data analysis uses Adaptive Co-Management (ACM) with the following elements: (1) Communication and collaboration. (2) Social learning. (3) Shared rights, responsibilities, and decision-making. (4) Building Adaptive Capacity and Resilience. The results of the study can be input for the Ciletuh-Palabuhanratu UNESCO Global Geopark managers to improve performance through organizational management.

## II. LITERATURE REVIEW AND RESEARCH FRAMEWORK

### A. Revalidation

Revalidation is re-checking the validity of something. Revalidation of UNESCO Global Geopark is re-checking the correctness of some conditions that have been set by UNESCO Global Geopark based on guidelines and criteria issued by UNESCO. To ensure the continuing high quality of UNESCO Global Geoparks within the IGGP, including the quality of the management of each UNESCO Global Geoparks, the status of each UNESCO Global Geopark shall be subject to thorough revalidation every 4 years as follows:

1. One year before the revalidation, a one-page summary of the UNESCO Global Geopark Undergoing revalidation shall be submitted to the UNESCO Secretariat, to be checked and forwarded to the Council.
2. A progress report is prepared by the management body of the UNESCO Global Geopark to undergo revalidation. It is submitted three months before the field inspection of the UNESCO Secretariat through the official channel as defined by the National Commission for UNESCO or the government body in charge of relations with UNESCO involving, as applicable, the National Geopark Committees. The reports should comment on actions taken to address recommendations made after a previous revalidation; they must conform to a template prepared by the Council.
3. The UNESCO Global Geoparks Bureau will send up to two evaluators on a mission to revalidate the quality of the UNESCO Global Geopark. All costs associated with this mission will be paid for by the UNESCO Global Geopark that is subject to revalidation.
4. Additional participants to revalidation missions including representatives of National Geopark Committees may participate as observers and without a role in the compilation of the mission report. Observers will be responsible for funding their participation in the revalidation mission.
5. A report from this mission is submitted to the UNESCO Secretariat for distribution to the Council, to be considered at its annual meeting.
6. If based on this report, the Council considers that UNESCO Global Geopark continues to fulfill the criteria set out in Section 3 of these guidelines, in particular, that the quality and management of the area have improved or at least continues to be satisfactory since designation or last revalidation, it may decide that the area will continue as a UNESCO Global Geopark for a further four-year period (so-called "green card").
7. If based on this report, the Council considers that the UNESCO Global Geopark no longer fulfills the criteria, it may decide to inform the

management body of the UNESCO Global Geopark to take appropriate steps within two years to ensure that the criteria will be met and maintained. In such instances, the status of the area as UNESCO Global Geopark will be renewed only for two years after which a new revalidation report and a new field mission will be undertaken with the same conditions referred to in (ii), (iii), and (iv) above (so-called "yellow card").

8. Should the UNESCO Global Geopark not fulfill the criteria within two years after receiving a "yellow card", the Council will decide as appropriate that the area concerned should lose its status as a UNESCO Global Geopark and all relevant entitlements (so-called "red card").
9. The Council can revoke the status at any time to any UNESCO Global Geopark if that UNESCO Global Geopark is unable, for whatever reason, to undergo the revalidation process according to the rules specified here or if a UNESCO Global Geopark is in clear breach of the criteria of UNESCO Global Geoparks.
10. Should an existing UNESCO Global Geopark wish to change its size, provided that any change amounts to less than 10% of the existing area, then the Council may be informed about the change by a letter through the official channel as defined by the National Commission for UNESCO or the government body in charge of relations with UNESCO to the UNESCO Secretariat involving, if applicable, the National Geoparks Committee outlining the reasons for the change and outlining how the new area still fulfills the criteria for a UNESCO Global Geopark. The Council can approve or reject the change.
11. Should an existing UNESCO Global Geopark wish to change its size, but the proposed change amounts to more than 10% of the existing area, a new application must be made following the procedure described above. The same applies where new international boundaries cross a UNESCO Global Geopark. Such applications are exempt from the restriction on the number of "active" applications per Member State at any one time.
12. All extensions are subject to the intergovernmental check.
13. Decisions of the Council are not open for appeal.

#### *B. Governance*

Governance is a multi-faceted concept supported by both formal and informal relationships between various stakeholder groups (public, private, and other social actors in the system) and systems that influence how stakeholders interact with one another [4]. Governance is also a process by which stakeholders define, implement, and evaluate the rules of their interactions to achieve collective outcomes [5]. Although governance is still a relatively new area of

inquiry in tourism [6] it is gaining increasing attention from researchers and policymakers alike as a holistic destination management approach that can better define and manage relationships between various stakeholders and how stakeholders interact with one another [7]. It is also recognized as important to address sustainable tourism development goals [8]. Governance is a challenging task because the success of a governance approach depends on the extent to which various stakeholder groups can not only establish the relationships but also maintain them all for cooperation and collaboration. When tourism is added to the combination, stakeholder relationships become more complex; it's commonly because some stakeholders are only vaguely aware of what tourism is and how this industry sector affects other stakeholder groups and their interests [4].

The governance system will also determine, for example, how powers and responsibilities are exercised, how decisions are made, how accountability is guaranteed, and how citizens or other stakeholders are allowed to express their opinions [9]. Governance systems should be inclusive, flexible, and adaptive and focus on increasing the involvement of local stakeholders [10].

#### *C. Stakeholders*

One of the main keys to the success and implementation of sustainable tourism development in the community is the support of stakeholders, for example, citizens, entrepreneurs, and community leaders [11]. Stakeholders are a group of people or individuals who can be directly involved in influencing or otherwise being influenced by tourism development policies in a destination [12]. Normatively, it shows that stakeholders have the right to be positioned as goals in the sense that they are not used as tools to achieve goals [13]. Based on this assumption, all stakeholders need to participate in determining the direction of the organization in which they have an interest. Involving stakeholders' decision-making does not have to be equal, but it does require all interests to be identified and understood. Failure to identify the interests of even one major stakeholder group can result in process failure [14]. The analysis of mapping of stakeholders based on the level of interest and influence on a resource is done by: (1) the determination of the stakeholders, (2) classifying the stakeholders, and (3) describing the relationship between the stakeholders [12].

#### *D. Adaptive Co-Management*

Adaptive Co-Management (ACM) is a governance approach that is considered more adaptive, flexible, and inclusive [15]. Widely used in the context of natural resource management, ACM is defined as the process by which "institutional arrangements and ecological knowledge are tested and revised in a dynamic, self-organized and dynamic learning-on-the-job process". ACM was developed in response to the

failure of traditional management approaches to consider multiple stakeholders who could exert influence or be influenced by an organization, as well as the underlying socio-ecological complexities and uncertainties of nature resource context [16]. As a governance paradigm, ACM combines elements of iterative, 'learning by doing', adaptive management elements [17], with a shared management approach that is based on co-owned management together. To share decision-making power between states and resource user communities [18].

A result is an approach that is different and innovative that combines stakeholder participation and action along with learning-based methodologies [19]. Problems in the domain are handled through stakeholder interaction and collaboration which requires sharing of power to negotiate a common vision. The aim is to ensure sustainable use of resources and socio-ecological resilience through a governance approach that combines different perspectives, uncertainties, and complexities [7]. The idea of stakeholder collaboration, participation, and joint decision-making is not new. However, this concept is very important for more broadly governance and has been widely applied both in the context of natural resources and tourism destination management. However, it is the combination of the adaptive and collaborative elements of ACM that is new. According to [7], the general components of adaptive management include complexity, diversity, resilience, adaptive cycle, adaptive capacity, and learning by doing. All of these elements can be seen to support the ACM approach. For example, socio-ecological systems are complex and uncertain and it is not uncommon for individuals or organizations to have the necessary expertise to properly manage such systems [16] and it is therefore recommended that various stakeholder groups' interests must participate in decision-making, to share their knowledge and expertise. Indeed, tourism has been recognized as a complex system that requires the application of adaptive management to resolve this complexity [20].

Adaptive capacity is considered important for socio-ecological resilience and sustainability [21] and is highly dependent on the individual's capacity to learn. For example, 'learning by doing' Kolb notes that stakeholders of different levels and scales can share their experiences which can lead to changes in their beliefs, ideas, and perceptions as they apply the knowledge gained to solve their problems. Adaptive management encourages knowledge-sharing strategies that involve experimenting with different measures and modifying actions to put into practice as a result. [22] also notes that adaptive management is a cyclical process with four components: learning, describing, predicting, and doing. Learning involves observation, data collection, monitoring, and evaluation; describing using models to summarize and represent the system; predictions are used to test proposed policies, actions,

and scenarios; and to do is to experiment and act based on the results.

When combined with the collaborative aspects of the ACM approach, the result is a more flexible (adaptive) management and governance system that is adapted to the particular place, time, and situation (contextual) and the diverse stakeholder groups affected by the decision [23]. From a sustainability perspective, through the ACM governance approach, conservation is also an integral part of development [7]. The broad objectives of the ACM approach are to: conserve and conserve biodiversity facilitate capacity-building initiatives for the local poor people to create alternative income opportunities; and create a new governance structure with a participatory focus. There are four main principles or features consistently identified as the basis of the ACM approach: communication and collaboration; social learning; shared rights, responsibilities, and decision making; and, building adaptive capacity and resilience [24].

#### *E. Communication and Collaboration*

Effective communication and collaboration among various stakeholder groups were identified as key principles of the ACM approach. It is consistently recognized in the literature that the ACM approach can provide a platform for the active involvement of multiple stakeholder groups in decision-making [19] and governance. For example, research has found that the ACM approach has contributed to improved facilitation, coordination, and collaboration among stakeholder groups. Improved communication was also found to increase stakeholder understanding of natural resource management, thereby building local capacity [25]. The collaboration that occurs through the ACM approach has also been credited with facilitating trust-building, managing conflict, enhancing negotiations, and sharing power and rights [26]. However, to be successful there is a need for active and effective horizontal and vertical communication among stakeholders. The ACM approach will often dictate the need to create new institutions such as joint management committees and other bodies that can facilitate cooperative relationships [27]. Collaboration and improved communication are the main goals of the ACM approach. There are some barriers to achieving this in practice. Unbalanced power between stakeholder groups, power struggles, and stakeholders with specific interests can undermine the success of the process.

#### *F. Social Learning*

Learning is an important feature of the ACM approach, especially social learning. Social learning is defined as "the collective action and reflection that occurs among individuals and groups as they work to improve the management of the interrelationships between social and ecological systems" [28]. Others describe social learning as "learning together to

manage together". Diduck describes social learning as 'action group learning' and defines it as "the process by which individual learning outcomes become part of a distributed and shared network of outcomes within a collection of individuals" [29]. Here, the action group consists of individuals who form cohesive but relatively informal associations with often short life spans to focus on targeted goals and tasks. The ACM approach is based on a process by which new knowledge is generated (scientific and traditional/local) and interactive and iterative learning occurs. Interactive learning generally occurs through a process of collaboration and interaction between groups of stakeholders [30]. Whereas iterative learning, or 'learning by doing', relates to the adaptive management aspect of ACM [31] where stakeholders are involved in designing and monitoring the effects of management interventions and actions, reflecting on their impact, and adjusting further actions based on lessons learned. Thus, learning is flexible and adapted to specific places and situations, as well as different scales, stakeholders, and organizations. In reviewing ACM studies in the context of natural resources it was found that social learning is very useful for addressing conservation problems [32].

Shared rights, Responsibilities, Decision making Shared rights, responsibilities, and decision-making are further features of the ACM process; In the literature, these principles generally refer to the legal and participatory empowerment of local communities [33]. In particular, the co-management dimension of ACM emphasizes the importance of shared rights or shared responsibilities and decision-making power. Several studies have examined local institutional decentralization as well as political decentralization to facilitate economic development, rights and culture, and democratic values. The aim is to facilitate overall local empowerment through improved governance systems [34].

#### G. Building Adaptive Capacity and Resilience

Local stakeholders are an important goal and outcome of the ACM approach. In the context of natural resources and conservation areas, adaptive capacity and resilience can include addressing natural resource crises, addressing sustainability, and facilitating the development of sustainable livelihoods [35]. Previously noted principles such as enhanced collaboration and communication, as well as social networking, social learning, and linkages between different levels and scales of organizations and institutions, have all been shown to contribute positively to local adaptive capacity building and

resilience [36]. Development of social and cultural capital, improvement of education, transfer of knowledge, and development of human resources all have a positive impact on the adaptive capabilities of local communities. The ACM approach aims to increase local adaptive capacity and resilience which in turn leads to an increase in the standard of living for local communities [37].

#### H. Research Framework

This study discusses the governance of the Ciletuh-Palabuhanratu UNESCO Global Geopark towards revalidation to maintain the UNESCO Global Geopark status. The theory of Adaptive Co-Management is used to prove the extent to which the Pentahelix concept is applied in the Ciletuh-Palabuhanratu UNESCO Global Geopark area.

### III. DATA AND PROPOSED METHOD

#### A. Data

The data collecting technique used in this study is triangulation to combine various techniques and existing data sources [38]. Observations made participatory, in-depth interviews, and documentation are carried out simultaneously. Interview related to the Adaptive Co-framework Management is carried out through the WhatsApp group of the Ciletuh-Palabuhanratu UNESCO Global Geopark management body with results as presented in Table I.

Interviews related to Communication and Collaboration, Social Learning, Shared Rights, Responsibilities and Decision Making were conducted by the researcher with the Head of Research Sub-Division of BP CPUGG with the following results:

*"In carrying out the governance of the CPUGG area, the Penta helix concept has been applied since the establishment of Ciletuh as the Ciletuh National Geopark in 2015. Tourism development provides direction for planned governance in which the roles of stakeholders do not interfere with each other, achieving the target of the work plan actively communicated. Social learning is one way to achieve local community economic improvement. Learning by doing is the most effective way to empower communities through stakeholder collaboration, for example, a collaboration between the government and universities in watershed management and protected forests, processing plastic waste, training as a tour guide, etc. The development of the area can run according to the target because it is supported by a shared perception of responsibility and decision making."*

TABLE I. FRAMEWORK ADAPTIVE CO-MANAGEMENT

Question	Response
ACM principles and processes The Establishment of the Ciletuh Management Agency	The Establishment of the Ciletuh Management Agency Palabuhanratu by the Regent as an effort the creation of coordination, integration, and synchronization through stakeholder collaboration did not affect ACM because the Ciletuh-Palabuhanratu has implemented the Pentahelix concept.
How is communication and collaboration in Palabuhanratu by the Regent as an effort between various stakeholders	
Is the communication horizontal or vertical?	Commitment comes from a common understanding of the partnership, so neither party lead to mutual support. All parties are required to provide input in compiling the work schedule. In this way, it will be created a collaboration, <i>good partnership</i> network between parties.
How do partnerships affect governance manage tourism in Ciletuh-Palabuhanratu?	Intensive collaboration and coordination also integrated from various agencies and stakeholders will influence governance good management
How about a different approach on governance affecting adaptive capacity and resilience of tourism destinations Ciletuh Palabuhanratu Geopark area?	If the approach taken is different, will there be gaps in the capacity and resilience of tourist destinations? In this case, it must be done the same approach so that all destinations tourism in the Geopark has a perception and the same perspective in management.
What strategies and approaches are possible most successful to develop adaptive capacity and resistance to Ciletuh-Palabuhanratu Geopark?	Good coordination, participation, communication on In principle, it is the main capital in adaptive capacity and resistance to blend, harmonize and match various interests and activities that are mutually related to achieving goals and objectives together.
How is social learning affect tourism governance in Ciletuh-Palabuhanratu Geopark?	Social learning for tourism destination managers is very influential in tourism management because this social learning consists of several aspects which include 1. Education 2. Economy 3. Law 4. Religion 5. Culture 6. Social System, etc If they don't understand those aspects, then there will be discrepancies
To what extent are the rights, responsibilities, and joint decisions making affect destination governance Ciletuh Geopark area tourism Palabuhanratu area?	Rights and responsibilities in decisions are done together because hierarchically Geopark management is still under the government Ciletuh Geopark area tourism area
ACM Variables What is a stakeholder conflict that affects tourism governance in Ciletuh-Palabuhanratu Geopark area? Is the ACM's approach towards governance mediating the conflicts between stakeholders?	It has no effect during the journey in management does not or there has been no conflict, so this ACM approach can't be implemented yet.
How is social learning contributing to conflict resolution?	As long as the management is running there has been no conflict, so that social learning runs well
Who are the strong stakeholders in the Ciletuh-Geopark governance system Palabuhanratu? What role and influence owned by stakeholders are strong in decision making?	Management is under the Regional Secretary and during activities in decision making well and no one is the strongest in the governance system so that management running well and smoothly
To what extent does power undermine the involvement and collaboration of various stakeholders?	There have been no parties undermining from various of them.
Is there a role for learning-by-doing in tourism management in the Geopark area of Ciletuh-Palabuhanratu?	Management of the principle of learning by doing so that each performance result is based on the standard set by UNESCO.
Can ACM improve build trust between the stakeholders in governance Ciletuh-Palabuhanratu Geopark area?	If implemented the ACM approach will be assisting governance, not prioritizing common interest
ACM Results How does the ACM approach governance affect the short-term and medium results expected?	The result will be more effective in management if applied according to the rules as already running now
How does the ACM approach towards management/governance have an impact on the achievement of results expected long term through the governance process?	The ACM approach can help the long-term achievement
Can ACM improve the management of tourism at Geopark Ciletuh-Palabuhanratu?	If a thorough understanding of ACM will significantly be increased

Interviews related to building Adaptive Capacity and Resilience were conducted by the researcher with the Daily Chair of BP CPUGG with the following results:

*"We hope that the continuation of the CPUGG development program in the future is to become world-class tourism. In its achievement, of course, required capacity, capability, and adaptability of stakeholders and management. We seek to develop partnerships regionally, nationally, and globally. In dealing with sustainability due to the natural resource crisis, CPUGG has made a recommendation program for protection in protected areas, cultural areas, tsunami-prone zones, and earthquake-prone areas to make a master plan. We are also trying to facilitate local communities in developing a sustainable livelihood. We continue to coordinate the involvement of academics, government, and business entities as best we can. Although there are still obstacles in the field, we are sure that in the future it can be better."*

Interviews related to the Coordination of the Ciletuh-Palabuhanratu UNESCO Global Geopark Stakeholders were conducted by the researcher with the Geo-site Management Sub-Sector with the following results:

*"The Pentahelix concept that has been running in the Ciletuh-Palabuhanratu area is an effort to realize transparency, accountability, participation, effectiveness, efficiency in implementing planning, implementing, monitoring, and evaluating programs. This collaboration prioritizes the division of tasks and responsibilities from stakeholders. To find out the extent of collaboration between each actor, it is necessary to first identify the stakeholders involved in the Ciletuh-Palabuhanratu area."*

Interviews related to Finance/Capital were conducted by the researcher with the Head of the Economics Sub-Sector with the following results:

*"Financing for Ciletuh-Palabuhanratu, apart from being charged to the government, is also obtained through the CSR program. For example, Bio Farma's MoU with the Sukabumi Regency government. Bio Farma's Corporate Social Responsibility (CSR) program emphasizes community empowerment and environmental conservation in the Ciletuh Palabuhanratu area. However, operational costs have been determined in the SKPD chaired by the Sukabumi Regional Secretary. Operational costs including non-ASN Management Agency fees are included in the SKPD budget. When there are major activities, for example facing this validation, financing from the center. In the pre-revalidation activities, it involves financing from the district, and the province, while deficiencies in the field are resolved by the Management Agency and related agencies."*

#### **B. Research Method**

In qualitative research, the researcher position herself as a key instrument, while the interview guide,

observation guide, and documents were used by the researcher as a supporting instrument. High-quality qualitative data analysis and on the skills, vision, and integrity of the researcher [39].

#### **IV. RESULTS AND DISCUSSION**

The UGG Ciletuh-Palabuhanratu Governance in the review of Adaptive Co-Management is as follows: Good governance and management are very important to ensure the conservation and sustainability of Ciletuh-Palabuhanratu UNESCO Global Geopark. The existence of a presidential regulation by issuing a policy on Geopark management to the district government, the complex system in the Ciletuh-Palabuhanratu area in terms of ecology, culture, geology, human resources, and the complexity of stakeholders must be able to handle good governance so that the area can be integrated and create a sustainable area.

The Pentahelix concept already running at CPUGG proves that governance does not affect the ACM approach. The four ACM principles exist in stakeholder governance in the Ciletuh-Palabuhanratu area, and three of which, collaboration and communication, social learning, and responsibility and decision making, have been going well. However, the principles of building adaptive capacity and resilience still need to be developed. ACM is dynamic and supports all governance. In the pre-implementation stage (consultation, planning, and evaluation), based on the Pentahelix concept, stakeholders are already integrated with different tasks. The post-implementation stage (improvement and adjustment) still requires a learning process. Building adaptive capacity and resilience will support stakeholders in the interests of implementing actions that arise from the process, such as product development, tourism services, shared strengths, organizational interactions, enabling conditions, and conflict resolution. The Pentahelix concept running in Ciletuh-Palabuhanratu UNESCO Global Geopark has increased the involvement and participation of more stakeholders in decision making, increased accountability and transparency, and increased awareness of the learning process. The long-term results that can be seen are the improvement of local livelihoods through alternative income generation activities, local community empowerment, and balanced power relations among stakeholders.

Successful management of Ciletuh-Palabuhanratu UNESCO Global Geopark depends on participation, collaboration through good communication between stakeholders and local communities. Active involvement of local communities with government, business entities, academics, communities, mass media, in planning, implementation, and decision-making decisions is the key to the success of the management of the Ciletuh-Palabuhanratu UNESCO Global Geopark area, shown in Table II.



TABLE II. COLLABORATION AND COMMUNICATION

Penta helix	Actor	Policy
Government	Central government Provincial government District government (Supported by related department)	Funding, planning, monitoring, evaluating, construction, setting policy, marketing
Community	Kompepar, PAPSI, HPI, village government (which represents the community), homestay Association, Deliberation Board Village, SME	Support program with a commitment to togetherness, keeping improve source quality human resources, explore potential local tourism, shape tourism support agency, promote tourism
Academization	University of Padjadjaran, University of Education Indonesia	Provide education, community development
Business entity	PT Bio Farma, PT PLN, Bank Jabar, Telkom, Hotel Association and Indonesian Restaurant, Jamkrindo, Pakidulan Batik craftsmen	Through CSR programs: activities FGD, anti-waste campaign, reforestation, empowerment SMEs, improving the fish market, arrangement of tourist sites, places stay, presentation and culinary processing, batik crafts, street lighting, etc.
Mass media	All stakeholder actors' interest	Marketing through social, television, web Ciletuh-Palabuhanratu, etc.

Shared Rights, Responsibilities, and Decision Making are carried out in synergy, coordination, and synchronization between the central government, regional governments, and stakeholders through the National Geopark Committee formed by the President. The process of social learning is characterized by active community involvement so that the area is easier to develop. The Indonesian Tourism Association organizes training as a tour guide, local interpreter, and foreign language training. Capacity Building and Adaptive Resilience are accomplished by developing geo-conservation activities. The implementation of participatory management has been carried out by establishing the concept of community empowerment. Natural resource management in the form of conservation has been implemented, geological, biological, and cultural heritage sites are equipped with information boards, the establishment of a conservation museum and arboretum as well as the Megalodon museum.

Geopark socialization is conducted by disseminating information and knowledge to primary and secondary schools through local content curricula. It is also by partnering with Gunung Sewu UNESCO Global Geopark of national scope and Izu Peninsula UNESCO Global Geopark of international scope in exchanging information, knowledge, and experiences. The implementation of environmental quality management is equipped with a certification system consisting of evaluation from the beginning and periodic revalidation. The implementation of strategic management and participatory management runs through the application of crisis management in implementing tourism activities through area development and geological disaster mitigation from the area.

## V. CONCLUSIONS AND SUGGESTIONS

### A. Conclusions

The management of Ciletuh-Palabuhanratu UNESCO Global Geopark with the Penta helix concept, viewed from the Adaptive Co-Management approach from the collaboration and communication aspect, has already organized a division of tasks and responsibilities so that they synergize with each other in regional development. However, by looking at the needs of the region in achieving tourism sustainability, the geopark must add elements of tourists and environmental practitioners. It is important in line with UNESCO recommendations so that it becomes a *sapta helix* concept. Ciletuh-Palabuhan Ratu UNESCO Global Geopark in realizing its sustainability has met six geopark management criteria, namely: 1) Implementing participatory management; 2) Managing the environment; 3) Environmental quality management; 4) Knowledge management application; 5) Environmental quality management, and 6) Implement strategic and participatory management.

### B. Suggestions

The vision, mission, and work culture among the government, academia, business entities, local communities, and the mass media need to be unified. The tourism awareness program to serve tourists must continue to be carried out intensively by relying on the triple bottom line. Incorporating two elements of stakeholders, namely tourists and environmental practitioners in the *Saptahelix* concept. Biodiversity elements are considered important natural resources if they are properly managed so that the targets for sustainable development are achieved.

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