

SYNERGY OF ENVIRONMENTAL EDUCATION PROGRAMS AT THE BODOGOL NATURE CONSERVATION EDUCATION CENTER, COMPLEMENTING THE INDEPENDENT CURRICULUM AT JUNIOR HIGH SCHOOLS

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Abstract:

Background: The global environmental crisis needs fundamental changes in people's attitudes and behaviors towards sustainability. The Bodogol Nature Conservation Education Center (PPKAB) in Gunung Gede Pangrango National Park has significant potential to support environmental education but remains underutilized due to a lack of integration with school curricula. The research problem is that PPKAB's programs are not fully integrated, leading to suboptimal use and stagnant development.

Purpose: This study aims to develop a synergy between PPKAB's environmental education programs and the Independent Curriculum for junior high schools.

Design/Methodology: The Study is a quantitative and descriptive qualitative. Utilizing the Analysis of Operational Areas and Natural Tourism Objects and Attractions (ADO-ODTWA) method, and involving ten including academics, business, community, government and media, the study assessed the feasibility and developed a synergy matrix.

Findings/Result: The findings indicated a feasibility score of 76,3%, suggesting suitability for developing educational programs. The research recommends developing two environmental education synergy programs, namely School Visit Synergy and School Visits, to complement the independent curriculum at junior high school (SMP).

Conclusion: As a conclusion, it is highly advised integrating PPKAB's programs with school curricula to improve environmental education quality at the junior high level. This research produced significant results in environmental education.

Originality/Value (State of the art): The added value of this research is that it emphasizes the business potential of ecotourism in supporting local economies and conservation efforts through strategic partnerships and innovative program development.

Keywords: ecotourism, environmental education, independent curriculum, program synergy, the bodogol nature conservation education center

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INTRODUCTION

The global environmental crisis is a significant challenge marked by climate change, pollution, deforestation, and excessive exploitation of natural resources. These issues threaten environmental sustainability as well as human welfare and health. An anthropocentric view that sees nature as an unlimited resource is the leading cause of this excessive exploitation (Setiawati et al. 2020). Environmental education is crucial in addressing the global ecological crisis. This education not only provides information but also empowers individuals to change their perspectives and behaviors towards nature. Studies show that environmental education helps develop a sustainable culture that views humans as an integral part of nature and responsible for maintaining its sustainability (Smith and Williams, 1999).

Environmental education for young people is crucial for building awareness and responsibility towards environmental sustainability. However, the Bodogol Nature Conservation Education Center (PPKAB), despite its immense potential as a platform for such education, is currently not fully utilized to complement the Independent Curriculum in Junior High Schools (SMP). Inefficient integration of ecotourism with comprehensive environmental education programs, a disconnect between PPKAB's offerings and the school curriculum, and limited development of interactive and sustainable programs all hinder its effectiveness. These issues lead to a gap between classroom theories and practical application, and a lack of innovative strategies for integrating ecotourism with environmental education (Tilbury, 1995; Gough and Gough, 2010; Sterling, 2010).

The COVID-19 pandemic has presented additional challenges for the ecotourism sector, with visitation rates dropping drastically due to travel restrictions and strict health protocols. However, this situation also opens up opportunities to develop new approaches in environmental education. Schools can utilize various outdoor natural locations as learning spaces, allowing students to explore and learn directly in nature. This approach not only provides a variety of teaching methods but also enhances students' learning experiences through direct interaction with the natural environment, which can strengthen their understanding and awareness of environmental issues (Gössling et al. 2020).

From a business perspective, optimizing ecotourism at the Bodogol Nature Conservation Education Center can open significant opportunities in the sustainable tourism sector. Integrating ecotourism with environmental education will not only enhance students' awareness and knowledge about nature conservation but also become a sustainable source of income for the local community. The Bodogol Nature Conservation Education Center has a strong captive market as a specialized ecotourism destination, which can attract more school programs, especially from the Bogor and Sukabumi areas. Developing engaging and educational ecotourism programs can draw more visitors, including domestic and international tourists interested in nature-based and educational tourism. Additionally, innovative and sustainable environmental education programs can appeal to schools looking to implement the Independent Curriculum with practical and real-world approaches. This, in turn, can elevate the reputation of the Bodogol Nature Conservation Education Center as a leading educational tourism destination, while also supporting the local economy and environmental conservation (Weaver, 2001; Honey, 2008).

A proper business approach to developing ecotourism and environmental education in Bodogol can also open partnership opportunities with various parties, including private companies, non-governmental organizations, and educational institutions. These partnerships can include sponsorships, CSR programs, and research collaborations that can strengthen existing programs and expand their impact. With a well-planned and integrated business strategy, the Bodogol Nature Conservation Education Center can become a successful model in combining environmental education with sustainable ecotourism, providing long-term benefits for education, the economy, and the environment (Clarke, 2002; Buckley, 2015).

This research is fundamental because there are still many gaps. For example, there is a need for more in-depth research into how environmental education can be integrated into school curricula and how it impacts student behavior in the long term (Seybold and Rie, 2006). Further research on environmental education is urgently needed to fill the gaps in current literature and ensure that it can be an effective tool in overcoming the global ecological crisis. This education must change human views and behavior towards nature, thereby creating a more aware and responsible society for the environment.

This research is expected to make a tangible contribution to improving the quality of environmental education at the junior high school level, optimizing the potential of ecotourism as an effective educational tool, and providing recommendations for the development of sustainable and integrated environmental education programs. Thus, this research aims to provide solutions to existing problems and maximize the potential of ecotourism and environmental education, resulting in a positive impact on the younger generation and the environment as a whole (Tilbury, 1995; UNESCO, 2009).

This research aims to design a synergy between the environmental education programs at the Bodogol Nature Conservation Education Center and the Independent Curriculum in junior high schools. To achieve this goal, the following steps are taken:

1. Analyze the feasibility of the natural attractions at the Bodogol Nature Conservation Education Center to ensure the viability of developing ecotourism for inclusion in school curricula.
2. Develop a synergy matrix for the environmental education programs at the Bodogol Nature Conservation Education Center as a complement to the Independent Curriculum in junior high schools.

METHODS

The research location is at the Bodogol Nature Conservation Education Center (PPKAB), which is part of the Bodogol Resort in Gunung Gede Pangrango National Park (TNGGP). The example school selected to complement the Independent Curriculum is SMP IT Al Kahfi. Data collection was conducted over four months, from January to April 2024, through semi-structured interviews and purposive sampling, to gather input from relevant stakeholders regarding environmental education at PPKAB. The process involved ten key informants, namely: 1. Head of the National Park Office Gunung Gede Pangrango (TNGGP); 2. Head of Region III Bogor; 3. Head of Bodogol Resort (PPKAB); 4. Principal of Al Kahfi IT Junior High School; 5. Forest Ecosystem Controller; 6. CI Indonesia (Period 1998–2021); 7. Forum Interpreter Bodogol; 8. Nature Tourism Utilization Business Permit (PB-PJWA a.n. Jamaludin); 9. IPB University; and 10. Pojok Bogor Id. Data on natural tourist attractions (ODTWA) was collected using observation sheets, interviews, and literature studies. For data on

the synergy of environmental education programs, data from the Visit to School syllabus and the School Visit ecotourism package program for school students at PPKAB were used. These were then aligned with the theme of the Pancasila Student Profile Strengthening Project (P5) and subjects relevant to environmental education topics in the junior high school Independent Curriculum.

Data analysis uses the Operational Area Analysis - Objects and Attractions of Natural Tourism (ADO-ODTWA) established by the Directorate of Natural Tourism and Environmental Service Utilization in 2003. Assessments are carried out to evaluate each element of the PPKAB tourist attractions based on 15 assessment criteria. The weighting of each criterion varies, ranging from 1 to 6. Giving the highest weight shows the importance of a criterion in supporting the feasibility score. The evaluation is then used to develop environmental education programs and justify the feasibility of an area. The processed data on natural objects and attractions is described descriptively. The total score for one ODTWA assessment criterion can be calculated using the equation in Table 1. The feasibility index for an ecotourism area is explained in Table 2 (Karsudi et al. 2010). The ODTWA assessment is used as feasibility data for the ecotourism conditions with the environmental education materials provided by PPKAB.

Furthermore, the integration of environmental education programs at PPKAB using an integrative approach can be approached in two ways. Firstly, by constructing a unit or topic that is prepared to be integrated into specific subjects. Alternatively, by developing a core program that starts from a specific subject or learning theme (Basri, 2013). Figure 1 shows the framework of this research.

RESULTS

The Feasibility Level of Natural Tourist Attractions (ODTWA) at PPKAB

Tourist objects and attractions (ODTWA) are potential drivers of visitor presence in a tourist destination area, where PPKAB is a conservation area that boasts biodiversity (flora and fauna), natural phenomena, and scenic beauty. PPKAB has the potential for natural tourist attraction objects with a score of 990 (Table 2), classified as high (low value classification = 420-700,

medium = 701-980; high = 981-1260). This indicates that the area is highly potential and suitable for development as environmental education ecotourism, where outdoor learning complements school-based learning materials.

The market potential for PPKAB has a score of 610 (Table 2), classified as moderate (low value classification = 230-470, moderate = 471-710; high = 711-950). This is influenced by the high population density of approximately 1348 people/km² in West Java

Province. West Java Province covers an area of 37,040 km² (1.93% of Indonesia's total area) with a population of 49,935,858 according to the 2020 census (18% of Indonesia's total population). However, visitor numbers to PPKAB have shown a declining trend each year. This highlights an opportunity for schools in the surrounding area to target increasing program participation (Yusri et al. 2012) as educational facilities to meet school needs. This is particularly aimed at aligning human resources with environmental awareness to achieve the management goals and visions of TNGGP.

Table 1. ODTWA Assessment

| Measured Indicators | Data Analysis Technique | Score Classification | Output |
|---|---|---|---|
| Natural Tourist Attractions; Market Potential; Accessibility; Surrounding Area Conditions; Management and Services; Climate; Accommodation; Supporting Infrastructure Facilities; Availability of Clean Water; Relationship with Surrounding Tourist Objects; Security; Area Carrying Capacity; Visitor Regulation; Marketing; Market Share | S= N x B S= Criteria score N= Sum of criteria indicators score B= Score weight | Interval= (Max Score- Min Score)/(Classification Amount) The classification amount is categorized to three for each variables: Low, Medium, High | Feasibility Score= (Criteria Score)/(Total Criteria Score) x100 • Feasibility Score > 66.6%: Area suitable for development. • Feasibility Score 33.3% - 66.6%: Area not yet suitable for development. • Feasibility Score <33.3%: Area not suitable for development. |

Source: Ditjen PHKA (2003)

Table 2. Summary of the Assessment Results of ODTWA Potential

| Criteria | Score | Maximum Score | % Score Index | Classification | Feasibility Score |
|---|-------|---------------|---------------|----------------|-------------------|
| Natural Attractions | 990 | 1260 | 78.6% | High | Feasible |
| Market Potential | 610 | 950 | 64.2% | Medium | Not yet |
| Accessibility | 585 | 900 | 65,0% | Medium | Not yet |
| Surrounding Area Conditions | 960 | 1200 | 80.0% | High | Feasible |
| Management and Services | 280 | 360 | 77.8% | High | Feasible |
| Climate | 308 | 480 | 64.2% | Medium | Not yet |
| Accommodation | 105 | 180 | 58.3% | Medium | Not yet |
| Facilities and Infrastructure Support | 174 | 180 | 96.7% | High | Feasible |
| Availability of Clean Water | 870 | 900 | 96.7% | High | Feasible |
| Relationship with Surrounding Tourist Objects | 103 | 200 | 51.5% | Medium | Not yet |
| Security | 500 | 600 | 83.3% | High | Feasible |
| Area Carrying Capacity | 339 | 450 | 75.3% | High | Feasible |
| Visitor Management | 75 | 90 | 83.3% | High | Feasible |
| Marketing | 100 | 120 | 83.3% | High | Feasible |
| Market Share | 234 | 270 | 86.7% | High | Feasible |
| TOTAL | 6,233 | 8,140 | 76.3% | High | Feasible |

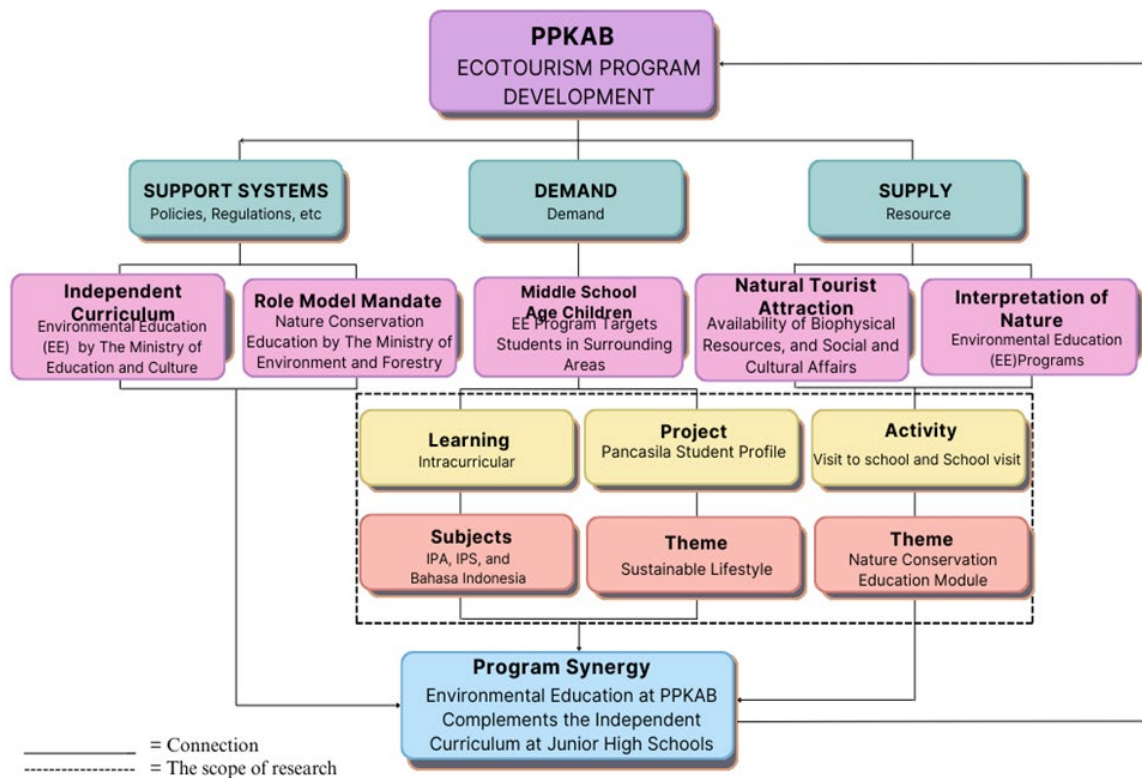


Figure 1. Research framework

For accessibility, PPKAB has a score of 585 (Table 2), classified as moderate (low value classification = 205-437, moderate = 438-668, high = 669-900). This is assessed based on the travel time of approximately 4 hours from the provincial capital via well-maintained roads. However, reaching PPKAB from the village outskirts to the gate is only possible by Four Wheel vehicles, motorcycles, or walking due to rough, rocky, and damaged dirt roads. Limited accessibility to PPKAB is one of the reasons for declining visitor numbers. This presents an opportunity to develop interesting interpretive trails along the journey from the village roads to PPKAB, which could be developed into educational materials.

The surrounding conditions of PPKAB have a score of 960 (Table 2), classified as high (low value classification = 425-683, moderate = 684-942, high = 943-1200). Generally, the community supports efforts to develop PPKAB as an ecotourism area. The local residents mostly earn their living as farm laborers or daily wage workers, with a majority having completed high school education. The development of PPKAB is expected to create opportunities for entrepreneurship and new job opportunities, thus improving the income and welfare of the community (Ardialisa et al. 2012).

This can serve as educational material to understand the rural supporting community in the development of PPKAB, complementing school-based learning materials.

The management and visitor service conditions are classified as high with a score of 280 (Table 2) (low value classification = 80-173, moderate = 174-267, high = 268-360). Management of the site and visitor services need continual improvement as they directly impact visitor satisfaction and the preservation of the site itself. Language proficiency is limited to local dialects and Indonesian, which may contribute to the infrequent visits from international tourists. Therefore, enhancing the capacity of management to develop enjoyable learning methods tailored to program targets is essential for interpreting educational materials effectively.

The climate conditions in the PPKAB area are classified as moderate with a score of 308 (Table 2) (low value classification = 120-240, moderate = 241-360, high = 361-480). PPKAB experiences an air temperature of 26°C during the dry season, which can last for up to 5 months throughout the year. According to (Purwanto et al. 2014), climate and weather are factors influencing

tourism demand. During rainy periods in PPKAB, visitors may face difficulty accessing or leaving the area due to the condition of dirt roads. However, this serves as a resource for learning about natural resources and understanding the microclimate of the forest.

The accommodation assessment related to tourism in PPKAB is 105 (Table 2), classified as moderate (low value classification = 60-100, moderate = 101-140, high = 141-180). PPKAB itself has a dormitory within the area with a capacity of 30 people. However, the available dormitory does not meet standards and is poorly maintained. Alternatively, lodging can also be found outside the area, such as Vila Bodogol, Bukit Panorama I Hotel, Guest House Danau Lido, Hotel Lido Lake Resort, Hotel Sindu, and Iscalton Hotel. These hotels are located between 5 km to 13 km from Bodogol Resort. There is a need to improve the dormitory to serve as a standard-compliant natural laboratory learning facility. Additionally, the ODTW assessment is used as feasibility data for the ecotourism conditions with the environmental education materials provided by PPKAB.

The assessment of supporting infrastructure for tourism activities in PPKAB is 174 (Table 2), classified as high (low value classification = 45-90, moderate = 91-135, high = 136-180), based on the availability of facilities. However, electricity is still limited to generator power at night, and existing facilities are neglected. Developing supporting infrastructure is crucial for providing visitor satisfaction. Additionally, adequate supporting infrastructure is needed as a natural laboratory learning facility to support the teaching and learning process.

The assessment of clean water availability for the PPKAB area is 870 (Table 2), classified as high (low value classification = 270-480, moderate = 482-690, high = 691-900). The naturally sourced water is abundant throughout the year, even during the dry season. It is consumable and can be easily channeled due to its proximity. The natural water channeled directly from the PPKAB area is also used by the surrounding community, particularly in Banda Village. This can serve as a learning resource about the role of forests in maintaining water sources and the impact of forest degradation on humanity.

The assessment of the relationship with tourist attractions in the surrounding area is 103 (Table 2), classified as moderate (low value classification =

50-100, moderate = 101-150, high = 151-200). The development of this area needs to consider the presence of other similar or different tourist attractions within a 50 km radius to package them into a complementary tourist package. There are four similar tourist attractions such as Taman Safari, Bogor Botanical Gardens, Taman Bunga Nusantara, and Gunung Halimun Salak National Park. Efforts should be made to create unique and attractive tour packages. Additionally, there should be innovations in nature interpretation to develop engaging learning methods that differentiate PPKAB from other places.

The security of PPKAB is assessed based on the absence of disturbances to visitors, fires, illegal logging, and encroachment, with a score of 500 (Table 2), classified as high (low value classification = 250-367, moderate = 368-483, high = 484-600). The disturbances that still occur in PPKAB are illegal hunting, encroachment, and motocross activities. There is a need to enhance visitor security through community empowerment. Additionally, collaboration with the government (Yuniarti et al. 2018) and various stakeholders in the development of PPKAB is essential. This can also serve as a learning resource on types of forest disturbances, their impacts, and prevention efforts.

The carrying capacity assessment of the area is 339 (Table 2), classified as high (low value classification = 75-200, moderate = 201-325, high = 326-450). However, so far, the carrying capacity is still based on the maximum visitor regulation of 150 people per day. Furthermore, the visitor regulation score is 75 (Table 2), classified as high (low value classification = 30-50, moderate = 51-70, high = 71-90). Most visitors to PPKAB come for educational activities, research, and nature recreation (special interests). This can serve as learning material on the role of visitors in managing the environmental and forest carrying capacity.

The assessment of marketing for the PPKAB area is 100 (Table 2), classified as high (low value classification = 20-53, moderate = 54-87, high = 88-120). PPKAB has implemented an affordable entrance fee of IDR10,000. Promotional activities have been well conducted by the Bodogol Resort through the distribution of leaflets and promotions on social media networks. Although marketing promotions have been carried out, it is still necessary to align promotional media with the target programs such as engaging learning media in audio, visual, printed formats, etc.

Lastly, the assessment of the market share criteria, based on the origin of visitors, education level, and occupation, is 234 (Table 2), classified as high (low value classification = 105-160, moderate = 161-215, high = 216-270). Most visitors come from Jakarta–Bogor–Depok–Tangerang–Bekasi (Jabodetabek), with most having a high school education level, and the majority are private employees and civil servants. Most visitors are loyal, which provides an opportunity to enhance PPKAB's image in developing environmental education programs. The learning material on market share includes observing and counting the number of visitors and their behavior at the PPKAB location.

Overall, the potential of tourist attractions in PPKAB with high research criteria includes natural attractions, surrounding area conditions, management and services, facilities, availability of clean water, area security, area carrying capacity, visitor management, marketing, and market share. Meanwhile, criteria with moderate or requiring improvement include market potential, accessibility, climate, accommodation, and relations with surrounding tourist attractions. These areas require attention and improvement to contribute effectively to the comprehensive development of PPKAB's nature tourism programs. The overall score indicates that the potential of natural attractions and scenic beauty in PPKAB is excellent for developing environmental education ecotourism, with a potential index value of 76.3% (Table 2).

Managerial Implication

The environmental education program developed by PPKAB targets students from schools around the TNGP area through the School Visit and Visit to School programs. The School Visit involves school trips to PPKAB, where students and teachers get to experience the forest area firsthand. The program package details are provided in Table 3. The Visit to School program involves PPKAB managers visiting schools in the surrounding area, with the program package details listed in Table 4. Furthermore, the results of the ODTW assessment serve as a reference for the suitability of the environmental education materials provided by PPKAB, both in terms of content and field conditions. The learning materials integrated into the eco-tourism packages and environmental education modules are tailored to the readiness of the managers to transform the current natural interpretation at PPKAB to meet the needs of schools.

Furthermore, the curriculum structure for Junior High School, specifically for Grade VII, consists of intramural activities and the Pancasila Student Profile Strengthening Project (P5), which is synergized with the PPKAB environmental education program to complement subjects and cross-disciplinary project themes. Based on interviews with the principal and teachers at SMP IT Al Kahfi, it was found that their understanding of environmental education is still limited to activities such as maintaining cleanliness and planting trees/plants around the school and local community. There has been little focus on forest and environmental education in terms of nature conservation and biodiversity.

The relevant theme for the P5 synergy with the PPKAB eco-tourism packages and environmental education modules as a complement to the independent curriculum is sustainable lifestyle. Other themes implemented by SMP IT Al Kahfi, such as Unity in Diversity (Bhinneka Tunggal Ika) and Entrepreneurship, are less relevant to the current PPKAB environmental education program. The subjects offered by SMP IT Al Kahfi include Religious Education and Ethics, Pancasila and Citizenship Education (PPKn), Indonesian Language, Mathematics, Natural Sciences (IPA), Social Sciences (IPS), English Language, Physical Education and Health, Informatics, Arts and Crafts, and local content in Sundanese Language. The subjects relevant for synergy with the environmental education program, particularly for Grade VII, are IPA, IPS, and Indonesian Language. This relevance is based on the existing content of the learning materials and the natural interpretation transformation available at PPKAB.

Based on the synthesis and consultation with the school and PPKAB, the synergy matrix for PPKAB environmental education as a complement to the independent curriculum (*Kurikulum Merdeka* (P5)) for junior high school on the sustainable lifestyle theme includes My Tree, My Home; Forest, Food, and Medicine; and Water and Life. The synergy explanation can be seen in Table 3. Meanwhile, the synergy matrix for PPKAB Environmental Education as a Complement to the Independent Curriculum (Intracurricular) for junior high school subjects IPA, IPS, and Indonesian Language includes the Food Chain theme for IPA, the Richness of Tropical Rainforests for IPS, and The Beautiful Hoya and The Ultimate Acrobatics for Indonesian Language. The synergy explanation can be seen in Table 4.

Table 3. PPKAB Environmental Education Synergy Matrix Complementing the Independent Curriculum (P5) for Junior High School (SMP)

| PPKAB Environmental Education Nature Tour Package | | Pancasila Student Profile Enhancement Project (P5) | Program Synergy |
|--|---|--|---|
| Program | Nature Interpretation Material | Theme | |
| School Visit | <ol style="list-style-type: none"> 1. Unveiling the Secrets of Mountain Tropical Rainforests 2. Unveiling Life in the Tree Canopy 3. Tracing the Origins of Our Drinking Water 4. Following the Footsteps of Scientists 5. Outbound Activities, etc. | Sustainable Lifestyle | <p>Program Theme: My Tree, My Home</p> <ol style="list-style-type: none"> 1. Important Topics <ol style="list-style-type: none"> a. A tree in the forest serves as a home for wildlife (foraging and reproduction). b. A house for humans is the safest place (a family's residence). c. Trees and houses share the function of being places for living and activities. 2. Outputs <ol style="list-style-type: none"> a. Visitors are expected to understand and appreciate the role of a tree in the life of forest wildlife, thus raising their awareness to preserve and protect it. <p>Program Theme: Forest, Food, and Medicine</p> <ol style="list-style-type: none"> 1. Important Topics <ol style="list-style-type: none"> a. Forests play a role in providing food for both wildlife and humans. b. Forests fulfill human needs in the field of medicine. 2. Outputs <ol style="list-style-type: none"> a. Visitors realize the importance of forests in supplying food for the animals living in them and for humans. b. Visitors become aware of how crucial forests are in the field of medicine. <p>Program Theme: Water and Life</p> <ol style="list-style-type: none"> 1. Important Topics <ol style="list-style-type: none"> a. Forests play a role in distributing water that is beneficial for human life. b. Contaminated water can cause harm to all living beings on earth. c. Deforestation can lead to landslides and floods, which are detrimental to humans. 2. Outputs <ol style="list-style-type: none"> a. Visitors understand the importance of water for the survival of living beings on earth. b. Visitors recognize the essential role forests play in the lives of both wildlife and humans. c. Visitors realize that the water they drink daily comes from rivers in the forest. d. Visitors understand that many animals and plants inhabit rivers and riverbanks, and polluting these areas is equivalent to killing the living beings there, which ultimately harms everyone. |

Table 4. PPKAB Environmental Education Synergy Matrix Complementing the Independent Curriculum (Intracurricular) for Junior High School (SMP)

| Environmental Education Nature Tour Packages PPKAB | | | Intracurricular | Program Synergy |
|---|--|---|------------------------|--|
| Program | Topic | Subtopic | Subject | |
| School Visit | Forest Ecosystem | 1. Definitions | Natural Sciences (IPA) | <p>Program Theme: Tropical Rainforest Food Chain</p> <p>Important Topics</p> <p>a. Survival strategies of tropical rainforest inhabitants form either complex or simple food chains.</p> <p>b. Food chains consist of food webs that maintain balance as long as there is no human interference.</p> <p>Outputs</p> <p>a. Visitors become aware of their connection to the food chain, enabling them to play a positive role in maintaining the natural balance of the life cycle and elements in the forest.</p> |
| | | 2. Components of a Forest Ecosystem | | |
| | | 3. Types of Ecosystems | | |
| | | 4. Climate | | |
| | | 5. Definition of a Food Chain | | |
| | Forests and Forestry | 1. Definition and Benefits of Forests | Social Sciences (IPS) | <p>Program Theme: Richness of the Tropical Rainforest</p> <p>Important Topics</p> <p>a. Indonesia is a country with high biodiversity (flora and fauna) and a high level of endemism.</p> <p>b. Tropical rainforests possess unique characteristics within them.</p> <p>Outputs</p> <p>a. Visitors realize the vast potential of Indonesia's biodiversity and the need for significant attention and awareness to conserve it.</p> <p>b. Visitors gain an understanding of tropical rainforests.</p> |
| | 2. Classification of Forests | | | |
| | 3. Forests/Conservation Areas | | | |
| | 4. Forest Protection | | | |
| | National Parks | 1. Definition and Functions of National Parks | Social Sciences (IPS) | <p>Outputs</p> <p>a. Visitors realize the vast potential of Indonesia's biodiversity and the need for significant attention and awareness to conserve it.</p> <p>b. Visitors gain an understanding of tropical rainforests.</p> |
| | 2. Zoning Divisions | | | |
| | 3. Problems and Consequences | | | |
| | 4. Strategy and Program | | | |
| | Mount Gede Pangrango National Park (TNGGP) | 1. History of TNGP | Social Sciences (IPS) | <p>Outputs</p> <p>a. Visitors realize the vast potential of Indonesia's biodiversity and the need for significant attention and awareness to conserve it.</p> <p>b. Visitors gain an understanding of tropical rainforests.</p> |
| | | 2. Potential Values of TNGP | | |
| | Natural Resource Conservation | 1. Classification of Natural Resources | Social Sciences (IPS) | <p>Outputs</p> <p>a. Visitors realize the vast potential of Indonesia's biodiversity and the need for significant attention and awareness to conserve it.</p> <p>b. Visitors gain an understanding of tropical rainforests.</p> |
| | | 2. Types of Natural Resources | | |
| | | 3. Impact of Resource Depletion | | |

Table 4. PPKAB Environmental Education Synergy Matrix Complementing the Independent Curriculum (Intracurricular) for Junior High School (SMP) (continue)

| Environmental Education Nature Tour Packages PPKAB | | | Intracurricular | Program Synergy |
|---|-------|------------------------------|---------------------|---|
| Program | Topic | Subtopic | Subject | |
| Plants | | 1. Classification of Plants | Indonesian Language | Program Theme: The Beautiful Hoya Important Topics a. Hoya is a native plant of Indonesia's tropical forests. b. Most plants reproduce using seeds. c. Some plants can also reproduce using tubers and spores. |
| | | 2. Benefits of Plants | | |
| 3. Plant Growth | | | | |
| 4. Plant Development | | | | |
| 5. Process of Seed Formation | | | | |
| Animals/Wildlife | | 1. Classification of Animals | Indonesian Language | Outputs a. Visitors understand where and how plants that live in forests or are commonly cultivated by humans grow. Program Theme: The Ultimate Acrobatics Important Topics a. Gibbons are rare and protected animals. b. Gibbons are monogamous, live in families, eat fruit, live in trees, and are true brachiators. c. The movements gibbons make in the forest resemble those of circus performers in an arena. d. Gibbons play a role in maintaining the forest ecosystem. Outputs a. Visitors understand the life of the Javan gibbon, one of the rare animals, fostering a love for protecting and conserving them. b. Visitors understand the significant role gibbons play in forest conservation. |
| | | 2. Animal Growth | | |
| | | 3. Animal Development | | |

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The findings indicated a feasibility score of 76.3%, suggesting suitability for developing educational programs. Two environmental education synergy programs have been developed at the Bodogol Nature Conservation Education Center (PPKAB) to complement the independent curriculum for Junior High School (SMP): the School Visit synergy complementing the Pancasila Student Profile Strengthening Project (P5) and the Visit to School synergy complementing the subjects of Natural Sciences (IPA), Social Sciences (IPS), and Indonesian Language.

Recommendations

A guide for the preparation of the environmental education program implementation module at PPKAB and TNGGP needs to be created. A reference prototype for replicating the program in various regions of West Java and Indonesia needs to be designed. The development guide for ecotourism packages should be adjusted to the potential of natural tourist attractions and market segmentation.

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