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Developing Tambakboyo Reservoir: Eco-Architecture For Sustainable Water Conservation Edu-Tourism

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INFORMASI ARTIKEL

Abstract: *Architecture is vital to tourism, shaping destinations. This study looks at Embung Tambakboyo in Yogyakarta as an ecotourism destination, aiming for sustainable frameworks with nature and built environments. Despite its geographical advantages and distinctive features, the eco-tourism potential of Tambakboyo Pond remains underutilised.This study employs an eco-architecture approach in alignment with the Sleman Regency Tourism Development Master Plan (RIPK) to formulate design strategies for transforming Embung Tambakboyo into an educational, recreational and sporting hub, with a focus on water conservation and ecological preservation. Research involved site observations, data collection and analysis of tourism infrastructure, reservoirs and landscape design. The observations revealed the site's potential for eco-tourism. A four-stage methodology was developed: problem formulation, data collection, analysis and design synthesis.The results indicate keywords related to harmony, nature conservation and wellness, which inform the planning concepts. These concepts address conservation and visitor needs, proposing an architectural design including water conservation education, recreational facilities and sports amenities.The study concludes that integrating eco-tourism principles in Embung Tambakboyo's development can foster sustainable tourism, support ecological balance and enhance the site's cultural and recreational value.*

Keywords: *Eco-Architecture; Edu-Tourism; Embung Tambakboyo*

Abstrak: Arsitektur sangat penting bagi pariwisata, membentuk destinasi wisata. Penelitian ini mengkaji Embung Tambakboyo di Yogyakarta sebagai destinasi ekowisata, dengan tujuan merancang kerangka kerja berkelanjutan yang mengintegrasikan alam dan lingkungan terbangun. Meskipun memiliki keunggulan geografis dan karakteristik yang khas, potensi ekowisata di Embung Tambakboyo belum dimanfaatkan secara optimal. Penelitian ini menggunakan pendekatan eco-architecture yang selaras dengan Rencana Induk Pengembangan Kepariwisataan Kabupaten Sleman (RIPK) untuk merumuskan strategi desain dalam mengubah Embung Tambakboyo menjadi pusat edukasi, rekreasi, dan olahraga, dengan fokus pada konservasi air dan pelestarian ekologi. Penelitian ini melibatkan observasi lapangan, pengumpulan data, serta analisis infrastruktur pariwisata, waduk, dan desain lanskap. Hasil observasi menunjukkan potensi situs ini untuk ekowisata. Metodologi empat tahap dikembangkan: perumusan masalah, pengumpulan data, analisis, dan sintesis desain. Hasil penelitian mengidentifikasi kata kunci terkait harmoni, konservasi alam, dan kesejahteraan, yang menjadi dasar konsep perencanaan. Konsep ini mencakup kebutuhan konservasi dan pengunjung, serta mengusulkan desain arsitektur yang meliputi pendidikan konservasi air, fasilitas rekreasi, dan sarana olahraga. Penelitian ini menyimpulkan bahwa integrasi prinsip ekowisata dalam pengembangan Embung Tambakboyo dapat mendukung pariwisata berkelanjutan, menjaga keseimbangan ekologi, serta meningkatkan nilai budaya dan rekreasi dari kawasan tersebut.

Kata Kunci: Arsitektur Ramah Lingkungan; Edu-Wisata; Embung Tambakboyo

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INTRODUCTION

From the very beginning of human history, architecture has been an essential component of human existence. The built environment has shaped the way humans interact and live together, influencing how they move through and use open and enclosed spaces. Architecture is inextricably linked to a place's population, spatial arrangements, natural environment and cultural context, and its purpose is to provide comfort and relaxation. In the context of tourism, the significance of architecture is a topic of considerable importance. According to Maitland and Newman (2008), several factors influence tourist destination choice including "architecture, people, food, culture, and diversity". In discussing the role of architecture in tourism, it is not primarily the theoretical aspects of architectural knowledge that are of interest, but rather an understanding of the cultural context, artistic movements and influences that have shaped the built environment. This enables visitors to gain a visual experience and to take memories back home. The relationship between architecture and tourism is multifaceted, extending beyond mere physical proximity and encompassing the unique and versatile nature of both disciplines.

Architecture plays a pivotal role in shaping tourism infrastructure, as it not only influences the aesthetic appeal and functionality of facilities, but also enhances the overall visitor experience (Bashiru et al., 2017). As outlined by Imikan and Ekpo (2012), the concept of "tourism infrastructure" refers to a broad array of essential facilities and services, including, but not limited to, water, transportation, electricity, communication, and accommodation. It is further described as encompassing all physical elements developed within tourist destinations, which are specifically intended to address the needs of visitors, including the aesthetic aspects of the landscape (Ayeni, 2011; Adebayo & Iweka, 2014).

In accordance with the aforementioned definitions of tourism infrastructure, the term "architecture" is understood to encompass not only the constructed environment, but also the aesthetic principles that inform its design, as well as the surrounding landscapes. The aesthetic appeal of a destination is a significant factor influencing tourist preferences and patterns of visitation. The design of tourist facilities can contribute to the overall aesthetic appeal of a destination, thereby creating a sense of attraction for potential visitors. Attractive scenery, an organised environment, and buildings that exemplify architectural excellence are some of the elements that shape tourist preferences and patterns of visitation. Consequently, it could be proposed that architectural design should be regarded as a crucial component of the infrastructure required to support the delivery of services to tourists. It can be considered that there is a strong connection between architecture and tourism, with both fields being dependent on each other (Cegar, 2014).

There is considerable potential for the development of Embung Tambakboyo as an alternative tourist destination in Yogyakarta. This area is

a unique blend of man-made and natural features, situated at a lower elevation than the surrounding village. It is traversed by two rivers, surrounded by sloping terrain, rice fields, and agricultural land. Unfortunately, it is evident that the Embung Tambakboyo has not been exploited to its fullest potential in terms of its ecotourism potential, as evidenced by studies and observations. This gave rise to the idea of developing an environmentally friendly and sustainable collaborative Edu-Tourism destination, given the growing emphasis on sustainable development among tourism policymakers and researchers (Hall, 2021; Rasoolimanesh et al, 2023). Several factors that must be taken into account to foster sustainable tourism include tourism policy, planning, and management (Higgins-Desbiolles, 2018; Rasoolimanesh et al, 2023).

In the field of tourism planning, a number of factors require consideration. These include the potential for future disruptions, the possibility of crises, the impact of global environmental change, and the management of disasters (Dolnicar et al., 2019; Ritchie & Jiang, 2019; Juvan & Dolnicar, 2014). Consequently, the concept of eco-architecture edu-tourism was conceived as a means of safeguarding the surrounding environment from the negative impacts of tourism development. The objective is to enhance the quality of a settlement by leveraging the strengths of the existing community to create a sustainable and environmentally conscious tourism model.

The present study was thus designed to provide sustainable architectural frameworks and principles that would facilitate the planning and development of facilities intended to support the potential of a given location or population for educational tourism. These strategies are based on an Eco-Architecture approach and are aligned with the Sleman Regency Tourism Development Master Plan (RIPK). The project's objective is to facilitate the transformation of Embung Tambakboyo into an educational, sporting and recreational destination, with the incorporation of facilities and infrastructure that promote water conservation, enhance the aesthetic appeal of the site and facilitate the provision of tourist services.

The concept of environmental sustainability is becoming increasingly prevalent on a global scale. The emergence of ecotourism architecture represents a significant development in this regard, as it offers a means of integrating sustainability principles into the design of tourism infrastructure. There are numerous avenues for incorporating sustainable practices into tourism architecture, with edu-tourism architecture serving as a prime example. This approach prioritises the preservation of natural ecosystems, water conservation, waste reduction, and other ecological benefits, including improvements in air quality and the reduction of distances between tourists and the natural environment.

METHODOLOGY

The research was conducted methodically starting with the problem formulation stage conducted through direct observation of the phenomena in

Embung Tambakboyo. The results of these observations found that Embung Tambakboyo has various potentials and constraints that can be developed and further organised into a tourist area. In the second stage, data is collected. This is achieved by searching for information, carrying out a literature review and identifying data that is relevant and applicable to the planning and design process. The data can be classified into two principal categories: primary and secondary sources. The primary data is collected through direct observation of the site conditions and through the documentation of these observations. This documentation includes the capture of photographs from key vantage points and of pertinent features. This data will subsequently inform the analysis stage. Secondary data comprises theories pertinent to tourism, reservoirs, landscapes, and precedents employed as illustrative examples in planning and design. The third stage is the analysis stage, during which the physical and non-physical data obtained previously are subjected to analysis. The data are processed by identifying them based on existing literature, with a view to producing considerations that can be used to inform the formulation of design concepts. The fourth and final stage is the synthetic stage, whereby any outstanding problems or issues that have been identified are resolved. This is then followed by the design transformation stage, which represents the planning and design concepts through a visual representation.

RESULT AND DISCUSSION

Embung Tambakboyo has the potential to become a significant tourist destination, offering a unique combination of natural and artificial features. The confluence of landscape features, including reservoirs, sweeping vistas of Mount Merapi, rich biodiversity, and a dynamic river system, has the potential to foster the growth of water-based ecotourism. The reservoir's primary function as a water resource manager renders it an invaluable educational instrument for the advancement of environmental conservation and the dissemination of knowledge regarding water management technology. Furthermore, the area has the potential to be developed into a destination for sports and recreational tourism, including activities such as jogging, cycling, and water sports. Furthermore, the location is strategically situated to facilitate access for both local and international tourists.

However, the development of Embung Tambakboyo is confronted with a number of challenges, including the absence of tourist facilities, a lack of promotion, and the threat of environmental damage resulting from unsustainable management practices. To overcome this, integrated management with an eco-architecture approach is required to maintain ecosystem balance. Education-based promotion and partnerships with local communities can enhance the appeal of this area as an environmentally friendly tourist destination. With careful planning, Embung Tambakboyo has the potential to become an educational tourism centre that supports environmental conservation while improving the welfare of the surrounding community.

The concept of tourism activities at Tambakboyo Reservoir using an ecotourism approach that focuses on conservation, education, and

sustainability aspects. The primary function of water conservation is emphasized through regular maintenance and inspections, water management, and the interpretation of the reservoir's functions to support the ecosystem. Educational value is embodied by providing information on the importance of reservoirs for the environment, showcased in a gallery that explains ecosystem functions and conservation efforts. Additionally, facilities such as a souvenir shop, management office, gallery, and boathouse support tourism activities. This ecotourism concept highlights key aspects, such as raising environmental awareness, involving local communities in management, and providing economic benefits through sustainable tourism activities. For example, the reservoir management is directed towards ecological balance while engaging local communities in tourism ventures, such as selling local products. The concept also prioritizes sustainability by supporting environmental education, raising public awareness, and preserving the reservoir's primary function for conservation.

Table 2: Planning Requirements for Embung Tambakboyo

Keywords	**Planning Concepts**
Harmony, nature conservation and healthy ecosystems	The application of an eco-architecture concept represents a design approach
The conservation of water and the dissemination of knowledge are two key areas of focus.	The planning of the Embung tourism area The Tambakboyo water conservation area provides an educational platform on water conservation activities, while simultaneously maintaining the integrity of the water resources. The educational activities are conducted by identifying crucial locations for the sustainability of the embankment and introducing sections of the embankment and the reservoir.
Recreation and wellness	Embung Tambakboyo provides a range of facilities and services that cater to the needs of both leisure tourists and those engaged in recreational activities. In addition to offering a variety of accommodation options, the area also provides a range of sports facilities, including jogging and cycling trails, fishing spots, volleyball courts, and basketball courts, catering to the needs of both amateur and professional athletes.

Source: Author's analysis

Table 3. Grand concept of the design

Design Issues	Ecological Architecture Characteristics	The application of design principles
Environmental and recycling management	Use of recycled materials	Use of waste timber, rainwater, sewage and reservoir water
Resource use efficiency	Passive daylighting system	Using alternative energy, building orientation and noise management.
Areas with water conservation function	Creating a sustainable environment	Preserve nature and uphold water conservation efforts

Source: Author's analysis

User Analysis

Embung Tambakboyo is a water conservation tourism area whose management involves various parties, in accordance with the Sleman Regency

Regional Regulation 2015 on the Tourism Development Master Plan 2015-2025. The regional government, as the initiator, plays a role in monitoring and developing this area in coordination with the Serayu Opak River Regional Center. The reservoir management structure includes a Maintenance Operations Coordinator (OP), as well as operations, maintenance, and security officers, each with specific responsibilities such as inspections, water quality monitoring, and maintaining order and security. Community organizations also play an important role in maintaining the sustainability of Embung's benefits to the community, including the protection of intellectual works and local traditions. Apart from this, tourists are the main element supporting activities in the area with popular activities such as jogging, fishing and cycling. Tambakboyo Embung, which operates 24 hours a day, records an average daily visit of 500 people, increasing to 800 people on weekends, with the majority of visitors consisting of young people, young families and the male community.

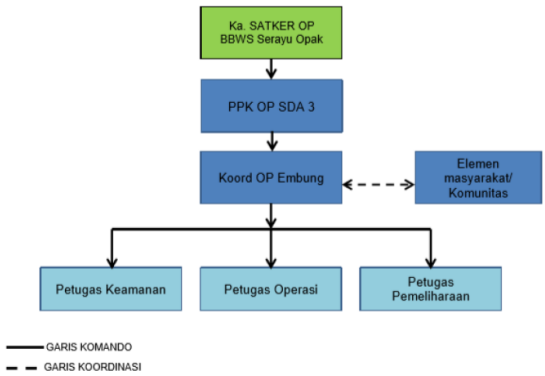


Figure 2. Organisational structure of Tambakboyo Embung. (Source: Pocketbook on the Management of Tambakboyo Reservoir)

Table 2. illustrates the organisational structure of Tambakboyo Reservoir management demonstrates the division of tasks and the coordination mechanisms that are in place to ensure optimal operations. The most senior position within the organisational structure is that of Head of SATKER OP BBWS Serayu Opak, who is responsible for making the final decision. The next most senior position is that of PPK OP SDA 3, who is responsible for coordinating water resource operations. The Reservoir Operational Coordinator serves as the primary point of contact for community elements, facilitating collaboration and ensuring a unified approach. The implementation team comprises security officers, whose role is to supervise, operational officers, who are responsible for the operational functions of the reservoir, and maintenance officers, whose remit is to ensure the proper functioning of the infrastructure. The structure employs a chain of command for vertical decision-making and a line of coordination for horizontal collaboration, thereby ensuring efficient, safe, and sustainable management.

Zone Analysis

In order to plan reservoirs that function not only as water management infrastructure but also as educational tourism destinations, it is necessary to

conduct a comprehensive zoning analysis. This zoning analysis helps to identify the main functions of the area, risks that need to be mitigated, and opportunities that can be utilised to support tourism and educational goals. The following figure presents the results of the zoning analysis that integrates these various aspects.

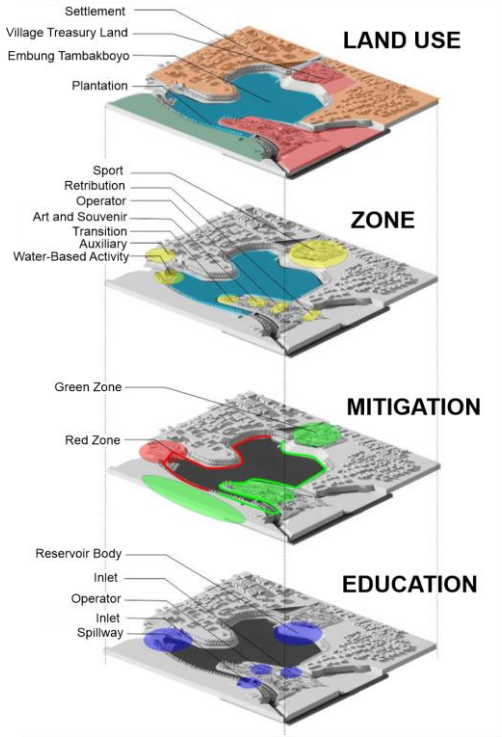


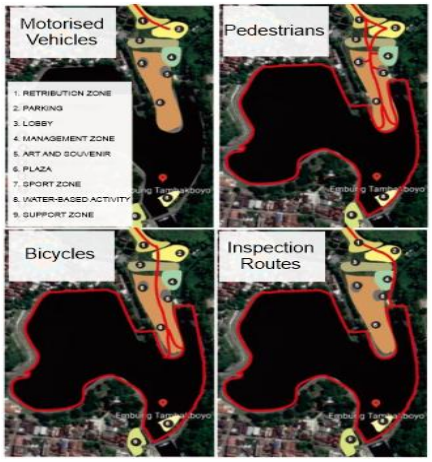
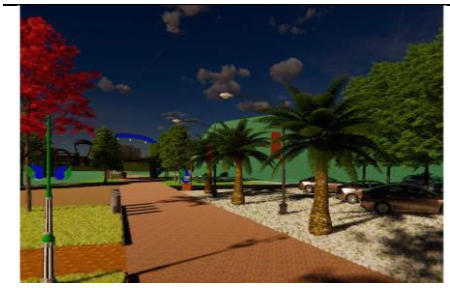
Figure 3. spatial planning analysis of Tambakboyo Embung (Source: Author's analysis)

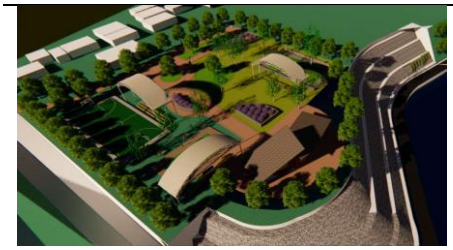
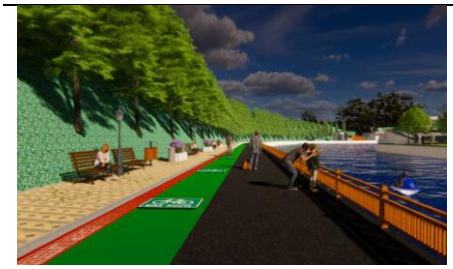
Figure 3 shows the spatial planning analysis of the area, divided into four layers. The four categories are land use, zoning, mitigation and education. The land use layer shows land use functions in the area, including residential zones, village treasury land, the Embung Tambakboyo reservoir, and plantations. The zoning layer subdivides the area into zones with specific functions. The plan includes zones for sports, recreation, management, art and souvenirs, transition zones and water tourism zones. The mitigation layer identifies areas at high risk of flooding and landslides, which are categorised as red zones, and green zones for open space or environmental protection. The final layer, Education, identifies learning opportunities. These include the reservoir as an ecosystem centre, the inlet and spillway channels as models for water management, and management areas that could support training. Overall, the layers demonstrate the integration of environmental aspects, risk management, tourism and education in the management of the area.

Outdoor Spatial Planning

The planning requirements set out in the planning concept will be organised in accordance with the issues identified on the site. The problems identified during the course of the project have given rise to design requirements, which are described in the following table.

Table 4. Outdoor Spatial Planning

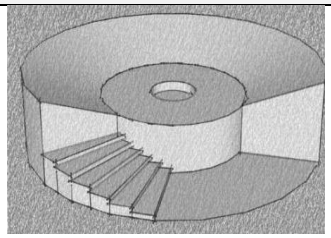
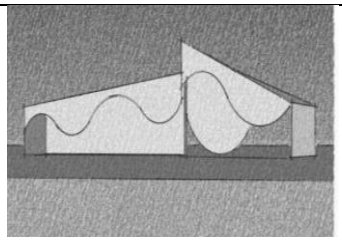
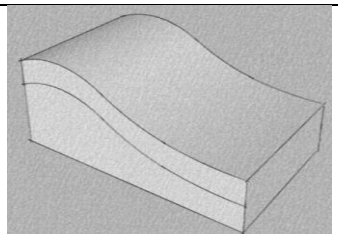
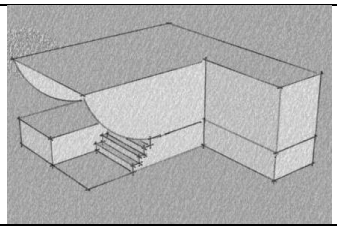
Design	Description
	The circulation concept separates motorised vehicles, pedestrians and bicycles to create safe, convenient routes for all. Motor vehicles can park in designated areas, while pedestrians and cyclists can use the whole site, including the inspection path around the reservoir. The design mitigates potential risks at points of vulnerability, such as the inspection path. This area is designed with elements that define open space, such as informational panels and colour-coded paths. The outdoor design also takes into account the activity needs of the users with efficient space arrangements. Overall, the design combines sustainability, comfort, and visual appeal.
	The entrance area design is an integral component of tourism infrastructure, prioritising functionality, aesthetic appeal and sustainability. The main features are parking, security, well-organised parking areas and pedestrian routes. Street lighting is positioned for safety and comfort, while palm trees create a natural ambience and provide shade. This design fulfils the functional requirements of tourists and reinforces the impression of environmental responsibility.
	The plaza area is a public open space with aesthetic, functional, and sustainable elements, creating a comfortable and attractive tourist experience. The fountain pool is a focal point and natural cooling element.The corridors are designed for pedestrians, with seating areas and photo zones.The verdant foliage and vibrant flora contribute to the space's aesthetic appeal and ambience.This design facilitates social and recreational interactions while prioritising the comfort and experience of tourists.
	This facility supports tourism while enhancing the area's attractiveness. The photographic area has a main stage to highlight the area's identity, while the riverbank viewing area shows the reservoir, water, and river flow. The traders' stalls are situated to facilitate economic activities while maintaining visitor flow. Natural materials, green spaces and pedestrian pathways foster harmony between the constructed design and the surrounding environment. This makes the area a destination for leisure and education.

Design	Description
	The provision of bicycle and jogging/pedestrian paths along the riverbank serves to create an environmentally friendly and healthy activity space. Furthermore, the establishment of vendor stalls provides opportunities for local communities to engage in economic activities without causing any damage to the aesthetic qualities of the surrounding landscape. The strategic placement of gutters and refuse receptacles facilitates the implementation of an organised and hygienic environmental management system. The incorporation of green elements, such as shady trees, serves to integrate the area with its natural surroundings, while simultaneously providing an educational platform.
	This sports area has multifunctional facilities for community sports and social interaction. The area has basketball, volleyball and soccer courts with stands or viewing areas. The compact layout ensures user comfort and enhances the aesthetic appeal of the surrounding environment. Seating, rest areas and organised access facilitate the needs of players and spectators, making this area conducive to recreational activities, local competitions and physical education. This facility promotes healthy lifestyles and enhances social connectivity.
	This design concept integrates the delivery of information with the creation of public space. This area features a modest garden with signage and flourishing flora. The path around the area is designed for visitors, while the modern pavilion protects the information from the weather and adds visual value. The design creates a comfortable, shady and harmonious environment with a backdrop of tall trees, while supporting community-based educational programmes.
	The design presents a multifunctional area with bicycle paths, jogging and pedestrian paths, and seating areas along the reservoir. The paths separate user activities for safety and comfort. Facilities, including bins, handwashing and barriers, maintain the area in a clean, safe and environmentally friendly condition. Boats enhance water-based activities. The verdant backdrop and rows of foliage create a natural ambience and provide respite from the sun. This design reflects a harmonious integration of human activities and environmental sustainability, facilitating social interaction, sports, and relaxation.

Source: Author's analysis

Tourism Facility Building

Table 5. Form Development

Description	Design	
	Form Idea	**Building Mass**
The Manager and the Embung Gallery Building The building's form is derived from the morphology of a water droplet, consisting of two masses designated for administrative functions and an art gallery. It maximizes natural lighting through openings and incorporates a shading system to reduce the need for artificial ventilation.		
Supporting sports facilities. The building's form represents the morphology of flowing water, serving as a supporting space for the sports zone. It maximizes natural lighting, with the building oriented westward and the northern mass raised higher to function as shading.		
Art and souvenir facility. The building's form reflects the morphology of flowing water, serving as a space for art and souvenirs. Openings are utilized for natural lighting, and local materials are incorporated in its construction.		
Boat House The building's form is inspired by the curved morphology of a boat, serving as a space for a boathouse.		

Source: Author's analysis

The Manager and the Embung Gallery Building

The Manager and the Embung Gallery Building represent a pivotal element of the proposed eco-tourism development at Tambakboyo Reservoir. The building has been designed with two distinct purposes in mind: it serves as the headquarters for reservoir management and as an educational centre for visitors. The eco-friendly design of the building, which incorporates natural materials and green elements, is in harmony with the surrounding environment. The accessibility features, such as play areas and walking paths, are designed to cater to all visitors. The open and light-filled interior, coupled with interactive exhibits, creates an engaging learning environment. The circular presentation room offers a versatile space for educational programmes and cultural events. The building has been designed to combine functionality and sustainability, with the aim of enhancing the visitor experience and promoting environmental awareness.

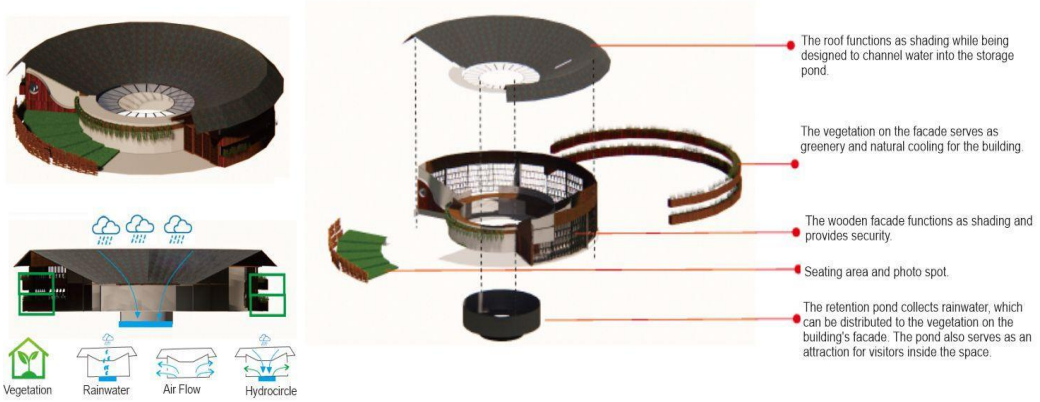


Figure 4. Embung Gallery Building
(Source: Author's analysis)

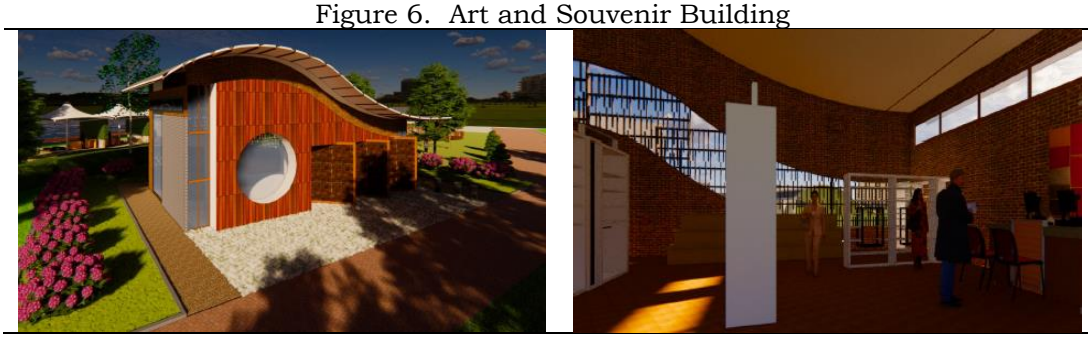
Figure 4 describe that the design is integrated with the surrounding natural environment, featuring a sloped roof that mimics the gentle curves of the landscape. The utilisation of natural materials, such as wood and stone, serves to enhance the building's eco-friendly aesthetic. The incorporation of green elements, such as the vertical garden and the surrounding greenery, contributes to the creation of a cool and sustainable environment. The building's open and light-filled interior fosters a welcoming space for visitors to learn about the reservoir and the importance of water conservation. The planned interactive exhibits and educational programmes are designed to engage visitors of all ages. The circular presentation room offers a versatile space for lectures, workshops, and cultural events. By combining functionality and sustainability, this building aims to enhance the visitor experience and promote environmental awareness.

Figure 5. Embung Gallery Building

Source: Author's analysis

Figure 5 illustrates the architectural design of a building that serves as a multifunctional space for the presentation of educational and managerial content related to the reservoir. The exterior design is environmentally friendly, employing natural materials such as wood and a sloped roof that blends with the surrounding nature. Additionally, green elements like plants are incorporated, creating a cool and sustainable atmosphere. The building features play areas and walking paths that facilitate visitor accessibility. The interior spaces are designed to be open with natural lighting, creating a comfortable atmosphere conducive to education. The first room has a circular design for presentations or performances, while other areas display exhibitions reservoirs with layouts that facilitate visitor interaction. This design combines functionality, aesthetics, and a connection to nature, thereby supporting research and learning about water management and the environment through the reservoir.

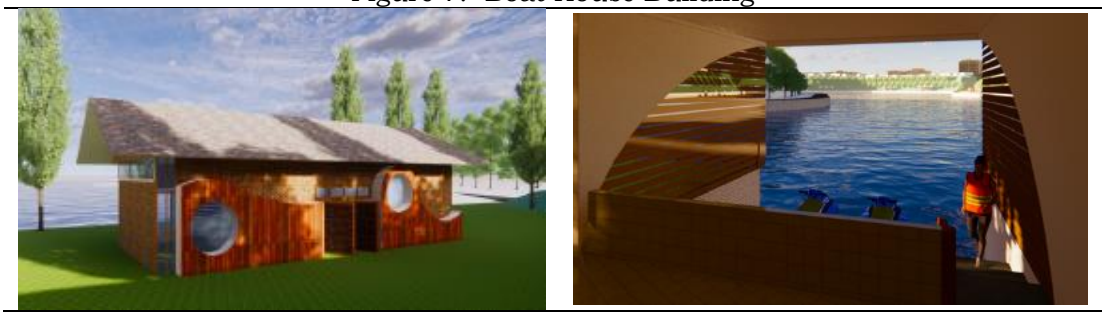
Figure 6. Art and Souvenir Building



Source: Author's analysis

Figure 6 illustrates The Art and Souvenir Area, designed as a forum for local community empowerment and sustainability. This building supports creative and economic activities based on the management of recycled waste from the reservoir area and the surrounding environment. The main products include handicrafts made from recycled materials, plant seeds for environmental care activities, and food preparations based on local agricultural products. The building's layout creates comfortable, attractive sales areas that encourage social interaction. Visitors learn about waste management and community empowerment. The Embung landscape enhances the visual appeal and reflects environmentally friendly design principles.

Figure 7. Boat House Building



Source: Author's analysis

Figure 7 illustrates The Boat House, a multi-functional facility designed to support both the operational needs of the reservoir and educational

activities for visitors. The main function of this building is to store and repair boats used in the routine inspection and maintenance of the reservoir. This facility is also equipped with two four-person boats that can be used simultaneously by officials and visitors through a special reservation system. Visitors can take part in this educational activity through an organised flow, starting from the Retaliation Area, where they are directed to the Boat House to make a reservation. They are then directed to the storage area and preparation before starting the inspection and maintenance of the reservoir by boat. This process provides a direct learning experience about the importance of maintaining the reservoir ecosystem and its operations. The boathouse is also equipped with clear directional signage for easy access and is designed for the comfort of officers and visitors. With this approach, this facility not only supports the sustainability of the reservoir's operations, but also enriches the tourism experience by integrating education and public participation in environmental conservation activities.

Figure 8. Sport Support Building

Source: Author's analysis

Figure 8 shows the Sports Support Building, a structure designed to enhance both functionality and aesthetics, meeting the needs of sporting activities while harmonising with the surrounding environment. The building's architecture incorporates dynamic forms and circular openings that emphasise natural light and ventilation. The first image shows the exterior view, with clean lines and a connection to the landscaped surroundings. The vibrant colours and geometric shapes reflect the active and dynamic nature of sport. The second image highlights the interior perspective, where the interplay of light and shadow through circular openings creates a warm, inviting atmosphere. This design provides a functional space for sports-related activities and a visually appealing environment.

CONCLUSION AND RECOMMENDATION

In conclusion, the research has investigated the potential for developing Tambakboyo Reservoir into a sustainable eco-tourism destination through the implementation of eco-architectural design principles. The integration of sustainable practice, the preservation of natural elements and the involvement of the local community will enable this development to provide visitors with a unique experience whilst contributing to the local economy and environment. The proposed design strategies, including the use of natural materials, water conservation techniques and renewable energy sources,

demonstrate a commitment to environmental responsibility. Furthermore, the incorporation of educational elements and cultural experiences enhances the visitor experience and promotes an increased understanding of local heritage and sustainable practices. By implementing these recommendations, Tambakboyo Reservoir has the potential to become a model for sustainable tourism development in Indonesia and to inspire similar initiatives in other regions.

REFERENCES

Attmann, O. (2010). Green architecture: advanced technologies and materials. (No Title).

Ayeni, D. A. (2011).Identifying Landscape Elements as Tourism Infrastructure: The Case of Nigeria.

Adebayo, A. K., & Iweka, A. C. O. (2014). Optimizing the Sustainability of Tourism Infrastructure in Nigeria through Design for Deconstruction Framework.

Bashiru, A. A., Falabi, M. O., & Odetoye, A. S. (2022). review of the role of architecture in tourism industry development in Nigeria. Journal of Research in Hospitality and Tourism Management, 4.

Beatley, T., & Manning, K. (2013). The ecology of place: Planning for environment, economy, and community. Island Press.

Broadbent, G., & Brebbia, C. A. (2006). Eco-Architecture: Harmonisation Between. Architecture and Nature.

Cegar, I. (2014, December 8). PROGRAM ARCHITECTURE'S ROLE IN TOURISM AND CITY BRANDING. [IAAC Blog]. https://www.iaacblog.com/programs/architectures-role-in-tourism-and-city-branding_/

Cole, S., & Ferguson, L. (2015). Towards a gendered political economy of water and tourism. Tourism Geographies, 17(4), 511-528.

Costa, C., Quintela, J., & Mendes, J. (2014). Health and wellness tourism: A strategic plan for tourism and thermalism valorization of São Pedro do Sul. In Health and Wellness Tourism: Emergence of a New Market Segment (pp. 21-31). Cham: Springer International Publishing.

Dolnicar, S., Knezevic Cvelbar, L., & Grün, B. (2019). A sharing-based approach to enticing tourists to behave more environmentally friendly. Journal of Travel Research, 58(2), 241-252.

Gössling, S. (2006). Tourism and water. In Tourism and global environmental change (pp. 180-194). Routledge.

Juvan, E., & Dolnicar, S. (2014). The attitude–behaviour gap in sustainable tourism. Annals of tourism research, 48, 76-95.

Kruger, L. E. (2017). Writing About Water and Recreation. Journal of Park and Recreation Administration, 35(2).

LaVanchy, G. T. (2017). When wells run dry: Water and tourism in Nicaragua. Annals of Tourism Research, 64, 37-50.

Imikan, A.M. and Ekpo, K.J. (2012) Infrastructure and Tourism Development in Nigeria: A Case Study of Rivers State. International Journal of Economic Development Research and Investment, 3, 53-60.

Hall, C. M. (2021). Constructing sustainable tourism development: The 2030 agenda and the managerial ecology of sustainable tourism. In Activating critical thinking to advance the sustainable development goals in tourism systems (pp. 198-214). Routledge.

Higgins-Desbiolles, F. (2018). Sustainable tourism: Sustaining tourism or something more?. Tourism management perspectives, 25, 157-160.

Hunt, L. M. (2008). Examining state dependence and place attachment within a recreational fishing site choice model. Journal of leisure Research, 40(1), 110-127.

Jennings, I., & Newman, P. (2008). Cities as sustainable ecosystems. Principles and practices.

Maitland R and Newman P (2008) Visitor–host relationships: conviviality between visitors and host communities. In: Hayllar B, Griffin T and Edwards D (eds) City Spaces – Tourist Places: Urban Tourism Precincts. Oxford: Elsevier, pp. 1–381.

McKay, A. D., Brownlee, M. T., & Hallo, J. C. (2012). Changes in visitors' environmental focus during an appreciative recreation experience. Journal of Leisure Research, 44(2), 179-200.

Melgosa Arcos, F. J. (2000). Turismo de salud: Termalismo y Balnearios.

Molina Villar, J. J. (2004). Termalismo y turismo en Catalunya: un estudio geohistórico contemporáneo. Universitat de Barcelona.

Solís, A. F., & Zhu, X. (2015). Water markets: Insights from an applied general equilibrium model for Extremadura, Spain. Water Resources Management, 29, 4335-4356.

Trovato, M. G., Ali, D., Nicolas, J., El Halabi, A., & Meouche, S. (2017). Landscape risk assessment model and decision support system for the protection of the natural and cultural heritage in the Eastern Mediterranean Area. Land, 6(4), 76.

Pueyo-Ros, J. (2018). The role of tourism in the ecosystem services framework. Land, 7(3), 111.

Rasoolimanesh, S. M., Chee, S. Y., & Ari Ragavan, N. (2023). Tourists' perceptions of the sustainability of destination, satisfaction, and revisit intention. Tourism Recreation Research, 1-20.

Rezapouraghdam, H., Shahgerdi, A., & Kahrizi, O. (2015). An Introduction to Edu-Tourism in Northern Cyprus: A Short Communication. International Journal of Sciences: Basic and Applied Research, 19(2), 92-98.

Ritchie, B. W., & Jiang, Y. (2019). A review of research on tourism risk, crisis and disaster management: Launching the annals of tourism research curated collection on tourism risk, crisis and disaster management. Annals of tourism Research, 79, 102812.

Weinzierl, T., & Schilling, J. (2013). On demand, development and dependence: a review of current and future implications of socioeconomic changes for integrated water resource management in the Okavango Catchment of Southern Africa. Land, 2(1), 60-80.

Yuliani, Sri and Samsudi, and Widaryatmo , (2012) Kajian Penerapan Konsep Ekologi Arsitektur sebagai Metode Perancangan Pembangunan Berkelanjutan dalam Manajemen Pengelolaan Iklim di Daerah Tropis. Surakarta, Jurnal Fakultas Teknik UNS