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Securing Land Assets through Integration of Green Open Spaces and Heritage Sites

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Abstract

This study focuses the regeneration of the Tongkol Public Housing area, a heritage site of Batavia Castle in Jakarta. Using a qualitative-descriptive approach including document studies, field surveys, precedent analysis, and Focus Group Discussions. The research highlights the need to integrate cultural preservation, ecological restoration, and social inclusion. The proposed public space design adopts SDG 11.7 principles by creating inclusive green open spaces accessible to all, supporting community activities, and reinforcing local identity. Dedicated areas for MSMEs and heritage galleries are designed to enhance economic empowerment and preserve collective memory. The participatory process facilitated collaboration among residents, experts, and policymakers, producing contextual and sustainable design strategies that connect historical heritage with modern urban needs. This study contributes a model for revitalizing historic urban sites that aligns with sustainable development goals, promoting inclusivity, ecological resilience, and cultural continuity.

INTRODUCTION

Urbanization in Indonesia has accelerated significantly, particularly in metropolitan areas such as Jakarta. This expansion generates increasing pressure on land availability, housing demand, and public facilities, often resulting in tensions between infrastructure development, environmental preservation, and community needs (Rukmana, 2008). In highly dense urban settlements such as Tongkol Public Housing in North Jakarta, these challenges are further complicated by the presence of cultural heritage assets, including the remains of Batavia Castle, which carry historical and symbolic value for the city (Gultom, 2018). Integrating heritage conservation into sustainable urban development therefore emerges as a critical issue.

The urgency of this integration is strongly aligned with Sustainable Development Goal (SDG) 11.7, which highlights the importance of providing universal access to safe, inclusive, and green public spaces, particularly for vulnerable groups such as women, children, the elderly, and persons with disabilities (Rahman, Grunwald & Saha, 2025). However, the current urban development paradigm in Jakarta often prioritizes economic growth and physical expansion,

leaving limited room for inclusive and heritage-sensitive design approaches (Putra, Trisnawati & Widayat, 2024). This has created a gap in strategies that simultaneously address social equity, ecological restoration, and cultural identity within urban renewal projects (Ripp, 2025).

To respond to this gap, this study employs a multi-method approach, combining document and historical analysis, site surveys, precedent studies, and participatory methods such as Focus Group Discussions (FGD). Document and historical studies reaffirm the presence of Batavia Castle beneath the Tongkol Public Housing site, highlighting its cultural significance (Ellisa, 2016). Site surveys identify existing spatial fragmentation, ecological potentials, and underutilized land (Rukmana, 2008). Precedent studies in Kota Tua, conducted in collaboration with the Cultural Heritage Conservation Office, provide valuable insights into successful heritage-based revitalization practices (Purwantiasning & Sofiana, 2015). Furthermore, FGD engage multiple stakeholders including residents, academics, and government representatives to explore aspirations, reconcile priorities, and co-develop context sensitive strategies (Rahmayanti et al., 2021).

Through this integrated approach, the research seeks to propose design strategies that harmonize heritage conservation, contemporary public space functions, and ecological sustainability. The expected outcome is not only a functional urban environment but also one that reinforces local identity, fosters social inclusivity, and contributes to sustainable urban development in Jakarta and beyond.

LITERATURE REVIEW

1. Batavia Castle and Heritage Site

Tongkol Public Housing in North Jakarta lies above the former center of the VOC Batavia Castle, which was established in the early 17th century on the remains of Jayakarta and functioned as the administrative and military headquarters of the company (Sastramidjaja, 2014). The fortress was constructed based on a grid plan with canals serving both as defensive structures and maritime connections (Gultom, 2018). In 1809, Governor-General Daendels demolished Batavia Castle to reuse its building materials for the construction of a new administrative center in Weltevreden. Although its remains today are fragmented and underutilized as public space, this historically significant site listed on UNESCO's Tentative World Heritage List holds great potential to be revitalized through the development of sustainable green open spaces that reconnect heritage with the contemporary urban fabric.

2. Sustainable Green Open Space

The transformation of abandoned land into sustainable green open spaces (GOS) is a key strategy for enhancing urban quality while promoting environmental sustainability. Green Infrastructure (GI) and Nature-Based Solutions (NBS) improve ecological quality, increase biodiversity, and provide vital ecosystem services (Tzortzi et al., 2022). Moreover, GOS can function as inclusive social interaction spaces, aligning with SDG 11.7, which emphasizes universal access to safe and green public spaces. However, the distribution of GOS in Jakarta is uneven, with densely populated areas such as North Jakarta facing significant limitations (Wijaksono et al., 2025). Therefore, reimagining Tongkol Public Housing as sustainable GOS not only improves environmental quality but also delivers essential social benefits for the community.

3. Integrating Regeneration Principles into Cultural Heritage Landscapes

The regeneration of heritage sites requires an approach that combines physical preservation, reinterpretation of historical narratives, and ecological restoration. Adaptive reuse and regeneration strategies strengthen place identity while minimizing construction waste by reusing historical elements (Lian et al., 2024). A successful example in Jakarta is the transformation of Kalijodo from an informal settlement into a multifunctional urban park, which enhanced safety, ecological quality, and inclusivity (Sutanto & Junadi, 2018). The project adopted adaptive reuse principles to balance preservation with new functions, though its long-term success depends on sustainable management and active community involvement. A similar approach could be applied to the Batavia Castle site by transforming it into a cultural interpretive park that also functions as an ecological connector between the historic core and the waterfront. By integrating sustainable green spaces, the heritage site can be both ecologically restored and revitalized as a public space for education and social interaction (Taylor, 2025). Moreover, participatory landscape planning is crucial to build resilience and reinforce community identity (Giudice & Voghera, 2024)

METHODS

This study employed a qualitative-descriptive approach emphasizing field observation, historical research, precedent study, and community engagement to comprehensively understand the conditions of the abandoned spaces in Tongkol Public Housing. The initial stage involved a document study examining archives, old maps, and relevant literature on heritage areas in Jakarta. This review aimed to uncover historical values, architectural principles, and conservation regulations that could serve as the foundation for the regeneration process.

Subsequently, field surveys were conducted on-site at the Tongkol Public Housing area on 10 April 2025 to directly document the physical conditions of the site. These observations included mapping vacant spaces, abandoned buildings, vegetation, environmental quality, and current uses by residents. The survey also revealed the presence of a historical site, the Kampung Bayam community, and unused public facilities, thereby broadening the scope of the study and emphasizing the socio-cultural dimension of the design process.

To complement these findings, a precedent study was carried out by examining revitalization projects in Jakarta's Kota Tua and other successful cases that integrated heritage with sustainable green open spaces. This comparative analysis provided design principles and inspiration that could be adapted to the Tongkol Public Housing area.

To ensure the proposed design responded to community needs, the research also employed Focus Group Discussions (FGDs) with multiple stakeholders, including Tongkol Public Housing residents, government representatives (DPRKP), the Cultural Heritage Preservation Office, and academics. The FGDs were conducted in three stages: FGD 1 at the Tongkol Public Housing site on 21 May 2025, FGD 2 at Universitas Bina Nusantara (Syahdan Campus) on 19 June 2025, and FGD 3 at JB Tower, Kebon Sirih, on 14 July 2025. These discussions not only served to gather aspirations but also to reconcile differing stakeholder interests, resulting in more collaborative solutions.

All data from document study, field surveys, precedent studies, and FGDs were systematically analyzed by reviewing physical, historical, ecological, and social aspects to

identify potentials, constraints, and opportunities for development. This process culminated in the formulation of a conceptual design strategy aimed at integrating heritage conservation with ecological restoration while addressing the social needs of the community.

RESULTS AND DISCUSSION

1. Heritage Typology and Cultural Preservation

Document studies and historical records confirm that Batavia Castle was one of the main fortifications constructed by the VOC in the 17th century. The castle had a quadrangular layout with bastions at each corner, following the typology of European military architecture. Its structure was built from red brick and coral stone reinforced with lime mortar, materials commonly used by the Dutch in tropical coastal regions at that time. Within the castle complex, there were administrative offices, spice warehouses, military barracks, and even a chapel. The castle was also directly connected to Batavia's main canal system, serving not only as a military stronghold but also as the administrative center of the VOC in Asia.

Although the castle was physically demolished in the early 19th century under the order of Governor-General Herman Willem Daendels to clear land for new roads and expand the Batavia New Town (Weltevreden), archaeological traces remain preserved beneath the surface of today's Tongkol Public Housing area. Excavations carried out by the Provincial Government of Jakarta in collaboration with the Cultural Heritage Conservation Office and archaeologists from Universitas Indonesia uncovered brick flooring at a depth of approximately two meters, along with remnants of castle walls that remain intact.

In addition to architectural structures, the excavations revealed artifacts such as fragments of Chinese and European ceramics, as well as VOC-era clay pipes, providing evidence of the socio-economic activities that once took place within the castle. These findings highlight the layered material heritage and reinforce the historical value of the site.

Today, although the land above the former castle has been sealed with concrete and asphalt due to the construction of Tongkol Public Housing, research confirms that its archaeological remains are still preserved below. This positions Tongkol Public Housing as a hidden cultural heritage site whose management must comply with Indonesia's Law No. 11 of 2010 on Cultural Heritage. Accordingly, integrating the memory of Batavia Castle into the regeneration design is not only an obligation for heritage preservation but also a means to strengthen local identity and community sense of place.

2. Site Visit to Tongkol Public Housing

Field observations documented the fragmented use of land within Tongkol Public Housing, including abandoned open spaces, unused public facilities, and areas occupied by the Kampung Bayam community. These conditions reveal both challenges and opportunities. On one hand, the deteriorating physical environment reflects a lack of maintenance and weak integration with the city's broader green open space system. On the other hand, the existence of underutilized land offers significant potential for conversion into multifunctional green open spaces. Ecological potential was identified through existing vegetation and soil conditions suitable for

community gardens and rainwater management. These findings emphasize the importance of ecological restoration as a foundation for sustainable design.

Fig. 1. Existing Buildings in the Tongkol Public Housing Area

The site plan of the Tongkol Flats area illustrates its main facilities and surroundings, including the Tongkol Flats Tower, a football field, and several infrastructure points that support daily activities. On the west side, there is a Dutch Colonial Building as a historical element, along with temporary housing for Kampung Bayam residents. The area also contains residential houses, a residents' parking area, and community facilities such as the Karang Taruna Office. In addition, temporary housing and a prayer room are provided for project workers.

3. Precedent Study in Kota Tua Jakarta with the Cultural Heritage Conservation Center

The precedent study in *Kota Tua* Jakarta area was conducted in collaboration with the Cultural Heritage Office as the main partner. This collaboration aimed to gain an in depth understanding of preservation and revitalization practices that have been successfully implemented in Jakarta's historic districts.

Findings indicate that the revitalization of the *Kota Tua* does not solely emphasize the physical conservation of colonial buildings but also integrates the preservation of historical narratives and the adaptive reuse of spaces for community benefit. For example, Fatahillah Square has been successfully reactivated as an interactive public space, while historic buildings such as Toko Merah and the Maritime Museum were restored by applying adaptive reuse principles granting new functions to old structures to maintain their relevance for contemporary society.

Through discussions with the Cultural Heritage Office, it was learned that the success of the Kota Tua revitalization relies on synchronizing heritage conservation regulations with community empowerment programs. This approach ensures that conservation efforts not only

safeguard material and architectural values but also generate socio-economic impacts through the activation of MSMEs, art activities, and public education on Jakarta's history.

Fig. 2. Historical Heritage around the Tongkol Public Housing Area

The map highlights the surrounding context of the Tongkol Flat area, which is located near several significant landmarks and facilities. To the north, there is the Hexagon Market and the historical Museum Bahari, while nearby also stands the Old VOC Warehouse from the Vereenigde Oostindische Compagnie era. On the eastern side, the Aquarium Flats serve as additional residential facilities for the community, and further south stands the Syahbandar Tower, an important historical structure. These elements reflect a mix of residential, cultural, commercial, and heritage functions that shape the unique urban fabric around the Tongkol Flats.

4. Design Development

The design development was carried out by integrating the historical legacy of Batavia Castle with the contemporary needs of public space in Tongkol Public Housing. The concept seeks to create spaces that are not only functional but also capable of evoking the residents' collective memory of Batavia's history. In this regard, the green open space developed covers 22,631 m² out of the total 23,786 m² site area, signifying the project's strong emphasis on ecological and social sustainability.

4.1 Heritage Principles (Batavia Castle)

The principle of Interpretive Memory is embodied in pedestrian pathways and landscape patterns that reinterpret the footprint of Batavia Castle's historic tunnel, materialized through floor patterns, landscape elements, and historical signage. This spatial strategy not only serves as a connector but also functions as an educational and cultural experience, reviving the identity of Batavia's past. The principle of Adaptive Reuse incorporates archaeological remains, such as walls and brick flooring, into a shallow tunnel and gallery that allow the public to encounter heritage elements in a contemporary way. Meanwhile, the principle of Community Identity is realized through participatory planning, ensuring that the heritage narrative is meaningfully linked to present social life, thereby reinforcing local identity and resilience.

4.2 UMKM Space Principles

The UMKM (Micro, Small, and Medium Enterprises) area is designed as a platform for the residents' creative economy. The arrangement of kiosks, interaction zones, and supporting facilities aims to strengthen small business networks, provide effective marketing spaces, and

foster stronger social connections among residents. The visualization of this UMKM space is enhanced by modular structures and local materials, reflecting community identity while supporting sustainability.

4.3 Ecological and Community Integration

Aligned with the heritage and UMKM concepts, the landscape is supported by ecological elements such as rain gardens, local vegetation, and green corridors. These serve not only ecological functions improving air quality and microclimate but also enrich spatial experience by creating inclusive and health-promoting green areas for residents.

Through this approach, the "Reckoning the Memory of Origin Batavia" design does not merely revive historical traces but also creates public spaces that are productive, sustainable, and strongly rooted in local identity

Fig. 3. Design Master Plan

Site plan illustrates a integrated area consisting of various facilities that support both community activities and daily needs. Key elements include a gallery, plaza area, and the Batavia Castle Tunnel as cultural and recreational points, alongside seating areas, MSME spaces, and a playground to encourage social interaction. Public amenities such as an amphitheater, thematic garden, sports area, mosque, parking building, and waste disposal area (*TPS*) are provided to accommodate diverse functions. The site also includes fields, utility buildings, an existing tower, and a bus stop, ensuring accessibility and practicality. Together, these facilities create a balanced environment that combines cultural heritage, recreation, community services, and infrastructure.

5. Participation in Design (Focus Group Discussion)

The series of Focus Group Discussions demonstrated the active involvement of various stakeholders, including residents, academics, and local government representatives. The discussions generated several key findings. First, the residents of Tongkol Public Housing emphasized the need for functional green open spaces that serve not only as ecological elements but also as social spaces accommodating daily community activities. Second, academics and representatives from the Cultural Heritage Agency highlighted the importance of preserving the collective memory of Batavia Castle, whose remains still lie beneath the

housing complex, thereby requiring spatial design to integrate historical education aspects. Third, the government, represented by DPRKP, stressed the significance of sustainability and spatial order to ensure that design interventions align with cultural heritage regulations and broader urban development plans.

Fig. 4. Focus Group Discussion

The Focus Group Discussion also revealed differences in priorities among stakeholders: residents tended to emphasize aspects of utility and comfort, while academics placed greater importance on education and preservation, and the government focused on regulation and sustainability. However, through further discussions, a common ground was reached in the form of a recommendation to create sustainable green open spaces that integrate ecological, social, and historical functions. The FGD process not only provided data on community needs but also strengthened cross-sector collaboration to achieve a contextual and inclusive regeneration design.

5.1 Focus Group Discussion Feedback

Table 1. Focus Group Discussion 1 Feedback

No.	Discussion Details	Implementation Plan
1.	Vacant land at Tongkol Public Housing is optimized through community participation.	Community aspirations were collected, resocialized, and used as input for the final design.
2.	The provision of early childhood education (PAUD) facilities is proposed, as many children in the housing complex need guidance.	The multipurpose hall will function as a PAUD, managed by the community and facilitated by the local government..
3.	Residents complained about the lack of adequate UMKM (Micro, Small, and Medium Enterprises) facilities to support small businesses.	UMKM area will be prepared with a flexible design (semi-permanent materials) that can be adjusted according to business needs..
4.	Residents proposed the provision of health facilities (posyandu, clinics, basic health posts) to support the increasing number of residents.	Temporary multifunctional facilities will be used as posyandu/clinics while waiting for permanent facilities to be built.
5.	The importance of preserving Batavia Castle as a cultural heritage site was emphasized.	The design will focus on using lightweight structures, along with a mini history gallery for educating residents about cultural heritage.

FGD 1 focused on immediate social needs, with proposals to optimize vacant land through community participation, provide PAUD facilities, improve UMKM spaces, and introduce temporary health posts such as *posyandu* and clinics. Residents also highlighted the importance of preserving Batavia Castle through lightweight structures and a mini history gallery.

Table 2. Focus Group Discussion 2 Feedback

No.	Discussion Details	Implementation Plan
1.	The proposal includes an amphitheater, MSME facilities, and seating areas with reusable materials, a tunnel limited to 1 meter to protect Batavia Castle remains, and waste management, asset delineation, and boundary walls designed in accordance with the masterplan and site context.	The proposal includes fast-growing vegetation, recyclable materials, a shallow tunnel with a gallery, waste management based on the masterplan, and contextual boundary walls.
2.	The suggestion emphasized using the VOC gate and tunnel to showcase the bastion of Batavia Castle, with a public gallery that strengthens historical narratives as living history.	Further discussions on the historical gallery. The gallery will expose the bastion of Batavia Castle as an educational element, with an integrated narrative to support the design concept.
3.	The suggestion emphasized that the Rusun grid aligns with long-term plans, temporary facilities should be tested, and the design must adapt to Tongkol Public Housing's climate with weather-responsive materials.	Designing temporary facilities for community trial. Providing options for rainwater flow and comfortable space usage. Ensuring designs are responsive to Tongkol Public Housing's climate.
4.	It is suggested that accessibility be designed inclusively to ensure safety for persons with disabilities, children, and the elderly.	Further discussion on elevation differences. Circulation will be adjusted with ramps, railings, and other inclusive supporting elements for persons with disabilities, children, and the elderly.

FGD 2 emphasized heritage integration and environmental adaptation. Key points included proposals for an amphitheater, MSME facilities, shallow tunnels to protect Batavia Castle remains, and waste management aligned with the masterplan. Residents also stressed the creation of a public gallery to narrate Batavia Castle's history, the trial of temporary community facilities with climate-responsive materials, rainwater management, and inclusive accessibility through ramps and railings.

Table 3. Focus Group Discussion 3 Feedback

No.	Discussion Details	Implementation Plan
1.	It was proposed to increase UMKM areas to avoid competition among residents and to provide facilities for the elderly and persons with disabilities.	The number of UMKM units will be increased to accommodate the high demand from vendors. Ramps and railings will be added at strategic points.
2.	The importance of green areas and cultural heritage was emphasized, while avoiding excessive paving due to the flood-prone location.	The design has been revised by adding green areas around the amphitheater and reducing paved surfaces to improve rainwater absorption.
3.	It was suggested to clarify emergency vehicle access, evacuation routes, and the designation of an Assembly Point in case of fire or disaster.	Emergency vehicle routes have been designed to allow access for fire trucks. The Assembly Point has also been determined.

FGD 3 highlighted economic, environmental, and safety priorities. Residents proposed expanding UMKM facilities to reduce competition while ensuring accessibility for vulnerable

groups, adding green areas and reducing paved surfaces to improve flood resilience, and strengthening safety planning through clear evacuation routes, emergency vehicle access, and a designated assembly point.

CONCLUSION

The regeneration of Tongkol Public Housing demonstrates that green open space design can go beyond ecological and social functions by actively preserving cultural memory. Through the integration of heritage elements, such as a shallow tunnel that reveals the remains of Batavia Castle and playground features shaped like a castle, the site becomes both recreational and educational. These design strategies ensure that visitors especially children gain awareness that the area they use today is historically significant, thereby strengthening the link between daily life and cultural heritage.

By combining ecological restoration, inclusive public facilities, UMKM opportunities, and heritage interpretation, the project embodies the principles of Sustainable Development Goal (SDG) 11.7 on safe, inclusive, and accessible green spaces. The participatory process involving residents, academics, local government, and the Cultural Heritage Conservation Center highlights that collaborative design can produce contextual, heritage, and sustainable urban regeneration. Ultimately, this project contributes to reinforcing local identity while enhancing environmental and social quality in Jakarta.

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