



## Resilience of Settlement Space in Kampung Melayu Semarang: A Study of Physical and Socio-Cultural Persistence

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### ABSTRACT

This study examines the physical and non-physical dimensions of that resilience through a qualitative-rationalistic approach, combining field observations, architectural documentation, and interviews with key informants. Findings reveal that resilience in Kampung Melayu operates through three interrelated mechanisms: The persistence of a culturally meaningful spatial structure, where settlement sub-blocks such as Kampung Darat, Kampung Banjar, and Kampung Peranakan continue to reflect the ethnic and topographical narratives of their origins; The survival of typologically diverse architecture, including Javanese-Malay mosques, Indo-Chinese shophouses, Indies villas, and Chinese temples, that testifies to historical acculturation; and Sustained communal attachment among residents of diverse ethnic backgrounds, expressed through shared use of religious and civic spaces. The discussion critically engages with existing resilience theory to argue that settlement resilience is not merely physical endurance but an active socio-cultural negotiation with change.

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## INTRODUCTION

Semarang is one of Indonesia's oldest cities, shaped by successive phases of traditional, colonial, and modern urban development. Among its many historic neighbourhoods, Kampung Melayu stands out as a living record of inter-ethnic coexistence that stretches back to at least the 15th century. Located in the northern part of the city adjacent to the former Boom Lama harbour and Kali Semarang, the kampung grew as a trading and residential node accommodating merchants from the Malay Archipelago, Borneo, Yemen, Gujarat, China, and Java (Budiman, 1978; Tunjung, Wijayanti, & Nugroho, 2016).

The spatial structure of Kampung Melayu bears witness to this history. Sub-block names: Kampung Darat, Kampung Ngilir, Kampung Banjar, Kampung Peranakan, Kampung Cerbonan, encode topographic conditions, ethnic affiliations, and historical events within the built environment. These toponymic identities represent a form of place memory that urban planning discourse increasingly recognises as vital to the social continuity of historic settlements (Lynch, 1969; Schulz, 1984).

Today, Kampung Melayu faces serious challenges: inadequate drainage infrastructure causes recurrent flooding and tidal inundation (rob); many heritage structures are in advanced states of decay; and the visual coherence of the corridor has been eroded by unregulated additions. The Semarang City Government has designated the area as a Historic Kawasan (Historic Zone), and revitalization programs are underway. Yet policymakers lack detailed empirical data on what makes the settlement resilient and what dimensions of that resilience must be protected.

This article responds to that gap. Drawing on a 2023 field study conducted under the auspices of the Architecture Study Program of Universitas Kristen Indonesia, it examines the concept of settlement resilience (*kebertahanan*) as applied to Kampung Melayu, asking: (i) What spatial, architectural, and socio-cultural dimensions account for the kampung's persistence over five centuries? (ii) How do these dimensions interact, and what are their implications for revitalization policy?

## LITERATUR REVIEW

### *Settlement Resilience*

The concept of resilience originates in ecology and systems theory but has been progressively adapted to built-environment scholarship. In planning discourse, resilience commonly denotes a system's capacity to absorb disturbance and reorganise while undergoing change so as to retain essentially the same function, structure, and identity (Walker et al., 2004; Miller et al., 2010). Baibarac and Petrescu (2017) distinguish two core dimensions: adaptive capacity, the ability to learn from past disruptions and prepare for uncertain futures, and transformative capacity, the willingness to fundamentally reconfigure a system when existing arrangements become unviable.

Wang et al. (2018) situate urban resilience within social-ecological systems thinking, emphasising that the resilience of a neighbourhood cannot be separated from its governance context, economic base, and cultural fabric. Cere, Rezgui, and Zhao (2017) add that the built environment itself is an active variable: vernacular building forms, materials, and spatial configurations embody adaptive strategies accumulated over generations (Shaw & Ray, 2018).

Applied to urban kampungs, Juwono (2009) identifies three enabling factors for resilience: (a) communal solidarity (*guyub dan rukun*) as a social foundation for collective endurance; (b) local economic resources capable of sustaining livelihoods without dependence on external systems; and (c) adaptive capacity the ability to accommodate external pressures whilst preserving core patterns of life. These factors interact dynamically: the loss of any one can destabilise the others.

### ***Spatial Structure and Urban Identity***

Kevin Lynch's (1969) seminal framework identifies paths, edges, districts, nodes, and landmarks as the elements through which urban dwellers cognitively map their environment. In a kampung context, these elements are compressed into a dense fabric where alleys (*gang*), communal open spaces, and religious buildings substitute for formal boulevards and civic squares. Norberg-Schulz (1984) complements Lynch through the concept of *genius loci*, the essential character of a place, arguing that architectural identity is not merely aesthetic but existential: it grounds inhabitants in a shared world. Rapoport (1977) frames built environments as systems of settings within which behaviour patterns are embedded. Traditional settlements, in this reading, are not passive backdrops but active participants in the reproduction of cultural norms. Habraken (as cited in Fauzia, 2006) further argues that settlement form is a social product: communities negotiate spatial arrangements over time through implicit protocols that reflect shared values. When these protocols are disrupted, by top-down redevelopment, demographic displacement, or economic transformation, place identity erodes.

### ***Historic Urban Landscape and UNESCO Framework***

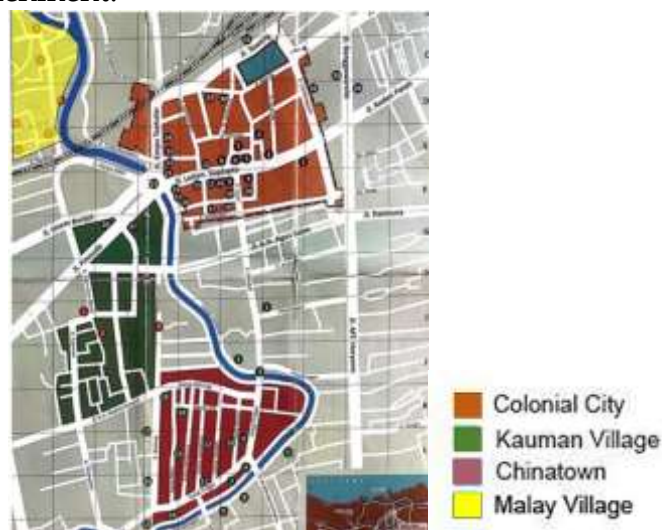
The UNESCO Recommendation on the Historic Urban Landscape (2011) positions heritage conservation not as a static preservation of form but as the management of change in a way that respects historical character whilst enabling adaptation. The framework's key contribution is its insistence on understanding heritage as a layered resource: physical, intangible, and ecological, that requires integrated governance. In Indonesia, this is codified in Law No. 11/2010 on Cultural Heritage and Government Regulation on Heritage Buildings (Permen PUPR No. 19/2021), both of which privilege the preservation of spatial character alongside individual structures.

## METHODOLOGY

This study employs a qualitative-rationalistic research design (Muhadjir, 1996; Creswell, 2009), appropriate for research objectives that require the construction of explanatory frameworks from empirical observations rather than the testing of pre-specified hypotheses. The rationalistic dimension consists in the use of an existing theoretical corpus: resilience theory, urban morphology, and place theory, as an interpretive scaffold that is refined in dialogue with field data.

Data collection proceeded in three stages over the six-month study period. In the first stage (grand tour), the research team conducted systematic observation across the full extent of Kampung Melayu, bounded by Jl. Layur, Jl. Kakap, and Jl. Boom Lama, recording spatial structure, building typologies, infrastructure conditions, and signage. Photographic and sketch documentation was produced for all significant architectural elements. In the second stage (mini tour), detailed observation was concentrated on specific sub-blocks and building specimens exhibiting distinct resilience characteristics. In the third stage, semi-structured interviews were conducted with long-term residents, community leaders, and local historians to elicit non-physical dimensions of resilience, communal memory, attachment to place, and social organisation.

Data analysis followed an open-coding procedure (Strauss & Corbin, in Muhadjir, 1996), through which recurring themes were identified and grouped into categories. These categories were then interrogated through the lens of the theoretical framework, and a conceptual synthesis was constructed through selective coding. Triangulation was achieved by cross-referencing field observations, interview data, historical documents, and cartographic sources (Tunjung et al., 2016; Wijayanti, 2019). The research parameters focused on two primary dimensions: (i) physical parameters: spatial block structure, building facade typology, architectural style (*langgam*), and material character; and (ii) non-physical parameters: patterns of social activity, cultural values, and community attachment.



**Figure 1. A Map of Malay Village (Kampung Melayu), Colonial City, Kauman Village, and Chinatown**

*Source: Tunjung, Wijayanti, & Nugroho, 2016*

## DISCUSSION

### *Spatial Block Structure of Kampung Melayu*

The residential blocks of Kampung Melayu emerged through a process of ethnic clustering that progressively inscribed community identity into the urban fabric. As Table 1 illustrates, each sub-block carries a name that encodes its historical origin: topographic, ethnic, or event-based, creating a toponymic landscape that is simultaneously a map of social history.

**Table 1. Settlement Sub-Blocks of Kampung Melayu and Their Origins**

Sub-Block	Dominant Ethnic Group	Name Origin / Historical Significance
Kampung Darat	Multi-ethnic migrants	Literal: 'landing place', site where boats docked upon arrival from the sea
Kampung Ngilir	Madurese, Bugis	Literal: 'downstream', located along the lower reach of Kali Semarang
Kampung Kali Cilik	Malay, Banjar	Named after the small tributary (kali cilik) of Kali Semarang navigable by small craft
Kampung Pencikan	Malay	Derived from 'encik' (Malay honorific for adult men); quarter of Malay merchants
Kampung Geni Besar	Javanese inland settlers	Commemorates a major fire (geni = fire, Javanese) that destroyed the quarter
Kampung Cerbonan	Cirebonese migrants	Named after Cirebon; associated with an influential community elder from that city
Kampung Banjar	Banjarese (Kalimantan)	Ethnic enclave of Banjar traders and settlers
Kampung Peranakan	Arab Hadhrami descent	Refers to locally-born Arab-mixed descendants (peranakan = born locally of mixed heritage)
Kampung Baru	Banjarese and Arab Hadhrami	Formed later than other blocks; characterised by connecting alleys between neighbours

*Source: Tunjung, Wijayanti, & Nugroho (2016); field survey, 2023*

The block structure is not merely an artefact of historical segregation. Field observation reveals that sub-block boundaries continue to be socially meaningful: residents identify themselves by sub-block affiliation, communal activities are often organised at the sub-block level, and physical micro-environments (alleys, shared wells, semi-private courtyards) persist as nodes of daily social interaction. The morphological continuity of these micro-spaces: narrow gang, raised thresholds, covered semi-public transitional zones, embodies spatial strategies developed over generations to mediate between the private domestic sphere and the public commercial street.

### *Architectural Typology and Acculturation*

The architectural landscape of Kampung Melayu is characterised by typological pluralism. Field documentation identified five dominant building categories, each representing a distinct historical layer and cultural influence:

1. Masjid Layur (Menara Kampung Melayu Mosque): This elevated mosque, constructed on a raised plinth accessible by a frontal staircase, exemplifies the acculturation of Javanese, Malay, and Middle Eastern architectural vocabularies. The three-tiered tajug roof follows Central Javanese mosque tradition, while the slender minaret and horseshoe-arched gateway read as Arabian Peninsula influences. The stone foundation supporting a timber structural frame demonstrates the hybridisation of construction techniques across cultural traditions.
2. Kelenteng Dewa Bumi (Earth God Temple): Located on the western section of the Jl. Layur corridor, this Chinese temple is oriented perpendicular to the former Kali Semarang channel, a positioning that historically aligned the deity's sight line with the Pasar Regang trading market. Its survival within a predominantly Islamic kampung environment is itself a resilience indicator, demonstrating the community's long practice of religious tolerance.
3. Indo-Chinese Shophouses: These double-fronted structures combine Chinese spatial organisation, a narrow frontage leading to a deep plan with successive inner courtyards, with local Javanese materials and Dutch colonial proportions. Gable ends with distinctive scrolled gunungan motifs are a persistent typological signature, even in structures that have undergone significant internal modification.
4. Indies Villas (Rumah Indies): Several large-volume residences along Jl. Layur display the Indies architectural vocabulary: wide verandas, classical pilasters, pitched tile roofs, and symmetrical facades, characteristic of the European and creolised merchant class of the late 18th and 19th centuries. At least two such buildings are presently derelict (one former Al-Irsyad school building), representing a significant heritage risk.
5. Indies-Chinese Hybrid Structures: A third typology blends Dutch colonial proportions (facades, window articulation) with Chinese-derived curved roof ridges and decorative tiling, producing a syncretic form unique to coastal Javanese multi-ethnic settlement contexts.

These typologies exist in close physical proximity, creating a layered streetscape that, as a whole, functions as a material archive of five centuries of cultural exchange. This architectural pluralism constitutes a key resilience asset: the diversity of forms distributes the symbolic identity of the kampung across many structures, reducing vulnerability to the loss of any single building.

### ***Socio-Cultural Life and Communal Attachment***

Interview data and observational records confirm that Kampung Melayu retains a vigorous social life rooted in inter-ethnic interaction. Several dimensions merit specific attention. *First*, shared religious spaces continue to function as sites of cross-community encounter: Masjid Layur hosts Friday prayers that draw residents from multiple ethnic sub-blocks, and the Kelenteng Dewa Bumi remains an active site of Chinese community ritual. These shared landmarks constitute what Schulz (1984) would call the phenomenological anchors of the settlement's genius loci. *Second*, the market economy of Jl. Layur continues to sustain the corridor as a site of daily commercial activity, maintaining the functional vibrancy that historically attracted diverse communities to the area. *Third*, long-term residents express strong place attachment, what Lyon (2014) theorises as a social-ecological bond between community and place that sustains adaptive capacity under stress. Several informants invoked multi-generational family histories in the kampung as reasons for their continued residence despite deteriorating infrastructure.

### ***Resilience as Socio-Spatial Negotiation***

In the case of Kampung Melayu, resilience is better understood as an ongoing, active process of socio-spatial negotiation, one in which communities continuously re-appropriate and re-signify inherited spatial forms in ways that serve evolving social needs while preserving the structural conditions for collective identity.

This understanding aligns with Baibarac and Petrescu's (2017) distinction between adaptive and transformative resilience. In Kampung Melayu, adaptive resilience is evident in the incremental modification of building typologies: Banjar-origin timber houses have been progressively hybridised with Indische, Chinese, and Indo-Chinese architectural elements, producing a 'gado-gado' architecture (as local residents term it) that absorbs external influences without abandoning core spatial principles such as elevated living floors, semi-open front zones, and deep cross-ventilated plans. Transformative resilience is evident in the community's capacity to reconstitute social structures after major disruptions, including the relocation of the Boom Lama harbour and repeated flooding events, by reorganising economic activities and communal networks without abandoning the place itself.

What this analysis reveals is that the spatial block structure is not merely a physical legacy but an active social technology. The sub-block boundaries, the gang networks, and the communal nodes encoded in the kampung's morphology provide the spatial scaffolding within which community solidarity, *guyub dan rukun* in Juwono's (2009) terminology, is continuously reproduced. When this scaffolding is disrupted, as happens when large-scale clearance replaces the fine-grained block structure with undifferentiated open space, the social fabric that depends on it unravels.

Crucially, the resilience of Kampung Melayu has been sustained despite, not because of, its formal governance context. The settlement has persisted through periods of Dutch colonial administration, Japanese occupation, post-independence urbanisation, and contemporary neoliberal development pressure, a record that suggests the primary drivers of resilience are endogenous to the community rather than structurally produced by state intervention. This finding has important policy implications: revitalization programs that substitute external design rationalities for locally developed spatial logics risk undermining the very resilience they seek to support.

### ***The Role of Architectural Pluralism in Identity Formation***

A theoretically significant finding of this study is the function of architectural typological diversity as a resilience mechanism. Unlike monumental heritage sites where resilience is concentrated in a small number of exceptional structures, Kampung Melayu distributes its heritage value across a large and diverse typological repertoire. This distribution means that the loss of individual buildings, which is inevitable in a settlement subject to periodic flooding, fire, and neglect, does not destroy the overall heritage character of the corridor.

Moreover, the typological diversity itself communicates a heritage narrative of inter-ethnic coexistence that is legible in the streetscape. The visual proximity of a Javanese-Malay mosque, a Chinese temple, an Indo-Chinese shophouse, and a Dutch Indies villa within a single 200-metre corridor produces what might be called an architecture of pluralism, a built testimony to the historical cosmopolitanism of the Indonesian port city. This narrative is not incidental to the kampung's identity; it is constitutive of it. Revitalization approaches that prioritise typological uniformity, for instance, by demolishing non-Malay building types in pursuit of a 'Malay village' branding, would fundamentally misread the heritage value of the place.

The challenge for conservation policy, therefore, is to protect typological diversity without freezing the kampung in a moment of time. This requires moving beyond static facade preservation toward dynamic guidelines that specify the qualities: scale, material palette, spatial relationships, rhythmic street frontage, that new and renovated structures must respect whilst permitting adaptive reuse and programmatic change. The Jl. Layur corridor provides a model: its continued commercial vitality demonstrates that active use is not antithetical to heritage character.

### ***Place Attachment as Resilience Capital***

Interview findings underscore the role of place attachment – Lyon's (2014) social-ecological bond between community and setting, as a form of resilience capital. Long-term residents of Kampung Melayu demonstrate what geographers term biographical place attachment: a sense of self that is constituted in and through inhabitation of a specific place across time (Schulz, 1984). This attachment motivates continued residence despite deteriorating infrastructure, and sustains informal maintenance practices, facade repainting, communal cleaning of drainage channels, mutual monitoring of derelict properties, that partially compensate for the absence of systematic government conservation investment.

However, place attachment is not infinitely elastic. Field observations identified a critical threshold dynamic: when flooding frequency exceeds a certain level, when physical deterioration renders buildings structurally unsafe, or when economic displacement forces younger family members out of the neighbourhood, attachment bonds weaken and the self-reinforcing dynamic of community-maintained resilience breaks down. The current condition of Kampung Melayu suggests that several sub-blocks are approaching this threshold. Effective revitalization must therefore be understood as urgently necessary, not as an optional enhancement but as infrastructure investment required to prevent irreversible social and physical collapse.

### ***Towards an Integrated Resilience-Based Revitalization Framework***

The findings of this study support the development of a three-level revitalization framework for Kampung Melayu, operating simultaneously at the district, block, and building scales.

*At the district scale*, priority must be given to resolving the drainage and flood management crisis. The current state of inadequate drainage infrastructure is the primary proximate cause of physical deterioration in the kampung, and no architectural conservation strategy can succeed in its absence. Beyond infrastructure, district-scale interventions should reinforce the legibility of the kampung's heritage narrative through wayfinding, interpretive signage, and the strategic conservation of key landmarks: particularly Masjid Layur and the Kelenteng Dewa Bumi, as orientation nodes.

*At the block scale*, the fundamental recommendation is to preserve the spatial block structure as a non-negotiable element of heritage character. Urban renewal approaches that consolidate sub-blocks into larger development parcels must be excluded, as they would destroy the social geography that the toponymic block structure represents. Design guidelines should codify the spatial qualities of the gang network, width, enclosure ratio, permeability, as parameters to be maintained in any rehabilitation scheme.

*At the building scale*, a typology-sensitive conservation protocol is required that distinguishes between: (a) highly significant buildings warranting full conservation (Masjid Layur, Kelenteng Dewa Bumi, the intact Indo-Chinese shophouses); (b) partially modified buildings warranting restoration to principal typological characteristics; and (c) severely degraded or lost buildings that may be replaced by new structures conforming to contextual design guidelines. This tiered approach, consistent with the UNESCO Historic Urban Landscape framework, enables a realistic, financially feasible conservation strategy that prioritises resources for the most irreplaceable fabric whilst permitting managed change elsewhere.

## CONCLUSION AND RECOMENDATIONS

This study demonstrates that the resilience of Kampung Melayu Semarang rests on three mutually reinforcing pillars: *a spatially encoded social geography, an architecturally pluralist built environment, and a community characterised by deep place attachment*. Across five centuries of occupation, demographic change, and external pressure, the kampung has maintained its settlement identity not by resisting change but by absorbing it within a stable spatial and social framework.

The theoretical contribution of this research is to articulate settlement resilience as a dynamic socio-spatial process rather than a static physical condition. Resilience in Kampung Melayu is not the preservation of an original form but the ongoing capacity of a community to negotiate change within inherited spatial structures whilst maintaining the cultural continuity that makes those structures meaningful. This understanding has significant implications for the conceptualisation of heritage in Indonesian urban policy: it shifts the unit of conservation from individual buildings to the relational fabric of the settlement as a whole.

For revitalization practice, the findings indicate that interventions must simultaneously address physical infrastructure (flood management), spatial structure (block morphology preservation), architectural character (typology-sensitive conservation guidelines), and social continuity (community participation frameworks that foreground the knowledge of long-term residents). Failure to integrate all four dimensions risks producing revitalization outcomes that improve physical appearance whilst dissolving the social resilience that has historically maintained the kampung. Such an outcome would represent a conservation failure of the most fundamental kind: the preservation of heritage forms without the community that gives them meaning.

Future research should examine the threshold dynamics of place attachment in Kampung Melayu, specifically, the conditions under which incremental deterioration triggers discontinuous social change, and should assess the transferability of this study's framework to analogous multi-ethnic kampung settlements in other Indonesian coastal cities.

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