

Kinship and space: Socio-cultural drivers of community resilience in Malang's Migrant housing

Damayanti Asikin^{1*} , Dian Ariestadi² 

¹Department of Architecture, Faculty of Engineering,
Universitas Brawijaya Malang, Indonesia

²Architecture Study Program, Faculty of Civil Engineering and Planning,
State University of Malang, Indonesia



ARTICLE INFO	ABSTRACT
<i>Article history:</i> Received March 27, 2026 Received in revised form May 17, 2026 Accepted July 18, 2026 Available online September 01, 2026 <i>Keywords:</i> Community resilience Migrant settlements Socio-spatial Taretan (kinship) Urbanism *Corresponding author: Damayanti Asikin Architecture Department, Faculty of Engineering, Universitas Brawijaya Malang, Indonesia Email: dama_asikin@ub.ac.id ORCID: https://orcid.org/0000-0002-8193-9401	<i>Land limitations within high-density urban settlements require migrant communities to continuously negotiate and reorganize space through the strategic mobilization of both physical and social resources. This study investigates the role of the socio-cultural kinship system known as taretan in shaping patterns of spatial adaptation and strengthening community resilience within the Madurese migrant settlement of Muharto-Kotalama, Malang. Employing a qualitative approach grounded in phenomenology and grounded theory, the research explores residents lived experiences of housing while generating empirically derived concepts through participant observation, in-depth interviews, and spatial documentation conducted at both the micro (kenangan) and meso (sekoran) levels. The findings reveal three principal mechanisms of spatial adaptation: expansion, penetration, and taretan. Expansion is reflected in both horizontal and vertical extensions of residential space, whereas penetration refers to the adaptive articulation of public-private boundaries that enables residents to overcome spatial limitations. Meanwhile, taretan serves as a form of social infrastructure that facilitates collective spatial negotiation and reinforces communal resilience. This study advances a culturally grounded framework of spatial resilience by conceptualizing architectural adaptation as an internalized socio-cultural process rather than merely a physical adjustment to environmental constraints. The findings provide significant implications for the development of context-sensitive, inclusive, and sustainable urban housing policies.</i>

Introduction

Urbanization in Indonesia is distinguished not only by its accelerated physical expansion but also by the increasingly complex social relationships generated through processes of internal migration. Population movement from rural to urban areas, motivated by both economic opportunities and social considerations, has produced a wide range of distinctive settlement

configurations (Firman 2016; Hugo 1982). Among the migrant communities exhibiting particularly distinctive residential adaptation patterns are the Madurese people. As an ethnic group with a deeply rooted sociocultural identity, Madurese migrants bring their inherited cultural values and traditions to newly occupied urban environments. Consequently, their strategies of spatial adaptation differ significantly from those

observed among other migrant populations (Koentjaraningrat 2015).

The Madurese migrant settlement in Malang City, particularly within the Muharto–Kotalama neighbourhood, provides a compelling illustration of the interaction between local cultural traditions, spatial limitations, and dynamic social processes that collectively generate distinctive spatial arrangements. Historically, this area functioned as a Chinese cemetery during the Dutch colonial era (Hudiyanto 2009). As urban development progressed, however, the former burial ground gradually evolved into a migrant residential enclave predominantly inhabited by Madurese families engaged in informal economic activities, including commerce, transportation, and service-based occupations. This transformation exemplifies a common pattern of urbanisation in which marginal urban land, such as abandoned cemeteries and riverbank areas, is appropriated for residential purposes because of restricted access to formal housing opportunities (Silas 1993; Ubaidilah 2014).

Against this background, the present study seeks to address the central question of how Madurese migrants negotiate and adapt to the socio-spatial conditions of the Muharto–Kotalama settlement through their dwelling practices. Specifically, the research investigates the patterns of spatial adaptation, the processes through which these patterns emerge, and the conceptual meanings embedded within them. This study argues that settlement adaptation should not be interpreted merely as a strategy for physical survival, but rather as a dynamic process through which ethnic identity is continuously negotiated and reproduced within an urban context. Accordingly, the observed adaptation patterns are examined as outcomes of the complex interaction among physical, social, economic, and cultural dimensions.

Previous scholarship has consistently emphasized the significant influence of cultural values on the spatial organization of migrant settlements. Rapoport (1982) contends that the built environment fundamentally reflects the

values, needs, and socio-cultural systems of the communities responsible for its creation. Within the context of Madurese migration, residential environments frequently represent deliberate efforts to preserve ethnic identity despite the pressures imposed by urban living (Asikin et al. 2020). The spatial structures of *kenengan* (housing or dwelling scale) and *sekoran* (micro-community scale) therefore extend beyond their physical functions to operate as vital settings for both social interaction and economic activity. Likewise, Wulandari and Indeswari (2010) demonstrate that kinship principles embedded within Madurese migrant communities significantly shape spatial organization by producing an arrangement that is simultaneously inclusive and exclusive, whereby access to particular spaces is largely determined by the degree of social and familial proximity.

Investigating the adaptive strategies employed by Madurese migrants in Muharto–Kotalama is particularly important because it reveals how a specific ethnic community negotiates spatial limitations under conditions of geographical restriction and limited resources. The study area is geographically enclosed by two major rivers the Brantas River and the Amprong River and is further constrained by Malang City's principal transportation corridors. Figure 1a presents the historical condition of the site when it served as a Chinese cemetery, whereas figure 1b illustrates its complete transformation into a densely occupied residential settlement. These physical constraints considerably restrict opportunities for horizontal territorial expansion, compelling residents to adopt alternative adaptive strategies, including vertical housing development, the transformation of semi-public spaces, and the flexible appropriation of public areas to accommodate social, cultural, and economic activities (Tusriyanto et al. 2023). Collectively, these adaptive practices demonstrate the community's capacity to overcome environmental constraints while simultaneously maintaining and reinforcing its shared cultural identity.

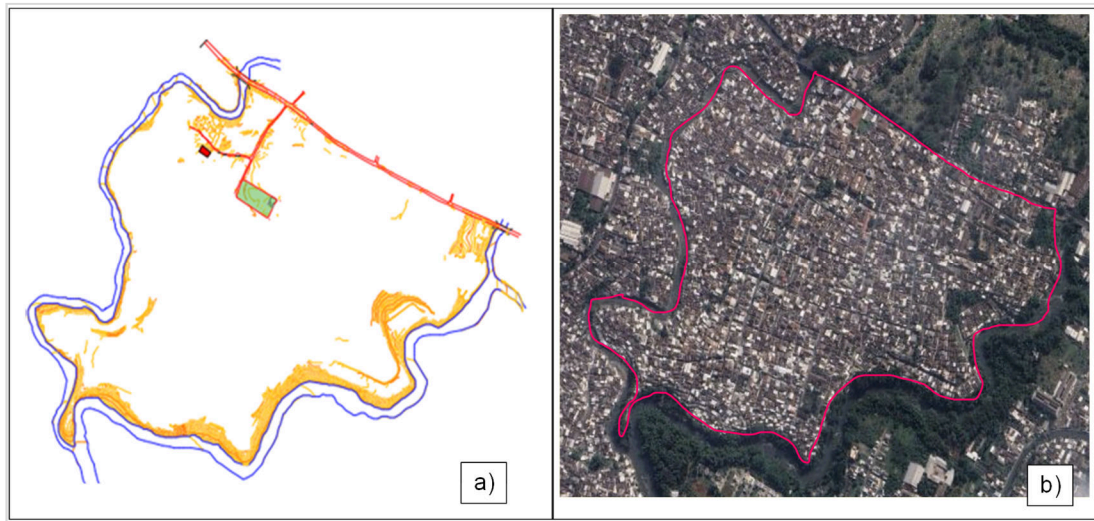


Figure 1. Transformation of the former Chinese cemetery into the Muharto–Kotalama migrant settlement, illustrating the spatial context that constrained territorial expansion and stimulated adaptive housing practices
Source: [Boerstra \(1939\)](#) and Google Map 2026

Within contemporary urban planning discourse, the adaptation of Madurese migrant settlements offers an important contribution to understanding culturally responsive urban development. A considerable number of urban policies continue to prioritise physical interventions while overlooking socio-cultural dimensions, thereby producing homogeneous urban environments that frequently fail to accommodate the diverse needs of local communities. This study therefore reinforces the argument that culturally informed approaches constitute an essential foundation for designing urban interventions that are both context-sensitive and sustainable. As ([Oliver 2006](#)) argues, a comprehensive understanding of local cultural values represents a fundamental prerequisite for integrating indigenous knowledge into spatial planning and architectural policy.

Furthermore, the findings of this research possess broader relevance for understanding the challenges associated with urbanisation across developing cities in Southeast Asia. Ethnic migrant communities, including the Madurese, frequently occupy marginal urban environments characterised by heightened vulnerability to flooding, environmental degradation, and excessive residential density. Under such circumstances, adaptive practices including the multifunctional use of semi-public spaces, the modification of vernacular housing forms, and the reinforcement of kinship-based social networks function as effective mechanisms for sustaining

community survival. These observations are consistent with the concept of social resilience, which emphasises that a community's strength derives from its capacity to adapt to changing conditions while preserving its collective identity ([Adger 2000](#)).

Recent studies concerning migrant housing increasingly recognise that adaptation extends well beyond physical alterations to the built environment, encompassing the development of socio-spatial systems that sustain identity, belonging, and resilience within urban settings. Research on refugee settlements, informal housing, and migrant neighbourhoods has demonstrated that processes of spatial adaptation are deeply embedded within social infrastructures, including kinship relations, collective memory, and culturally embedded practices ([Simone 2021](#); [Ru et al. 2022](#); [Kim and Kim 2024](#); [Al-Homoud and Samarah 2025](#)). Likewise, contemporary literature on urban resilience emphasises that adaptive capacity emerges not solely from the characteristics of the physical environment but also from social relationships, collective agency, and community-based support mechanisms that enable residents to respond effectively to spatial and environmental challenges ([Meerow, Newell, and Stults 2016](#); [Mehmood 2016](#)). Nevertheless, existing scholarship remains predominantly focused on housing transformation, environmental limitations, and governance frameworks, while comparatively limited attention has been devoted

to culturally embedded kinship systems as fundamental drivers of socio-spatial resilience. Addressing this gap, the present study investigates how the concept of *taretan* (kinship) influences patterns of spatial adaptation and strengthens resilience among Madurese migrant communities in Malang.

Methods

This research adopts a qualitative methodology by integrating phenomenological inquiry with grounded theory to achieve a comprehensive interpretation of participants lived experiences while simultaneously constructing a rigorous theoretical framework grounded in empirical evidence. This methodological combination facilitates an in-depth understanding of the social, cultural, and physical contexts within which the participants experience and negotiate their residential environments (Creswell 2013; Moleong 2016; Muhadjir 1992). The phenomenological approach is employed to investigate lived experiences and uncover the tacit knowledge embedded within everyday spatial practices, whereas grounded theory provides an inductive procedure through which conceptual categories emerge directly from the collected empirical data (Chun Tie, Birks, and Francis 2019). Accordingly, this study focuses on identifying the patterns of residential adaptation, examining the processes through which these adaptations develop, and interpreting the concepts and meanings that underpin the adaptive practices of Madurese migrants residing in the Muharto–Kotalama area of Malang.

The selection of research participants was undertaken using purposive sampling to ensure that the informants adequately represented the existing social structure of the community. The data collection process commenced with several key informants and subsequently expanded

through progressive sampling until a total of thirty-four participants had been recruited. These informants were categorized according to the hierarchical kinship structure recognized within Madurese society, comprising *taretan dalem* (close relatives), *taretan semma'* (extended or spatially proximate relatives), and *taretan jhau* (distant relatives).

Fieldwork was conducted over a one-month period using three principal methods of data collection, namely observation, in-depth interviewing, and document analysis. The research began with an exploratory field survey (grand tour) designed to obtain a natural understanding of the adaptation phenomenon without any form of experimental intervention. This preliminary exploration was followed by open and unstructured observations aimed at documenting both spatial and social phenomena occurring within the settlement. The observational findings were subsequently enriched through flexible, in-depth interviews that enabled participants to articulate their lived experiences and interpretations. In addition, documentary analysis was undertaken to collect both physical and non-physical evidence. Physical documentation included residential façade records, floor plans of housing units, and environmental layouts, while non-physical documentation comprised community perceptions, cultural values, opinions, and local understandings, particularly those associated with the concept of *taretan*.

Table 1 presents the categories of primary and secondary data utilized throughout the research. Primary data consisted of direct observations of micro- and meso-scale spaces, records of social interactions, and documentation of community activities. Secondary data were obtained from historical archives, official reports, statistical records, photographic documentation, and other supporting materials that contributed to data interpretation and analysis.

Table 1. Types of primary and secondary data

No.	Type of data	Data needed	Purpose of data use
1	Primary	• Micro and meso spaces at the study location, both physical and non-physical • Actors, i.e., everyone involved in the social situation. • Activities, occurrences, and events, i.e., what people do in the social situation and its	• Field notes from observations; source for analyzing study cases to form themes and sub-themes. • Field notes from interviews, and field notes from in-depth observations. • Field notes from observations, supported by

No.	Type of data	Data needed	Purpose of data use
		sequence, as well as specific times. • Social situations, including actions, behavior, attitudes, conduct, opinions, feelings, perceptions, meanings, and others.	illustrations or photos of community activities and social situations.
2	Secondary	• Records, images, news, stories, and events in all data forms, such as statistical data, photos, and written reports	• Supporting information for data analysis and interpretation

Data analysis was undertaken inductively and occurred concurrently with the process of field data collection, thereby allowing the research focus to evolve in response to emerging empirical evidence. The analytical procedure commenced with the preparation of detailed descriptions of the observed phenomena derived from raw observational records and interview transcripts. Subsequently, these data were reduced into meaningful units of information, systematically classified into categories, and analyzed to identify recurring empirical themes (Moleong 2016). Consistent with Husserlian phenomenological epistemology, the analytical process incorporated three successive stages of reduction, namely phenomenological reduction, eidetic reduction, and transcendental reduction (Rapar 1995). Among these stages, transcendental reduction was specifically employed to reveal the deeper meanings and tacit knowledge embedded within the residential adaptation practices of Madurese migrants (Abidin 2014). Following the phenomenological interpretation, the data were analysed using the grounded theory procedures of open coding, axial coding, and selective coding (Chun Tie, Birks, and Francis 2019). During the open coding stage, preliminary conceptual categories relating to territorial expansion, spatial penetration, and kinship relationships were identified from the empirical evidence. These categories were subsequently interconnected during axial coding to establish broader patterns of socio-spatial adaptation. Finally, selective coding synthesized these interrelated categories into the overarching theoretical concept of *taretan*-based community resilience.

Results and discussion

The findings of this study identify three principal concepts that characterize the residential

adaptation of Madurese migrants within the Muharto–Kotalama settlement in Malang, namely expansion, penetration, and *taretan* (kinship or social relationships). These conceptual categories emerged through a phenomenological analysis involving both phenomenological reduction and eidetic reduction, which were subsequently refined through transcendental reduction to uncover the underlying essence of residential adaptation. This analytical process generated a comprehensive interpretation of how Madurese migrants construct, transform, and assign meaning to their residential environment. Accordingly, the discussion is organized into three major themes: expansion as a manifestation of adaptability, penetration as an expression of resilience, and *taretan* as the cultural foundation that shapes residential identity.

Expansion as an embodiment of adaptability

Within the context of residential adaptation, expansion denotes the process through which Madurese migrants enlarge their residential territory, both spatially and functionally, across the micro-scale (*kenengan*) and the meso-scale (*sekoran*). According to the *Kamus Besar Bahasa Indonesia* (Great Dictionary of the Indonesian Language), expansion refers to the enlargement or extension of territory, whereas the *Cambridge Dictionary* defines it as an increase in size, scope, or capacity. In this research, expansion is interpreted as the deliberate effort to enlarge residential space while simultaneously preserving the cultural identity and socio-economic interests of the Madurese migrant community.

Field observations reveal that territorial development within the *kenengan* follows both vertical and horizontal expansion patterns. Vertical expansion is realized through the addition of new stores to existing dwellings in response to growing household size or changing economic requirements, while preserving the original structural walls of the *kenengan*.

Conversely, horizontal expansion occurs through the outward extension of semi-public spaces, particularly the *amper* (terrace), into the adjoining neighborhood street. This spatial transformation is especially evident during informal commercial activities, when the terrace temporarily functions as a trading area before reverting to its customary role as part of the public circulation space after commercial activities have concluded.

From a social perspective, the neighborhood street located immediately in front of each *kenangan* frequently functions as a temporary semi-public area during incidental communal events, including *takziah* (condolence gatherings) and wedding ceremonies. Temporary territorial boundaries are established using movable elements such as woven mats, chairs, and *terop* (ceremonial tents), enabling the available space to accommodate a larger number of participants. This adaptive practice is illustrated by the statement of informant (I-12): “Because our house is small, we use the street in front of the house as a place to receive guests during wedding ceremonies or mourning events.” This testimony

demonstrates that residents strategically extend the functional territory of their dwellings beyond permanent physical boundaries to facilitate communal activities that cannot be accommodated within the limited domestic space. During everyday conditions, as illustrated in figure 2, the terrace of each *kenangan* regularly extends into the adjacent neighbourhood street, creating a shared semi-public environment that encourages routine social interaction among residents. Furthermore, the degree of emotional intimacy, expressed through relationships such as *taretan semma* or *kanca rapet*, significantly influences the extent to which semi-public territories may penetrate private domains, even reaching the *dapor* (kitchen) when interpersonal relationships are sufficiently close. These observations indicate that expansion should not be understood solely as the physical enlargement of residential space, but rather as a socially negotiated process shaped by kinship relationships, cultural values, and collective community needs.

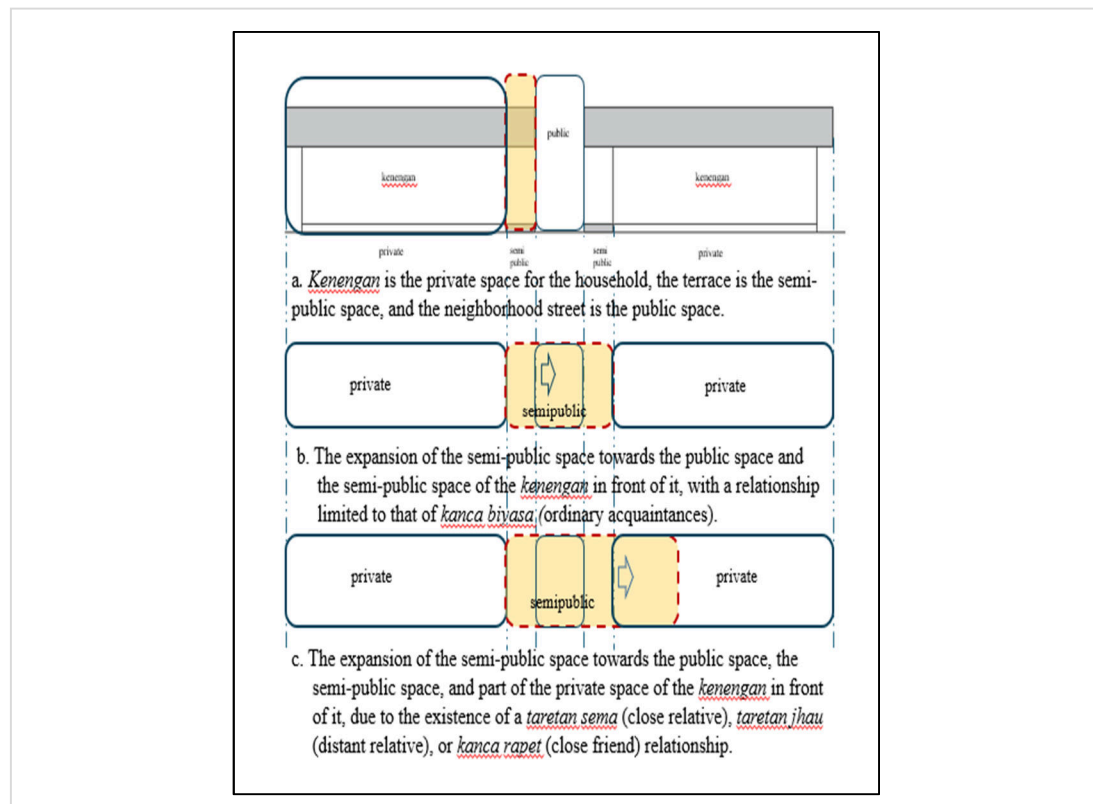


Figure 2. Expansion of semi-public space from the *kenangan* terrace into the neighborhood street, illustrating kinship-based socio-spatial adaptation

At the meso-spatial level, the process of territorial expansion is manifested through the emergence and progressive development of the *sekoran*. The initial establishment of Madurese migrant settlements occurred along the banks of the Brantas River before gradually extending inland into areas that had not yet been utilized as Chinese burial grounds (*bong*). Nevertheless, opportunities for further physical growth remain constrained by the surrounding geographical

setting, particularly the presence of two major rivers and a principal highway, both of which function as natural and infrastructural barriers to spatial expansion. As illustrated in [figure 3](#), horizontal expansion transformed formerly unused cemetery land into residential neighborhoods, whereas vertical expansion was realized through the construction of multi-story housing that accommodated increasing demographic and socio-economic demands.



Figure 3. Spatial expansion from the riverbank toward unused cemetery land, leading to the formation of the *sekoran*

Beyond its physical manifestation, territorial expansion is also strongly influenced by cultural and communal activities. Traditional events such as *rebe* (religious prayer gatherings), *cocokan* (informal social gatherings), and various religious celebrations require substantially larger spaces than those available within individual dwellings. Consequently, neighborhood streets and other communal open spaces are collectively appropriated to accommodate these activities. Temporary territorial boundaries are established through the installation of *terop* (ceremonial tents), woven mats, and *janur* (young coconut leaves commonly used as ceremonial decorations), signaling the temporary transformation of public areas into communal gathering spaces. These observations demonstrate that expansion should not be interpreted merely as a process of physical enlargement; rather, it represents a socio-cultural mechanism through which public and private territories are continuously negotiated in accordance with collective community needs.

Expansion is likewise expressed through the preservation and reinforcement of cultural identity. Within the *sekoran*, the widespread use of the Madurese language functions as a significant marker of collective belonging while simultaneously strengthening social cohesion among community members. Similarly, customary practices governing property transactions further reinforce ethnic continuity,

whereby residential properties are traditionally offered first to fellow Madurese migrants before being sold to individuals from outside the ethnic community. Such practices constitute a symbolic form of territorial expansion aimed at maintaining the cultural integrity and demographic continuity of the settlement. These findings are consistent with the observations of [Koentjaraningrat \(2015\)](#), who emphasizes the central role of kinship systems and ethnic values in influencing residential organization and settlement formation. Accordingly, expansion within the residential adaptation of Madurese migrants encompasses spatial, functional, and social dimensions, each of which remains fundamentally anchored in the cultural principle of *taretan* (kinship), serving as the primary framework governing interpersonal interaction and collective territorial organization.

The present findings further indicate that residential space is inherently dynamic, continuously evolving in response to changing socio-economic circumstances. Such observations reinforce the concept of spatial adaptation as an ongoing and flexible process, consistent with the work of [Jin and Gong \(2025\)](#), who demonstrate that migrant communities sustain their cultural identity through continuous modification of residential space. Furthermore, the expansion patterns documented in this study reveal that socio-spatial resilience emerges through the reciprocal relationship between the built environment and social organization. As

argued by Meerow, Newell, and Stults (2016), urban resilience should be understood as the capacity of urban systems to adjust, reorganize, and transform in response to changing environmental and social conditions. Within the Muharto–Kotalama settlement, expansion therefore extends beyond a purely physical strategy for increasing residential capacity; instead, it represents a culturally embedded adaptive process sustained through enduring kinship relationships that reinforce both spatial continuity and community resilience.

Penetration as an effort of resilience in adaptation

Within the context of residential adaptation, penetration refers to the process through which activities extend beyond conventional public territories into semi-public and private domains as an adaptive response to severe land scarcity within densely populated settlements. In Muharto–Kotalama, this strategy enables Madurese migrants to fulfil communal requirements that cannot be adequately accommodated by the limited availability of public infrastructure. Consequently, penetration constitutes a significant manifestation of community resilience, illustrating the residents' collective capacity to negotiate, share, and reorganize spatial resources within their socio-physical environment.

The analysis demonstrates that penetration occurs across two interconnected spatial scales. At the meso-scale, penetration is reflected in the transformation of former Chinese cemetery land (*bong*) into residential neighborhoods. As the Madurese migrant population continued to increase, previously vacant or underutilized land was progressively incorporated into the territorial structure of the *sekoran* through collective agreement and pragmatic economic considerations, particularly because of its affordability and strategic location. At the micro-scale, penetration is evident when public spaces most notably neighborhood streets temporarily extend into the semi-public and private territories of the *kenengan* during major communal events, including wedding ceremonies, *selamatan* (ritual communal feasts), and *toron* (returning to one's hometown).

As presented in figure 4, public space frequently penetrates semi-public and private

residential domains in response to particular social circumstances. This adaptive pattern is reflected in the testimony of female informant (I-7): “Female relatives and neighbors who visit the house are usually received inside the house and are sometimes even welcomed while cooking in the kitchen. However, guests or men who are not relatives are not allowed to enter the house.” This testimony indicates that access to domestic space is regulated not solely by physical boundaries but also by socially constructed kinship relationships and varying degrees of interpersonal intimacy. The findings reveal a highly flexible spatial hierarchy in which distinctions between public, semi-public, and private territories become increasingly fluid according to the social context and the nature of relationships among users. For instance, the *amper* (terrace) commonly accommodates neighbors who maintain close social relationships (*taretan semma*), whereas access to the *dapor* (kitchen) is generally reserved for close relatives or *kanca rapet binek* (close female companions). These observations demonstrate that penetration functions as a socio-spatial adaptation mechanism through which residents continuously negotiate territorial access and spatial boundaries, thereby enabling highly constrained residential environments to accommodate diverse social interactions while simultaneously preserving culturally embedded notions of privacy, kinship, and social propriety.

Furthermore, penetration provides an effective strategy for overcoming the physical limitations imposed by the relatively small dimensions of the *kenengan*. Because of these spatial constraints, residents establish collective agreements that permit the temporary sharing of space whenever particular communal activities require additional capacity. Such agreements are firmly grounded in the cultural principle of *taretan*, which emphasizes solidarity, reciprocity, and *gotong royong* (mutual cooperation). As explained within the literature on spatial adaptation (Berry 2005; Lang 1987), environmental constraints can be effectively addressed through adaptive social interaction, whereby space is conceptualized not as a rigid and immutable entity but as a dynamic environment that continuously responds to evolving social needs.

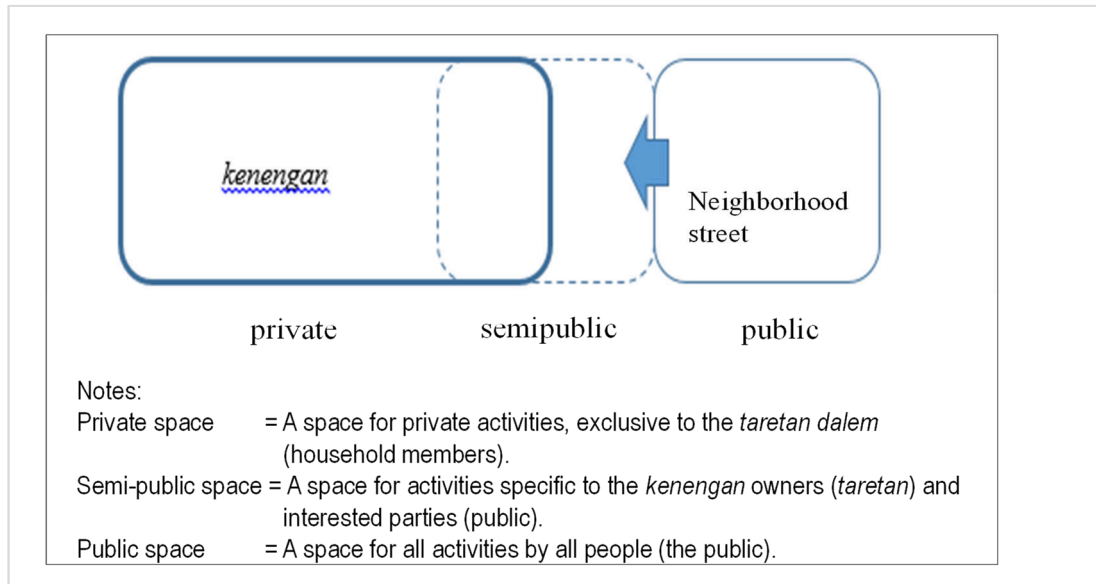


Figure 4. Penetration of public space into semi-public and private domains, illustrating the flexible negotiation of spatial boundaries based on kinship relationships (*taretan*) and communal needs

Beyond its physical manifestation, penetration is equally evident in linguistic practices and everyday social interaction. The predominance of the Madurese language throughout the settlement reflects the extension of cultural identity into the public realm. This linguistic practice not only reinforces solidarity among Madurese residents but also shapes patterns of communication and social engagement with non-Madurese inhabitants living within the same neighborhood.

As illustrated in [figure 5](#), the process of spatial penetration varies according to the nature of daily routines and communal events. During ordinary daily activities, public, semi-public, and private territories maintain relatively distinct functional boundaries. However, these territorial divisions become considerably more flexible during collective occasions. For instance, when large communal gatherings are organized, the open space located between adjacent *kenengan* may be temporarily integrated into a single, expansive semi-public area that can subsequently extend into the interior of the *kenengan* whenever additional space is required. Such adaptive spatial

reconfiguration demonstrates the community's capacity to reorganize territorial arrangements according to changing social demands while preserving harmonious interpersonal relationships.

Accordingly, penetration should not be interpreted solely as a spatial adaptation strategy but also as a tangible expression of the social resilience demonstrated by the Madurese migrant community. Their collective willingness to share space, negotiate territorial boundaries, and provide mutual assistance enables the community to maintain an adaptive, cohesive, and harmonious residential environment despite severe spatial constraints. These adaptive practices correspond closely with [Adger \(2000\)](#) conceptualization of resilience and are further supported by theories of spatial adaptation proposed by [Berry \(2005\)](#) and [Lang \(1987\)](#). Likewise, comparable forms of socio-spatial adaptation reflecting community resilience have been documented by [Al-Homoud and Samarah \(2025\)](#) in their study of Syrian refugee settlements within the Zaatari Camp, Jordan.

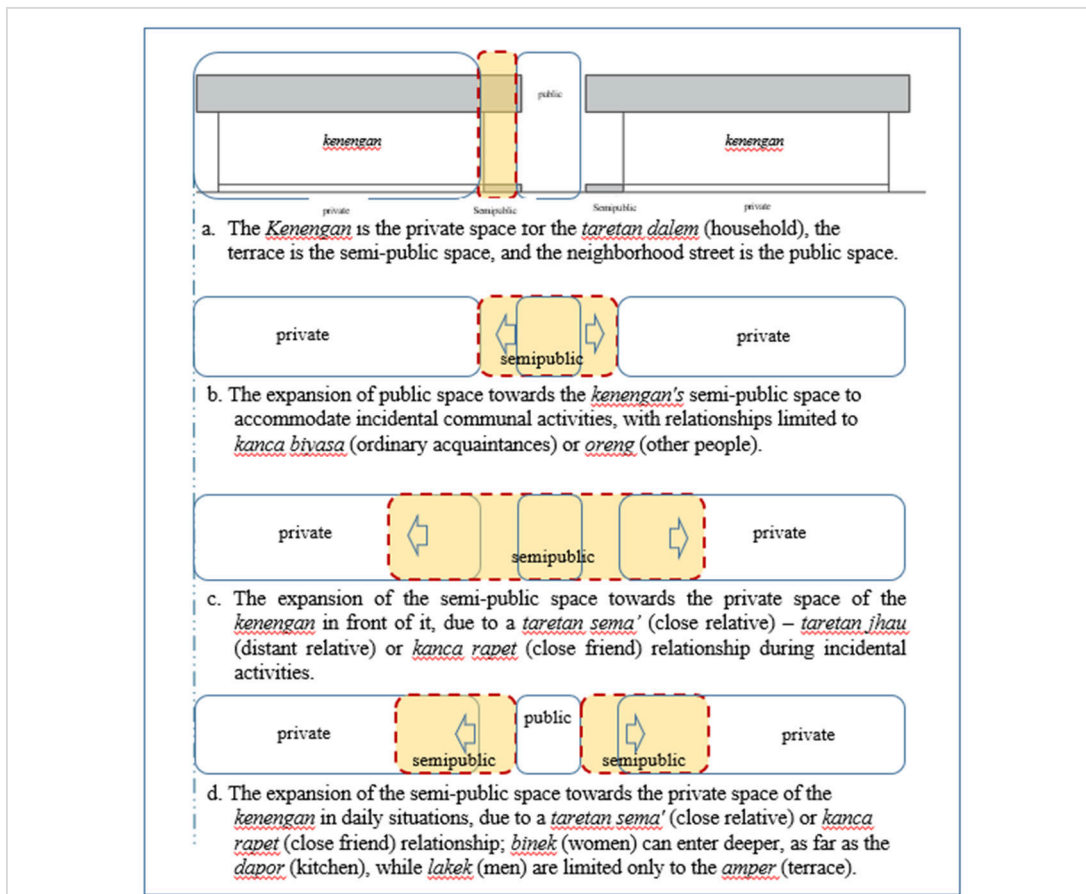


Figure 5. Variations of spatial penetration during daily and communal activities, demonstrating the adaptive use of public, semi-public, and private spaces to support social interaction and community resilience

The phenomenon of penetration further illustrates the community's remarkable capacity to negotiate and redefine territorial boundaries in response to evolving spatial and social requirements. These findings indicate that community resilience depends not only upon the availability of physical infrastructure but also upon collectively shared social practices that enable continuous spatial adaptation. This interpretation is consistent with the findings of Al-Homoud and Samarah (2025) concerning community-based resilience and with Simone (2021) discussion of social networks as the underlying organizational framework of informal urban settlements. Furthermore, the observed spatial dynamics strongly resonate with Simone (2021) concept of "people as infrastructure," in which interpersonal relationships themselves operate as the essential mechanisms enabling urban environments to function effectively under conditions characterized by spatial scarcity and persistent uncertainty. The flexibility observed in

the boundaries separating public, semi-public, and private territories within the Muharto–Kotalama settlement therefore demonstrates that resilience is sustained not merely through physical spatial arrangements but, more fundamentally, through collective social practices that facilitate continuous territorial negotiation, reciprocal support, and enduring kinship-based cooperation.

Taretan as a cultural identity

The principle of taretan ("kinship" or "brotherhood") constitutes the fundamental foundation underlying the residential adaptation of the Madurese migrant community. This central role is reflected in the testimony of the key informant (I-1): "My grandfather and several of his relatives were the first to settle in this area after migrating from Madura. Subsequently, relatives and family members from our hometown gradually arrived and established their homes here, and this pattern continues to the present

day.” This account illustrates that the emergence of the Muharto–Kotalama settlement cannot be understood simply as the outcome of isolated migration decisions made by individual households. Rather, its formation represents a cumulative socio-spatial process driven by interconnected kinship networks that continuously facilitated the arrival, settlement, and social integration of subsequent migrants. Within the Muharto–Kotalama community, therefore, the meaning of taretan extends far beyond biological relationships, evolving into a broader system of collective solidarity that unites members of the Madurese diaspora. Guided by the cultural philosophy of *Settong Dara*, Taretan Dhibi (“one blood, one’s own brother”), everyday social relationships are characterized by reciprocal assistance in securing employment, obtaining housing, developing economic opportunities, and addressing various aspects of daily life. The manifestation of Taretan Dhibi as a mechanism that reinforces social solidarity within Kotalama corresponds with the findings reported by [Mustajab et al. \(2024\)](#). Moreover, the informant’s narrative demonstrates that taretan functions as a socio-spatial infrastructure through which interpersonal networks actively influence settlement development, territorial expansion, and the long-term resilience of the community.

The findings further demonstrate that taretan represents the principal attraction encouraging Madurese migrants to establish residence within the settlement. The presence of taretan dalem (core relatives) generally encourages the subsequent arrival of taretan semma (close relatives), followed by taretan jhau (more distant relatives), ultimately resulting in the formation of the *sekoran* as a residential community fundamentally organized through kinship relationships. Importantly, this kinship principle is not exclusively confined to individuals of Madurese descent. Non-Madurese residents living within the settlement may also become incorporated into the social network through the concept of *oreng dhaddhi taretan* (“people who become family”), whereby sustained interpersonal closeness and mutual trust gradually establish relationships equivalent to kinship.

From a spatial perspective, taretan plays a decisive role in regulating patterns of accessibility within the *kenengan*. Individuals classified as taretan semma, for instance, are generally

permitted to access the *amper* (terrace) and other semi-public areas of the dwelling, whereas *kanca rapet binek* (close female companions) possess greater spatial privileges than *kanca rapet lakek* (close male companions), particularly regarding access to deeper domestic spaces. Consequently, taretan establishes a distinctive and dynamic socio-spatial hierarchy in which territorial accessibility is determined primarily by interpersonal relationships rather than by rigid physical boundaries. These observations are consistent with the study conducted by [Wulandari and Indeswari \(2010\)](#), which emphasizes the significant influence of cultural values in shaping the spatial organization of migrant settlements.

In relation to social stratification, the majority of residents belong to the *oreng kene* and *oreng dume* social categories, both of which represent the ordinary social strata commonly found within Madurese society. From a religious perspective, the settlement is predominantly inhabited by *banne santre* (non-devout Muslims), accompanied by a relatively small number of *santre* (religiously devout individuals), while local *ustaz* (Islamic religious teachers) assume responsibility for leading communal religious activities. This social composition contributes to a relatively homogeneous settlement characterized by strong social equality and limited hierarchical differentiation among residents.

[Figures 6a and 6b](#) conceptually illustrate both the evolutionary development of the *sekoran* and the implementation of the principles of expansion and penetration within the broader framework of taretan. [Figure 6a](#) demonstrates how an initial *kenengan*, established by taretan dalem (core relatives), progressively develops into a larger *sekoran* through continuous processes of territorial expansion. Once horizontal expansion reaches its geographical limits, adaptive strategies increasingly shift toward vertical development and internal penetration into semi-public spaces. Meanwhile, [figure 6b](#) illustrates that, following the exhaustion of available land along the riverbanks, Madurese migrants subsequently established new dwellings within the former *bong* (cemetery) area, giving rise to the *mubeng kandhang* (enclosure-surrounding) settlement configuration, which functions as a spatial expression of individual territorial boundaries while simultaneously maintaining collective kinship relationships.

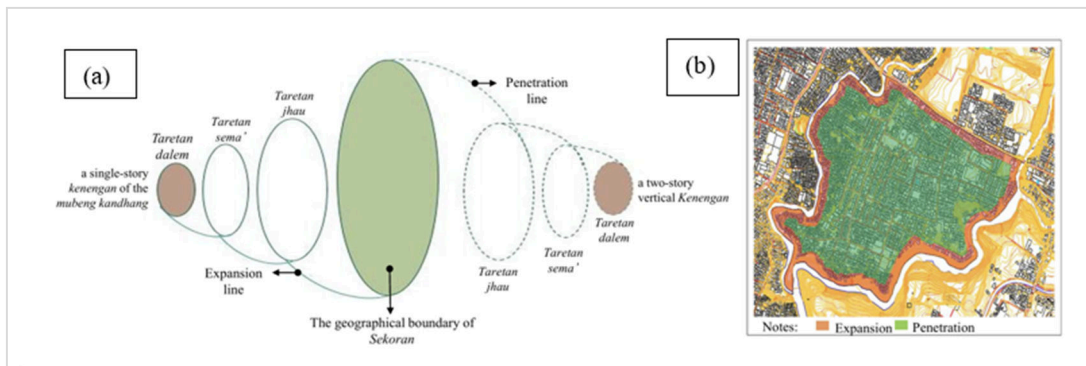


Figure 6. Conceptual model of sekoran formation through expansion and penetration, demonstrating the role of taretan as a kinship-based social infrastructure that regulates territorial growth, spatial access, and community resilience

The foregoing findings demonstrate that taretan performs a dual function, serving simultaneously as a marker of cultural identity and as a fundamental mechanism of socio-spatial adaptation. The values embedded within taretan facilitate collective forms of adaptation that effectively respond to both the physical limitations and the social requirements of the migrant community. This interpretation is consistent with the findings reported by [Ru et al. \(2022\)](#) and [Tusriyanto et al. \(2023\)](#).

Collectively, the concepts of expansion, penetration, and taretan reveal how Madurese migrants continuously negotiate unfamiliar urban environments while simultaneously preserving their distinctive cultural identity and long-established patterns of social interaction. These observations correspond closely with [Rapoport \(1982\)](#), who argues that environmental adaptation is fundamentally influenced by cultural values, social norms, and systems of kinship. Likewise, [Jin and Gong \(2025\)](#) demonstrate that migrant communities tend to retain their traditional spatial hierarchies and architectural characteristics even after relocating to new environments. Within the Muharto–Kotalama settlement, taretan therefore functions as the principal mechanism governing spatial accessibility, the distribution of communal resources, and the maintenance of collective solidarity. Consequently, the present findings broaden contemporary resilience theory by illustrating that kinship itself constitutes an invisible yet highly influential form of social infrastructure operating within migrant settlements. From this perspective, taretan may be interpreted as a distinctive manifestation of social infrastructure that substantially enhances the adaptive capacity of the migrant community. [Kim](#)

and [Kim \(2024\)](#) conceptualize social infrastructure as the interconnected network of social relationships and community support systems that collectively strengthen resilience within urban environments. Consistent with this interpretation, taretan facilitates access to economic and social resources, regulates territorial relationships among residents, and reinforces mutual trust throughout the settlement. Accordingly, kinship should not be understood merely as a cultural tradition or inherited social value. Instead, it represents a dynamic socio-spatial mechanism through which the community collectively responds to environmental pressures, spatial limitations, and the challenges associated with urban transformation.

Furthermore, the integrated concepts of expansion, penetration, and taretan contribute to the advancement of existing theories concerning socio-spatial adaptation by demonstrating that community resilience cannot be explained solely through the flexibility of spatial configurations. Rather, resilience is deeply embedded within the cultural systems that organize social interaction and collective behavior. This interpretation supports the recent findings of [Al-Homoud and Samarah \(2025\)](#), where social cohesion constitutes one of the principal determinants of spatial resilience. Similarly, the concept of taretan closely corresponds with the notion of social infrastructure proposed by [Kim and Kim \(2024\)](#), who argue that informal social networks function as essential support systems within densely populated urban environments. Comparable patterns are likewise evident among the Atoni and Bunaq communities ([Talo 2015](#)), where kinship relationships fundamentally determine territorial organization and settlement development.

Similarly, the Madurese migrant community in Malang employs kinship-based logic to facilitate both spatial penetration and territorial expansion. Consequently, the enlargement of residential space should not be interpreted merely as the physical construction of additional built structures; rather, it represents the simultaneous production of social space that continually reinforces collective identity, kinship relationships, and communal solidarity.

Kinship as social infrastructure in architectural adaptation

The findings of this research indicate that taretan extends beyond its conventional role as a cultural value system and may more appropriately be understood as a form of social infrastructure that actively shapes processes of architectural adaptation. Comparable observations have been documented in investigations of indigenous settlements throughout eastern Indonesia. [Talo \(2015\)](#), through the concept of Hina Gileen within the Bunaq community, demonstrates that kinship relationships provide the primary framework governing territorial organization, settlement structure, and the maintenance of social harmony. Similarly, studies concerning Atoni settlements reveal that customary social relationships exert a substantial influence on spatial hierarchy and the organization of communal territories. Within the Muharto–Kotalama settlement, taretan performs an equivalent function by regulating territorial expansion, mediating processes of spatial penetration, and preserving collective identity amidst ongoing urban transformation. Rather than functioning solely as a cultural symbol, kinship continuously shapes how residents negotiate spatial boundaries, organize communal territories, and respond collectively to environmental constraints. These findings therefore suggest that taretan operates as an invisible yet highly effective form of social infrastructure through which architectural adaptation, territorial continuity, and socio-spatial resilience are continuously generated and reproduced over time.

Conclusions

This study identifies three interrelated concepts that fundamentally underpin the residential adaptation of Madurese migrants within the

Muharto–Kotalama settlement, namely expansion, penetration, and taretan (kinship). The findings demonstrate that expansion occurs through both spatial and functional modifications of dwellings, encompassing vertical and horizontal extensions that accommodate increasing family needs, support household economic activities, and facilitate a wide range of communal events. Penetration, in contrast, represents a manifestation of socio-spatial resilience, whereby residents collectively negotiate the limitations of public and semi-public spaces to sustain social interaction, preserve cultural practices, and accommodate communal activities despite severe spatial constraints. Meanwhile, taretan serves as the fundamental cultural principle governing settlement formation, shaping socio-spatial hierarchies while reinforcing the collective identity of the Madurese migrant community. These findings demonstrate that the adaptive strategies adopted by Madurese migrants extend well beyond practical responses to the physical limitations of densely populated urban settlements. Rather, such strategies embody deeply internalized cultural values, collective solidarity, and local wisdom that continuously guide the organization of residential environments. Consequently, residential adaptation should be understood as a multidimensional process arising from the interaction of physical, social, economic, and cultural dimensions. Within this framework, adaptation functions not only as a strategy for sustaining everyday life under conditions of spatial limitation but also as a continuous negotiation through which ethnic identity, cultural continuity, and communal belonging are preserved amidst the pressures of urbanization. Furthermore, this research demonstrates that kinship-based social infrastructure constitutes a critical mechanism through which adaptive spatial practices are produced and maintained. By conceptualizing taretan as the underlying socio-spatial mechanism that strengthens community resilience, this study contributes to the growing body of scholarship concerning migrant housing, informal urban settlements, and culturally embedded architectural adaptation. More broadly, the findings extend contemporary discussions on socio-spatial resilience by illustrating that the adaptive capacity of migrant communities is determined not solely by the flexibility of the built environment, but also by the enduring strength of culturally embedded kinship networks that

organize territorial relationships, regulate spatial accessibility, and sustain collective resilience over time.

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Author(s) contribution

Damayanti Asikin contributed to the research concepts preparation, methodologies, investigations, data analysis, visualization, articles drafting and revisions.

Dian Ariestadi contribute to the research concepts preparation and literature reviews, data analysis, of article drafts preparation and validation.

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