

Research Article

Co-Living Strategies for Enhancing Shared Spaces in Fishermen Slum Settlements

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Abstract

Urban slums in developing countries pose persistent challenges due to rapid population growth, limited housing, and inadequate infrastructure. This study explores how shared spaces within a coastal fishermen settlement—Kelurahan Kangkung in Bandar Lampung—can be optimized to support socially inclusive and economically productive urban revitalization through the concept of co-living. Using a qualitative inductive approach, data were collected through field observations and stakeholder interviews. Some shared spaces were identified: the local market, harbour and fish auction site, waterfront area, road corridors. These spaces are used collectively by diverse community members across different times of day and fulfil essential social and economic functions. The analysis highlights the multifunctionality and adaptive use of these areas in response to spatial constraints and inadequate housing. Co-living is found to be a culturally embedded practice, aligned with the community's traditional values of cooperation and mutual support. The study concludes that revitalization strategies should prioritize the improvement of shared spaces as a pathway to more efficient, inclusive, and sustainable urban environments. Emphasizing participatory planning and culturally responsive design, the research contributes to a growing discourse on co-living as a viable framework for slum upgrading.

Keywords: Shared Spaces; Fishermen Settlement; Urban Revitalization; Spatial Adaptation.

Introduction

Housing and settlements are fundamental human needs, serving as physical spaces for individuals to grow and develop [1]. As urban populations expand rapidly, especially in developing countries, the demand for adequate housing has increased proportionally. This demand extends beyond merely physical shelter to encompass access to essential services and infrastructure—social, religious, educational, health, economic, and transportation facilities—which are integral to holistic human well-being [2]. However, with land being a finite resource and urbanization continuing at a high pace, especially among low-income populations, a significant housing shortage has emerged. This shortage has contributed to the proliferation of slums and informal settlements, characterized by poor-quality housing, substandard living conditions, inadequate sanitation, and limited access to clean water, electricity, and waste

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management services [3]. These environments not only pose physical and health risks but also diminish the quality of life and productivity of their residents [4].

In Indonesia, slum settlements often emerge in marginal or risk-prone locations—such as riverbanks, coastlines, and steep hills—due to their accessibility and low land costs [5]. Historically, various attempts have been made to revitalize slum areas. From colonial-era programs like "Kampong Verbetering" to the more recent Kampung Improvement Program (KIP) and the Urban Poverty Alleviation Project (P2KP), efforts have aimed at improving urban living standards. Nevertheless, many of these initiatives have fallen short of eliminating slum conditions comprehensively. As of 2014, Indonesia's urban slums still spanned an estimated 38,431 hectares [6]. The National Medium-Term Development Plan (RPJMN) 2015–2019 set an ambitious target—zero percent urban slum area—aligned with the global Sustainable Development Goals (SDGs). Despite this target, the mismatch between the scale of interventions and the financial resources available remains a major obstacle.

The Ministry of Public Works' 2015 study estimated a financial requirement of IDR 215.7 trillion to adequately address urban slum issues between 2015 and 2019. However, the fiscal capacity of the central and local governments combined only amounted to IDR 45.6 trillion, leaving a funding gap of around 75% [6]. This context calls for innovative and cost-effective solutions that ensure targeted, impactful revitalization efforts. One such approach is to focus on maximizing the utility and functionality of shared spaces—areas collectively used by communities for social, economic, or domestic activities [7]. Prioritizing these shared spaces allows urban interventions to benefit broader segments of the community rather than individuals alone, thereby enhancing the reach and effectiveness of limited resources [8].

Slum areas typically feature cramped living spaces that fall short of the minimum standards for habitable housing [9]. Such conditions push daily household activities—cooking, dining, receiving guests, and even sanitation—into communal spaces. This phenomenon is especially prevalent in urban kampung settlements, where strong social interactions and a community-driven lifestyle are deeply embedded in everyday life. These organic social practices present an opportunity: instead of attempting to radically reshape community habits, revitalization efforts can enhance and formalize existing patterns through spatial strategies [10].

The concept of co-living—derived from "communal" and "living"—offers a relevant framework. Co-living promotes the sharing of functional space to improve spatial and economic efficiency while fostering interaction and solidarity among residents [11]. Though co-living is often presented as a novel concept, especially in Western urban development discourse, it is essentially a formalization of long-standing communal living traditions in Indonesian kampung contexts [12]. Informal social structures and shared responsibilities have long shaped daily life in urban kampungs, where mutual cooperation and resource sharing are cultural norms. Thus, implementing co-living as a revitalization strategy aligns naturally with the existing community fabric. In environments where home sizes are extremely limited, reallocating certain household functions—kitchens, dining areas, and sanitation facilities—to shared outdoor or semi-public spaces can significantly improve quality of life [13]. For example, modifying road corridors to accommodate community cooking, shared meals, children's play, and accessible public toilets allows households to maintain functional completeness despite minimal private space.

As an archipelagic country, Indonesia hosts a considerable number of coastal settlements, many of which are occupied by fishermen communities [14]. These settlements are not only geographically marginalized but also often socioeconomically vulnerable, leading to the development of slum conditions [15]. In these areas, the communal character of daily life is even more pronounced, and shared spaces are vital for both economic survival and social cohesion [16]. The integration of co-living principles into the rejuvenation of fishermen settlements thus

represents a strategic convergence between traditional community values and modern urban planning goals.

The present study focuses on the fishermen settlement in Kangkung Sub-district, Bandar Lampung (Figure 1), a designated slum area under the KOTAKU program in 2018. This site presents a unique case where slum conditions intersect with coastal economic activities centred around fishing, trading, and transport. The neighbourhood includes crucial infrastructures such as local markets, fish auction sites (TPI), ports, and communal facilities—all of which function as shared spaces with overlapping economic and social roles. By exploring how these spaces are used, by whom, and when, the study aims to identify spatial patterns and usage behaviours that can inform more effective and inclusive revitalization strategies.



Figure 1. Study area of Kangkung Sub-district, Bandar Lampung

The goal of this research is to identify the characteristics of shared spaces within fishermen settlements and the user groups that utilize them. Specifically, the study seeks to understand how these spaces serve social and economic functions throughout different times of the day. The analysis provides a basis for prioritizing interventions that do not only improve individual housing units but also uplift broader community wellbeing. It also examines the implications of spatial multi-functionality in contexts of limited private space, proposing strategies that can guide co-living-oriented urban renewal. By focusing on communal rather than individual interventions, this study proposes a scalable and socially embedded model of slum revitalization. The novelty of this research lies in its localized application of co-living principles rooted in

empirical observation and cultural insight, providing a grounded framework for inclusive and participatory urban development.

Methodology

Research Approach

This study employs a qualitative inductive research approach, grounded in the belief that knowledge and meaning emerge through observation and interpretation of specific phenomena before generating generalized understanding [17]. The inductive approach is particularly suitable for exploring contextual and experiential aspects of communal life within urban rural environments, where formal urban planning frameworks often fall short of capturing the nuances of space usage. The focus of this research is the spatial behaviour of residents in fishermen settlements, particularly the shared spaces that serve economic, social, and basic functional roles as in Figure 2. The inductive process allows the researcher to draw insights directly from community interactions and the physical conditions of the settlement, forming a basis for conceptualizing revitalization strategies rooted in actual user needs and spatial dynamics.

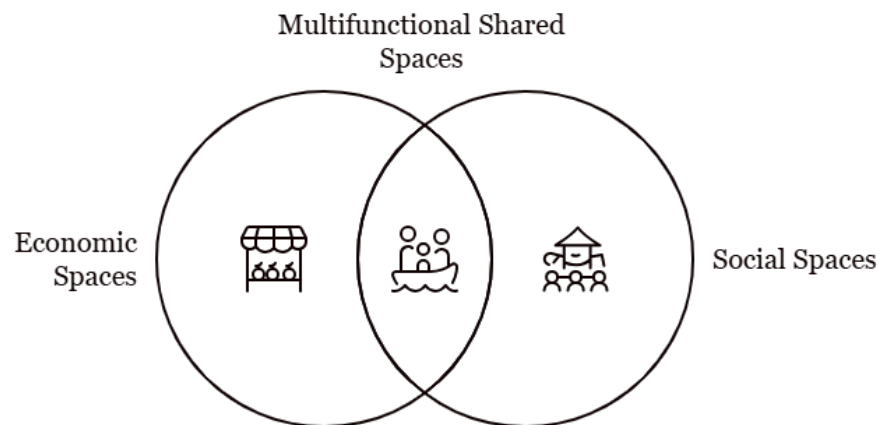


Figure 2. Shared spaces in fishermen settlements

Research Design

The research adopts a case study design to provide an in-depth and holistic understanding of the communal spatial structures in Kelurahan Kangkung, a fishermen settlement located in Bandar Lampung. The selection of this site was based on data from the National Slum Upgrading Program (KOTAKU) in 2018, which identified Kangkung as one of the slum areas in the city. Unlike other slum neighbourhoods, Kangkung presents a unique coastal and economic profile, being closely connected to market activity, the fish auction site (TPI), and a traditional harbour that facilitates economic flows within the community (Figure 3). These characteristics make the settlement an ideal locus for investigating how shared spaces operate in high-density, low-income coastal environments.

In this case study, attention is given not only to the physical characteristics of space but also to the users' behaviour, interactions, and adaptation strategies. A detailed spatial and functional analysis of identified communal areas is conducted, considering the frequency, timing, and diversity of usage by various groups such as fishermen, traders, women, children, and informal sector workers. Through this design, the study provides context-specific insights that can inform adaptive spatial planning strategies aligned with the co-living concept.

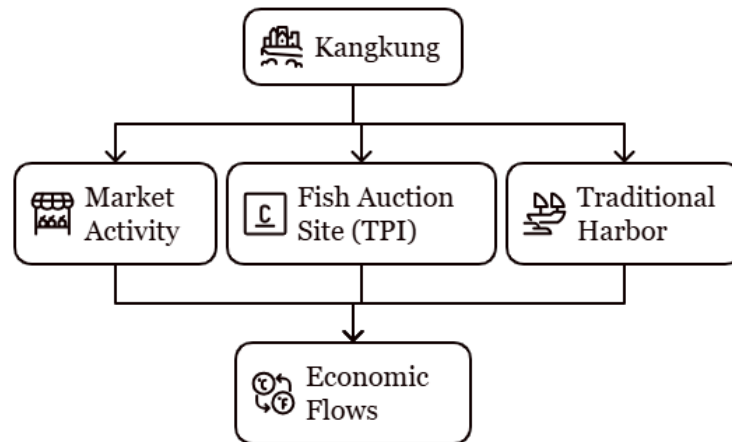


Figure 3. Kangkung’s fishermen settlement unique coastal and economic profile

Data Collection

Primary data were collected using two key techniques: field observation and in-depth interviews (Table 1). The observation was conducted on-site to record spatial configurations, physical conditions, and daily activities occurring in shared spaces. Specific attention was paid to how space is adapted over time and for different purposes, such as cooking, trading, socializing, playing, or sanitation.

In-depth interviews were conducted with multiple stakeholders, including community leaders, fishermen, traders, women residents, and representatives from local government agencies. These interviews aimed to gather nuanced perspectives on how different groups use shared spaces, what constraints they face, and what improvements they perceive as most urgent. The involvement of multiple community voices ensures that the data reflect a variety of user needs and perceptions, contributing to a more inclusive understanding of space functionality.

Informal conversational methods were also utilized to supplement the data, especially when interacting with children and elderly residents whose input might be underrepresented in formal interview settings. The combination of observation and interviews enabled triangulation of data and ensured the reliability of findings by cross-validating behavioural patterns with personal narratives.

Table 1. Data collection techniques comparison in Kangkung's fishermen settlement

Data Collection Techniques	Focus	Data Type	Stakeholders	Goal
Field Observation	Spatial configurations and daily activities	On-site records of physical conditions	Shared space users (implicit)	Understanding space adaptation over time
Interviews	Nuanced perspectives and user needs	Stakeholder opinions on space use	Community leaders, fishermen, traders, residents	Identifying constraints and desired improvements

Data Analysis

The analysis followed a thematic and interpretive strategy suited to qualitative inquiry. First, observational notes and interview transcripts were coded to identify recurring themes related to spatial use, user profiles, temporal dynamics, and perceived space functions. These themes were then grouped into broader categories such as economic utility, social cohesion, and basic service provision.

Subsequent analysis examined the spatial layout of the settlement and the functional integration of different shared spaces. The categories were mapped onto the physical environment of the community to illustrate how space usage patterns correspond to specific urban forms. Particular attention was paid to multifunctional spaces—those that concurrently serve social and economic roles—as these exemplify the potential of co-living models in dense, under-resourced settings.

The final phase of analysis involved interpreting the implications of identified patterns for future revitalization. This included identifying which types of shared spaces held the most transformative potential for community wellbeing and how interventions might be prioritized to achieve maximum impact. The analysis also explored the relevance of co-living as a guiding framework, evaluating the extent to which organic community practices align with the principles of shared living, spatial efficiency, and social integration.

Ethical Considerations

The research adhered to ethical standards for qualitative fieldwork, ensuring respect for the dignity, privacy, and autonomy of all participants. Informed consent was obtained from all interviewees, with assurances of confidentiality and anonymity. Participants were informed about the purpose of the study and the voluntary nature of their involvement. Photographic documentation was taken only with explicit permission, and identifying details were omitted from the final report.

Special consideration was given to vulnerable groups such as children, women, and elderly residents. For these groups, the interview process was conducted with heightened sensitivity, ensuring that questions were posed in a non-intrusive and culturally respectful manner. Engagement with the community also included moments of informal exchange and transparency about how the findings might inform planning processes or advocacy for improved settlement conditions.

Throughout the research, the positionality of the researcher was acknowledged as part of the reflexive process. As a visitor in the community, the researcher maintained a humble and respectful stance, recognizing that the residents are the true experts of their lived environments. This ethical orientation supported the authenticity of the data and the trust necessary to explore deeply personal and communal dimensions of space use.

Results

Field observations and interviews conducted in the Kangkung Sub-district of Bandar Lampung revealed four primary shared spaces that play a vital role in the everyday lives of the community as can be seen in Figure 4. These spaces are: (1) the local market, (2) the harbour and fish auction site, (3) the waterfront area, and (4) road corridors. These areas are not only used collectively but are integrated into the social and economic life of the settlement.

Each space is multifunctional, used by various demographic groups including fishermen, women, traders, children, and transportation service providers. Usage of these spaces spans across different times of the day, from early morning to night, reflecting the vibrancy and social interdependence embedded in the settlement's spatial dynamics.

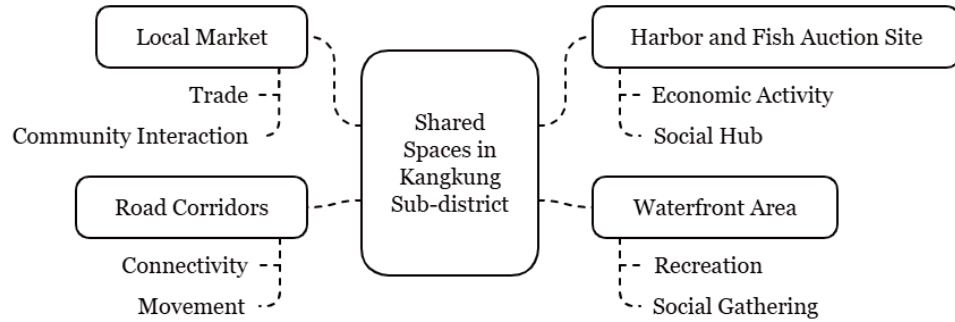


Figure 3. Shared Spaces in Kangkung Sub-district

The local market: Pasar Gudang Lelang

Pasar Gudang Lelang is the economic nucleus of the settlement, serving as a marketplace for seafood, fruits, vegetables, and particularly processed seafood products. During its operational peak—from morning to late afternoon—the market becomes a bustling hub where fishermen deliver their catch, traders arrange their stalls, and transport service providers (such as pedicabs and motorbike taxis) assist with logistics. As a shared space, the market supports multiple functions. It sustains economic livelihoods for vendors and transporters while also acting as a daily gathering point for buyers and local residents. The interactions that occur in this setting contribute to social cohesion, trust-building, and information exchange within the community.

Harbor and Fish Auction Site

Located adjacent to the market, the Harbour and Fish Auction Site serve as entry points for marine catch, and function as spaces for fish trading activities (Figure 5). These facilities date back to the 19th century and remain integral to the community's economy. Fishermen dock their boats here, unloading various catches including fish, squid, and shrimp. These are auctioned to vendors and processors in early morning and late afternoon sessions. The harbour operates on a 24-hour basis, yet its peak activity is concentrated during transition periods of the day, particularly morning and evening. It is a spatial extension of the market, forming a continuous economic corridor that supports both upstream and downstream seafood trade. This shared space not only sustains the economic base of the settlement but also facilitates labour-intensive interactions that depend on cooperation, synchronization, and proximity.



Figure 5. Harbour area of Kangkung Sub-district, Bandar Lampung

Waterfront Area

The waterfront area functions primarily as a recreational and social space, especially for children and youth. In the absence of formal playgrounds or green public spaces, this area becomes a spontaneous gathering point in the afternoons and evenings. Children use the waterfront for playing ball, swimming, paddling small boats, and other communal activities. This shared space fulfils important social and developmental needs in a dense urban environment lacking designated public amenities. Its informal but essential nature underscores the role of natural and semi-natural areas in fostering socialization, emotional well-being, and child development in marginalized communities. The waterfront is also a space of intergenerational contact, where caregivers supervise children and occasionally engage in casual interaction with neighbours. The waterfront area of Kangkung Sub-district can be seen in Figure 6.



Figure 6. Waterfront area of Kangkung Sub-district, Bandar Lampung

Road Corridors

The road corridors in Kangkung have unique spatial and functional attributes. Typically, narrow—ranging from 1 to 2 meters wide—they serve both as pedestrian pathways and as multifunctional community spaces (Figure 7). These corridors are not designed for heavy vehicular traffic; instead, they accommodate motorbikes, carts, and foot traffic. Observations reveal that road corridors double as extensions of the household space. Due to the cramped nature of housing, many domestic and economic activities spill over into these semi-public lanes. Activities include cooking, eating, socializing, drying and filleting fish, selling goods, and vehicle parking. Mothers often use the space to interact while conducting small-scale businesses or supervising children. Children use the space for play during off-peak hours. This multifunctionality creates a continuous rhythm of interaction and activity from dawn until dusk. The corridor becomes a hybrid space where the private and public realms overlap, reflecting adaptive strategies by residents to cope with spatial constraints. The role of the corridor as both a social and economic node makes it a critical component in any revitalization strategy.



Figure 7. Road corridors of Kangkung Sub-district, Bandar Lampung

Summary of Spatial Functions and User Characteristics

The study identified three overarching functions of shared spaces: (1) social, (2) economic, and (3) hybrid (social-economic). The waterfront and public toilets serve primarily social purposes. The market and harbour/TPI are oriented toward economic activity. The road corridors function as hybrid zones, where both social interaction and income-generating activities occur simultaneously. In terms of user demographics, different spaces serve different groups. Markets and harbours are predominantly male spaces, oriented around physical labour and trade. Waterfront areas and corridors are more inclusive, with a higher presence of women and children. Public toilets serve a cross-section of the community but are particularly important for women and families. Time of day also shapes spatial use—economic activities peak during the early hours, while social spaces are more active in the afternoon and evening.

Implications for Revitalization Strategies

The multifunctional and inclusive nature of shared spaces in Kangkung suggests that revitalization efforts must go beyond housing unit upgrades. Interventions should prioritize the improvement of shared spaces that support both economic survival and social wellbeing. Enhancing the infrastructure of markets, improving the safety and hygiene of waterfronts, widening and shading corridors, and upgrading public toilets are feasible entry points for impactful change. Moreover, recognizing the already embedded co-living dynamics within the community provides a cultural and practical foundation for revitalization strategies. These shared spaces are not passive or incidental—they are vital, dynamic, and adaptive spaces that hold potential for participatory urban planning grounded in lived experience.

Discussion

The findings of this study emphasize the crucial role of shared spaces in the everyday functioning of fishermen settlements, particularly in densely populated and under-resourced areas such as Kelurahan Kangkung, Bandar Lampung. These communal spaces—ranging from economic hubs like markets and fish auction sites to informal social spaces such as waterfronts and road corridors—demonstrate a remarkable degree of spatial adaptability and user interdependence.

They not only fill the functional voids left by substandard housing but also facilitate key aspects of communal living, underscoring the organic implementation of co-living principles long before the term gained academic prominence [18].

The integration of multiple household functions into communal environments is a direct response to spatial limitations within individual dwellings. In urban kampung settings, particularly in coastal slum settlements, domestic activities such as cooking, cleaning, and resting are often reoriented toward outdoor or semi-public domains. This phenomenon, as observed in the use of narrow road corridors and shared waterfront spaces, aligns with the notion of space intensification and multifunctionality, which are foundational to co-living practices [11]. By utilizing these areas collectively, the community not only optimizes space efficiency but also strengthens social capital through frequent interactions and shared responsibilities.

Moreover, the spatial behaviour documented in Kangkung reflects the continuation of traditional values such as *gotong royong* (mutual cooperation), which further reinforces the feasibility of co-living as a revitalization approach tailored to local socio-cultural contexts. The routine conversion of public infrastructure—such as harbour areas and market corridors—into hybrid spaces for both work and social interaction suggests that the community already possesses an intuitive model of spatial management that is collaborative and resource-efficient. From a planning and policy perspective, the implications are twofold. First, revitalization strategies should recognize and enhance these organically developed shared spaces, rather than attempting to replace them with rigid, top-down planning models that fail to consider local practices. Infrastructure upgrades, for instance, can focus on reinforcing the structural safety, sanitation, and accessibility of these shared zones without undermining their communal character. In this regard, the concept of spatial scaffolding becomes relevant—urban interventions should aim to support and amplify existing social practices through physical enhancements that respect the fluid boundaries between private and public life in the settlement [19].

Second, this study highlights the importance of inclusive and participatory design approaches that integrate the perspectives of diverse user groups. For example, the active use of public toilets by women and children points to a gendered dimension of spatial needs that is often neglected in conventional urban renewal schemes. Similarly, the multifunctional use of corridors by informal traders and caregivers suggests that planning must consider micro-scale economies and everyday social logistics when redesigning urban space [20].

In addressing these dimensions, co-living can be reinterpreted not merely as a housing typology but as a socio-spatial strategy for adaptive urbanism. It implies not only shared infrastructure but also shared governance, maintenance, and responsibility. In the context of Kangkung, community stewardship of shared toilets and informal coordination in the use of road corridors are examples of decentralized management that could be formalized through policy support and technical guidance.

Another important insight from this study relates to the temporal dynamics of space usage. The varying intensity of use across different times of the day—economic activities peaking in the morning and early afternoon, with social uses intensifying in the evening—suggests that shared spaces must be designed for flexibility and resilience. Lighting, safety measures, weather protection, and modular design could enhance the functionality and comfort of these spaces, enabling them to support a broader range of activities without conflict or overuse.

Furthermore, the interconnectedness between different types of shared spaces, particularly between the harbour, TPI, and market, reveals a spatial network that functions as the economic engine of the settlement [21]. Strengthening these connections—through improved pathways, storage facilities, waste management systems, and signage—can enhance the productivity and

cleanliness of the environment, ultimately contributing to both economic growth and public health outcomes.

In sum, the discussion reinforces that spatial interventions in slum upgrading should focus not only on individual housing quality but more importantly on the communal realm where everyday life unfolds. The co-living concept offers a valuable lens through which to analyse and enhance these dynamics, especially when it is grounded in empirical realities and local cultural systems. Rather than importing external planning models, the findings advocate for context-sensitive revitalization strategies that formalize and upgrade what communities are already doing effectively.

The study also points to several directions for further research. Future inquiries could delve deeper into the intersection between gender and spatial use, exploring how women and children navigate, modify, and claim communal spaces under constraints of safety, access, and cultural norms. Additionally, longitudinal studies tracking the transformation of these shared spaces over time—especially in the face of urbanization pressures or infrastructure projects—could yield valuable insights into the resilience and adaptability of co-living practices in urban poor settings. Ultimately, revitalizing urban fishermen settlements through shared space optimization requires a shift in how planners, architects, and policymakers conceptualize urban value. Rather than seeing slums merely as zones of deprivation, this study invites us to view them as living laboratories of innovation, where communities continually experiment with spatial configurations, social contracts, and survival strategies. By recognizing and investing in these everyday practices, urban planning can move toward more inclusive, equitable, and resilient futures.

Conclusion

This study reveals that shared spaces within fishermen settlements in Kelurahan Kangkung, Bandar Lampung, serve as critical infrastructure for both social interaction and economic activity, particularly in environments constrained by spatial limitations and inadequate housing. Four primary communal spaces—markets, harbours and fish auction sites (TPI), waterfronts, and road corridors,—have been identified and analysed for their multifunctionality and user diversity. These spaces support essential daily activities and reflect adaptive strategies rooted in the cultural and communal values of kampung life, particularly the principles aligned with co-living. By functioning as extensions of private dwellings, these spaces mitigate the negative impacts of overcrowding and foster social cohesion, economic vitality, and mutual support among residents. The findings emphasize that effective slum revitalization should prioritize the improvement of these shared spaces through inclusive and culturally attuned planning. Co-living, in this context, is not merely a design concept but a framework for enhancing collective well-being through shared access to urban resources. The study advocates for participatory urban interventions that recognize existing community practices as foundational assets, ensuring that revitalization is both context-sensitive and socially sustainable. Future research is encouraged to explore gender and age-specific needs within shared spaces, contributing to the development of inclusive urban design frameworks.

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Conflict of Interest

The authors declare no conflicts of interest.

Author Contribution Statement

Hafi Munirwan: Conceptualization, Methodology, Data curation, Visualization, Investigation. Writing- Original draft preparation, Writing- Reviewing and Editing.

Data Availability Statement

The data used to support the findings of this study are included within the article.

Ethics Approval

Not required.

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