

SPATIAL PATTERNS AS A REFLECTION OF SOCIAL MORPHOLOGY

A study of the fishery community at Siriwardhana Place, Negombo Lagoon, Sri Lanka

PRIYAMANTHA D.M.W.N.
University of Moratuwa, Moratuwa, Sri Lanka
priyamanthadmwn.19@uom.lk

Abstract: This research explores the relationship between spatial patterns and social morphology in a traditional fishery community by taking Siriwardhana Place in the Negombo Lagoon, Sri Lanka, as a case study. It examines how the built environment specifically elements such as courtyard housing, lagoon-edge promenades, and small public squares shapes and is shaped by daily fishing-related activities and social interactions.

Using a mixed-method approach that includes layout mapping, behavioral observation, historical analysis, and unstructured interviews, the study investigates how informal spatial systems evolve and how recent unplanned developments disrupt traditional use of space. The findings reveal that carefully organized spatial configurations can support fishery productivity, preserve cultural practices, and enhance community resilience. This research underscores the importance of preserving traditional spatial intelligence through context-sensitive planning and proposes design strategies that strengthen the identity and vitality of fishery communities while contributing to social and environmental sustainability.

Keywords: *Spatial patterns; Social morphology; Fishery community; Water-edge built environment; Resilient communities.*

1. Introduction

Negombo, a prominent coastal city on Sri Lanka's western seaboard, plays a critical role in the national fishery economy. According to Satharasingha (2023), more than 45% of the city's local economic activity is linked to fishing, making it a culturally and economically vital sector. Despite rapid urbanization, fishing continues to shape the everyday lives of many, particularly those residing around the Negombo Lagoon.

Siriwardhana Place a small, densely populated island settlement within the lagoon is one such community. Home to over 1,500 residents, it is characterized by organically evolved spatial elements such as narrow alleyways, lagoon-edge access paths, shared courtyards, and small informal squares. These features support daily fishing activities and social life, emerging not from formal planning but from cultural adaptation, communal practices, and responsiveness to environmental conditions.

The community's spatial organization has historically supported its livelihood. Fish-drying yards, net-weaving areas, and shaded courtyards function simultaneously as workspaces and social zones. However, recent unregulated development including multi-story buildings and boundary walls—has disrupted this traditional spatial logic. Such changes restrict lagoon access, reduce open space, and fragment visual and physical connectivity, weakening both economic functionality and social cohesion.

Traditionally, Siriwardhana Place maintained a delicate balance between built form and community living patterns. Spatial permeability enabled shared rituals, informal caregiving, and social surveillance, but the erosion of these qualities now threatens cultural continuity and community resilience. Despite the importance of spatial organization in sustaining coastal livelihoods, research on small island fishing communities remains limited. Existing studies largely emphasize larger towns or informal settlements, overlooking the embedded spatial intelligence and unique vulnerabilities of traditional fishing communities (Darjosanjoto, 2002; Schnore, 1958). Drawing on Rapoport (1969), Durkheim (1893), and Alexander (1977), this study investigates how spatial patterns shape social morphology and hypothesizes that spatial configurations are fundamental to sustaining fishing practices and social cohesion.

Research Objectives:

- Identify key spatial patterns that support traditional fishery activities.
- Examine how these spatial patterns shape community interaction and resilience.
- Propose context-sensitive spatial strategies for sustainable future development.

Ultimately, the study critiques current disruptions in spatial logic and offers a framework for spatial and social regeneration that honors traditional practices while promoting spatial, social, and environmental sustainability.

*Corresponding author: Tel: +94 775692019 Email Address: priyamanthadmwn.19@uom.lk

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Research Questions

1. How do traditional spatial patterns, courtyards, alleyways, squares, promenades mediate fishery activities and social cohesion in Siriwardhana Place?
2. How have recent vertical and wall-like developments disrupted historical socio-spatial relationships and reduced activity intensity and perceived safety?
3. How can these inherent spatial patterns inform community-sensitive planning strategies for resilient fishery settlements?

This paper contributes to the field of built environment by:

- (a) compiling a detailed spatial-pattern inventory of a lagoon-edge fishery settlement,
- (b) identifying the an active/inactive spatial typology based on behavioral and spatial mapping, and
- (c) producing design cues for community-sensitive development in South Asian coastal settlements undergoing transformation.

2. Literature and Theoretical Framework

Understanding the interrelationship between spatial patterns and social morphology requires a multidisciplinary approach. The spatial form of human settlements, such as Siriwardhana Place, reflects not only architectural design but also deep-rooted social, cultural, and environmental dynamics. The theoretical framework is developed by synthesizing insights from theorists such as Amos Rapoport, Emile Durkheim, Talcott Parsons, and Christopher Alexander to contextualize the observed socio-spatial patterns.

2.1 SPATIAL PATTERNS AND MORPHOGENIC ARCHITECTURE

Spatial patterns refer to recurring configurations in the built environment shaped by human activity. In Siriwardhana Place, features like courtyard houses, lagoon-side paths, informal squares, and narrow alleys have developed organically in response to daily needs and collective behavior. These patterns align with the concept of **Morphogenic Spatial Architecture**, (Darjosanjoto,2002). which refers to the adaptive evolution of space in response to social and environmental pressures.

Prado (2019) defines morphogenic design as a dynamic system incorporating environmental, volumetric, and social data to produce sustainable spatial outcomes. In Siriwardhana Place, shared courtyards have shifted from passive spaces to active areas for drying fish or weaving nets, showing how space adapts over time. These informal evolutions occur in the absence of formal planning but ensure that built spaces remain functional and community-oriented. However, new vertical developments that ignore these evolved patterns now threaten this adaptive balance.

2.2 RAPOPORT'S THEORY: CULTURAL DETERMINANTS OF SPACE

Amos Rapoport (1969), in *House Form and Culture*, emphasizes that built environments are cultural artifacts shaped more by social values and lifestyles than by climate or technology. He argues that spatial arrangements mirror everyday practices, beliefs, and communal needs. In Siriwardhana Place, housing clusters serve more than spatial efficiency they foster visual contact, cooperation, and collective labor. Narrow alleys double as access paths to the lagoon and play or work zones. These spatial choices reflect a communal lifestyle that values interdependence and shared routines.

Rapoport's view becomes more relevant when observing recent changes in the community. Modern concrete buildings, designed without consideration for inherited behaviors, block lagoon access and fragment community ties. Here, the spatial form is not neutral it encodes cultural identity and collective function.

2.3 DURKHEIM AND PARSONS: SOCIAL MORPHOLOGY AND SYSTEMS

Émile Durkheim's (1893) concept of **Social Morphology** stresses how physical space shapes and is shaped by collective social behavior. He argued that forms of social solidarity are rooted in physical arrangements. Talcott Parsons (1951) later expanded this in his **Social System** theory, describing society as an interlinked system of norms, roles, and institutions.

In Siriwardhana Place, the physical layout sustains social cohesion. Informal public squares support communal gatherings, while visual transparency between homes ensures informal childcare and community security. These spatial features reinforce shared roles and collective norms. However, when informal spatial systems are replaced by rigid, vertical structures, this balance collapses. Disruption in spatial morphology leads to declining participation in mutual aid, informal rituals, and shared responsibilities. Theories by Durkheim and Parsons highlight how social fragmentation often begins with spatial disruption.

2.4 GLOBAL REFERENCE: – FISHING CULTURE AS A REPRESENTATION OF COMMUNITY DYNAMICS

The water-edge built environment is vital in facilitating fishery activities, particularly in communities where economic and social practices are intertwined with water-related functions. Schnore (1958) highlights that understanding the relationship between water and human activities is essential for structuring community spaces in ways that foster productivity and support communal livelihoods.

The case of informal **Kampung** settlements in Jogjakarta, Indonesia, offers a valuable comparison. Hutama (2018) shows that these settlements, although informal, are functionally organized based on social and economic needs. Despite the absence of formal zoning, they demonstrate:

- High spatial permeability
- Short distances between homes and workplaces
- Robust communal spaces

Similar to Siriwardhana Place, Kampung adapt their spatial logic to local practices. Housefronts double as micro-shops or cleaning zones; alleys become recreational or work areas. These features foster survival, collaboration, and resilience. Hutama (2018) argues that formal planning often disrupts such inherited logic, while community-based spatial understanding better supports long-term cohesion. Siriwardhana Place, facing similar urban pressures, can learn from this: rather than imposing a formal grid or zoning logic, a **pattern-based, community-sensitive approach** could reinforce rather than fragment—its social fabric.

2.5 THEORETICAL INTEGRATION: A PATTERN LANGUAGE

Christopher Alexander's *A Pattern Language* (1977) proposes that recurring spatial solutions such as “courtyards that live” or “streets as rooms” carry embedded cultural knowledge. His methodology offers a framework for integrating design with social function. Siriwardhana Place reflects many of Alexander's identified spatial patterns:

- **Work Communities** – Clustered homes around courtyards enable shared labor and mutual visibility.
- **Access to Water** – Lagoon-side paths support livelihood, mobility, and recreation.
- **Promenades and Small Squares** – These encourage social dialogue, rest, and negotiation.

By recognizing these patterns, planners and architects can work with the community's existing logic. This does not mean replicating traditional forms, but rather **responding to the embedded meanings of space**. Applying Alexander's theory offers the potential for spatial renewal that is **respectful of tradition, culture, and attuned to the evolving needs of the community**

3. Research Methodology

3.1 OVERVIEW

This study adopts a mixed-methods approach, combining quantitative and qualitative techniques to examine the relationship between spatial patterns and social morphology in Siriwardhana Place. By integrating empirical observation with spatial and behavioral analysis, the methodology captures how the built environment shapes community interactions. The research progresses through three stages:

1. Preliminary Understanding – Field visits, observations, and informal discussions to establish contextual grounding.
2. Quantitative Spatial Analysis – Mapping procedures to document spatial patterns and their evolution, offering measurable insights into spatial configurations.
3. Qualitative Social Analysis – Behavior mapping, systematic observations, and focus group discussions to understand community practices and perceptions.

Together, these methods bridge spatial data with lived experience, enabling a holistic interpretation of how spatial configurations influence fishery activities and social dynamics.

3.2 PRE-FIELDWORK AND INITIAL OBSERVATIONS

Repeated field visits over two years helped build foundational knowledge of Siriwardhana Place. Exploratory mapping identified key functional zones such as fish-drying areas, net-weaving spaces, and communal gathering points. Early observations highlighted the community's fragmented and porous spatial structure, strong visual and physical links between homes, streets, and the lagoon, and challenges arising from encroachments and vertical growth. Features such as narrow alleys, courtyard housing, and lagoon access points informed the design of targeted data-collection strategies.

3.3 QUANTITATIVE ANALYSIS: SPATIAL PATTERNS

3.3.1 Layout Mapping

Layout mapping focused on documenting the physical structure of Siriwardhana Place, including streets, alleys, building footprints, and public spaces. The method involved:

1. **Land Use Mapping** – Categorizing spaces based on their function, such as residential, commercial, or fishery-related.
2. **Connectivity Analysis** – Tracing pathways between homes and the lagoon to assess accessibility.
3. **Historical Mapping** – Using archival data to track spatial changes from 1956 to 2023.

Findings: Clear patterns of solid-void relationships where open spaces served as activity hubs. Encroachments along alleyways that disrupted access to the lagoon. Reduction in public spaces, leading to a decline in shared community activities. Maps created during this stage visually represented the evolution of spatial patterns and identified critical areas for intervention

3.3.2 Land Use Analysis

Land use analysis using base imagery categorized spaces within Siriwardhana Place by their primary function. For example:

- (1) **Workspaces** – Fish drying yards and net-weaving zones.
- (2) **Residential Areas** – Dense clusters of single-story homes. (Figure 1)
- (3) **Public Spaces** – Small squares and courtyards for gatherings.



Figure 1: Road Network system and residential systems in Siriwardhana Place (Satharasinha, 2023)

The analysis revealed a shift from multifunctional spaces to mono-functional zones due to unplanned construction.

3.3.3 Comparative Mapping

Alexander's (1977) *A Pattern Language* was taken as the basis to identify the spatial patterns in Siriwardhana Place under the themes, Work Communities, Access to water, Promenades and Small Squares. Using thematic and comparative mapping, active spaces (e.g., promenades) were contrasted with inactive ones (e.g., enclosed courtyards). This approach highlighted how spatial openness fosters economic and social vitality.

3.4 QUALITATIVE ANALYSIS: SOCIAL MORPHOLOGY

3.4.1 Activity Mapping

Activity mapping documented how residents used spaces for daily and occasional activities. Observations were conducted over eight days, covering two weekdays (Monday and Thursday) and one weekend (Sunday). Time slots included: Morning (6:00 AM – 12:00 PM) | Afternoon (12:00 PM – 6:00 PM)

Key Observations:

- Lagoon-edge spaces were used for fish processing, boat preparation, and informal gatherings.

- Alleyways served as extensions of homes, accommodating activities like fish net weaving and child play.
- Small public squares facilitated cultural events and communal interactions.

Each observed activity was mapped spatially, revealing dynamic patterns of use. For example, communal spaces were most active during mornings when fish processing peaked.

3.4.2 Behavior Mapping

Behavior mapping explored interactions between residents and their environment. This method focused on:

- **Movement Patterns** – How people navigated through alleys and open spaces.
- **Social Interactions** – Group behaviors in public squares and along lagoon paths.
- **Livelihood Activities** – How spatial configurations supported or hindered fishery practices.

Mapping results showed a high degree of interdependence between spatial arrangements and daily life. For instance, narrow alleyways provided both functional connectivity and opportunities for social engagement.

3.5 FOCUS GROUP DISCUSSIONS AND INTERVIEWS

To capture community perspectives, focus group discussions (FGDs) and semi-structured interviews were conducted. Participants included fishermen, women involved in net weaving, and elders familiar with the area's history. Topics Discussed:

- Changes in spatial organization over time.
- Challenges caused by encroachments and reduced public spaces.
- Perceived impact on fishery activities and community bonds.

These qualitative insights complemented quantitative findings, offering a richer understanding of how spatial disruptions affect livelihoods and social cohesion.

3.6 TOOLS AND INSTRUMENTS

The following tools were used to ensure accurate data collection:

1. Geographical Information Systems (GIS): For precise layout and connectivity mapping. Base images from Base images from (Survey Dept. 2023 + Google Earth historical layers 1956–2023)
CRS: Sri Lanka National Grid (EPSG:5235), Manual digitization in QGIS 3.28
2. Video and Photography: To document activities without intruding on cultural sensitivities.
3. Sketches and Diagrams using base images: To delineate spatial patterns representing alleys, access points, courtyards, promenades and public squares under the established themes.

These tools provided both objective measurements and visual representations of spatial patterns.

3.7 ETHICAL CONSIDERATIONS

Ethical guidelines were strictly followed to respect community members' privacy and cultural norms. Permission was obtained for video recordings, and all data was anonymized to protect participants.

3.8 SAMPLING STRATEGY

A purposive sampling strategy was used to capture a diverse range of perspectives across livelihood roles, gender groups, and age categories. A total of 12 open ended interviews were conducted, including six active fishermen, four women involved in fish-net weaving and drying activities, and two elders familiar with the settlement's historical evolution. In addition, one focus group discussion (FGD) with eight mixed participants was held to understand collective perceptions and community-level changes. (Table 01)

Summary of Participants and Data Collection

Table 1: Summary OF Participants and Data Collection

Method	No. Participants	Description	Duration
Open ended Interviews	12	Fishermen (6), women net-workers (4), elders (2)	20–30 min
FGD	1 group (8 people)	Mixed residents	45 min
Informal Conversations	~10	Residents during observations	Varied

3.9 OBSERVATION PROTOCOL

Eight observation days were conducted: Monday, Thursday, Sunday across one month, with scan-sampling at 30-minute intervals during morning (06:00–12:00) and afternoon (12:00–18:00) periods. Activities were coded into six categories based on most common community activities identified during preliminary observations: fish processing, net weaving, boat preparation, resting, children’s play, commercial exchange. Two inter-observer tests ensured coding reliability.

4. Analysis and Findings

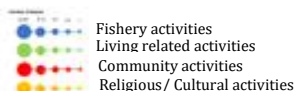
The analysis conducted in this study integrates spatial documentation, behavioral observation, and user perception to examine the complex socio-spatial dynamics of Siriwardhana Place. Through multiple mappings, comparative diagrams, and thematic assessments, the study identifies and interprets key spatial patterns that directly support the community’s fishery-based way of life. See Map 1 for an example of activity Mapping and Map 2 For different spatial pattern systems identified in Siriwardhana Place. (Table 2)



Map 1: Siriwardhana place Activity mapping Tuesday morning 8AM – 12PM. CRS: Sri Lanka National Grid (EPSG:5235), Manual digitization in QGIS 3.28, Mapped by Author, 2024

Tuesday morning 8AM – 12PM

Activity mapping – weekdays



Map 2: Different spatial pattern systems in Siriwardhana Place. Map is done by Author, 2024

Table 2: Represented Spatial patterns of Map 2

Spatial Pattern	Numbered areas on map	Spatial Pattern	Numbered areas on map
Court yard housing	11	Dancing in the street	8,12,15
Raw Housing	10,16	Access to Water	1,2,4,5,7,13,17,20,21
House Cluster	3,6	Promenade	14,18
Small public square	8,12,19		

Next Section presents the findings under three main lenses: historical spatial transformation, identified spatial patterns, and comparative analysis of active vs. disrupted spaces.

4.1 HISTORICAL EVOLUTION OF SPATIAL PATTERNS (1956–2023)

The earliest spatial records (1956) depict Siriwardhana Place as a sparsely inhabited mangrove island with scattered settlement structures aligned close to the lagoon edge. These initial houses were designed in response to fishing activity, with immediate access to the water, shared spaces for fish drying, and highly porous spatial configurations that enabled both social visibility and functional flow.

From 1970 to 1990, the community grew in population, and structures became more clustered. Yet, houses-maintained lagoon access through shared alleyways and communal yards. Social events like community meetings, net weaving, and religious rituals occurred in small voids between housing clusters. Open porosity allowed wind flow and visual integration of space, giving rise to a functional and culturally responsive built fabric. By 2023, the settlement had undergone significant spatial transformation. Encroachments, boundary wall constructions, and vertically extended buildings dominated the fabric. Key lagoon access points were blocked by newer constructions, and many of the earlier courtyards were enclosed. This shift towards inward-oriented spatial planning not only disrupted the socio-economic rhythm of the community but also weakened its historically open, breathable spatial logic.

4.2 IDENTIFIED SPATIAL PATTERNS

Fieldwork and analysis revealed seven recurring spatial patterns, each deeply embedded in the lifestyle and needs of the fishery community. These patterns were mapped, categorized, and observed in use over time.

4.2.1 Courtyard Housing

Number 11 in Map 2 illustrates typical courtyard housing in Siriwardhana Place. These courtyards support shared labor, especially among women who engage in net weaving and fish drying. They serve as semi-private workspaces that balance domestic boundaries with communal functionality. Spatially, the courtyards are connected to internal alleys, enhancing both visibility and ventilation. (Figure 2)



Figure 2: Work community Courtyard Housing, Figure is created by Author,2024

Behavioral mapping indicates that courtyard activity peaks in the late morning, where up to three families often use the same space. However, unplanned vertical development is increasingly enclosing these spaces, reducing their functionality and turning them into inactive backyards.

4.2.2 Raw Housing Clusters

Raw housing clusters (No:16 – map 2) refer to linear or L-shaped arrangements of 4–6 houses with shared walls and open facades. These clusters are economically and socially efficient they minimize land use while maximizing cooperation. Children often play along the central alley, while men sort fishing tools and boat repairs.

The layout enables mutual surveillance and reinforces neighborhood security. While still present in certain lanes, new constructions have shifted toward more compact single-unit plots, reducing this pattern's prevalence.

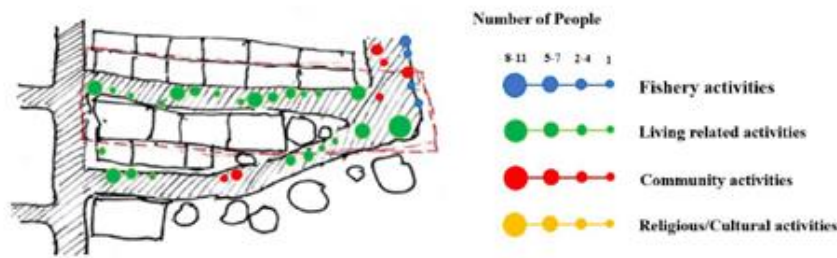


Figure 3: Raw housing (Monaco gama) Selected type 01 Ac-tivity Mapping done by Author, 2024

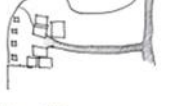
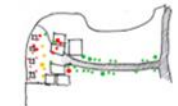




4.2.3 Small Public Squares

Identified in at least five locations (No 8,12-map 2), small public squares function as spontaneous gathering points. They typically emerge at junctions of alleys or near water taps. During site visits, these squares were active during evenings with elders gathering, children playing, and women discussing domestic matters.

4.2.4 Dancing in the Street

This culturally unique pattern (No 15 – Map 2) represents spaces between houses used informally for religious and festive performances, especially during St. Anne’s and St. Sebastian’s feasts. Unlike formal plazas, these are transitional spaces with temporary decorations. Such events have become less frequent. One reason, as expressed by an elder resident, is the rise in traffic and spatial obstructions from new constructions. Thus, the community’s cultural rituals are increasingly pushed out of the spatial frame.

Table 3: Comparison of Spatial pattern, Social Morphology and Both relationship in Access to water spaces. Maps are done by Author, 2024

<p>Access to water – Selected type 01</p>	<p>Functional public space integrating built and natural elements, promoting accessibility to the lagoon.</p>  <p>Figure 209</p>	<p>Active: Family gatherings, small ceremonies, casual dining, cultural celebrations.</p>  <p>Figure 210</p>	<p>Balanced layout fosters strong cultural and functional interactions tied to the lagoon.</p>  <p>Figure 211</p>
<p>Access to water – Selected type 02</p>	<p>Obstructed access due to encroachments, reducing connectivity and functionality.</p>  <p>Figure 212</p>	<p>Limited: Private fish breeding, minimal living-related activities</p>  <p>Figure 213</p>	<p>Encroachments disrupt public access, weakening communal and cultural ties to the lagoon.</p>  <p>Figure 214</p>

4.2.5 Access to Water

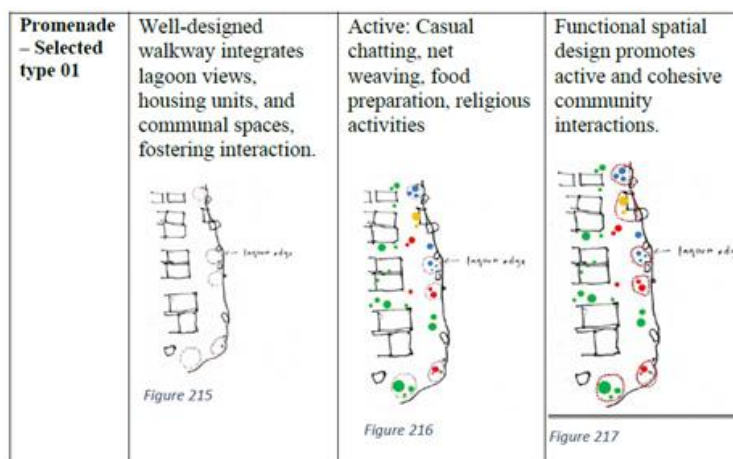
The most vital spatial pattern (No: 4,5,7,9 -Map 2) is access to the lagoon. In 1956, each housing cluster maintained at least one alley or footpath leading to the water’s edge. This pattern facilitated loading boats, cleaning fish, and transporting goods.

Comparative mapping reveals that over 40% of original access paths have now been blocked or diverted. Areas maintaining uninterrupted water access have retained more active fishery behavior and social cohesion than those with obstructed access. (Table 3)

4.2.6 Promenade

The promenade (No 14,18 – Map 2) is a linear path along the lagoon edge that supports movement, rest, and casual interaction. It also serves as a spine for fish drying and unloading. Active promenades were found to have diverse uses, including boat parking, open-air cooking, and fish sorting. (Table 4)

Table 4: Comparison of Spatial pattern, Social Morphology and Both relationship in Promenade spaces. Maps are done by Author



In contrast, disrupted promenade zones had wall-like buildings with no permeability. These areas had lower social and economic activity, as confirmed in the observational log. (No 18 – Map 2)

4.2.7 House Clusters with Visibility

House clusters (No 3,6 – Map 2) designed with visual permeability open verandas, front-facing windows, and low walls encouraged strong neighborly bonds and self-policing. These spaces provided both psychological safety and cooperative spirit. Encroachments and enclosed plots have broken this visibility. Interviews revealed that women, in particular, felt less safe and more isolated, which reduces their participation in outdoor work.

4.3 Thematic Analysis: Active vs. Inactive Spaces

A thematic analysis was carried out to classify spaces in Siriwardhana Place as **active** or **inactive**, based on their physical openness, accessibility, and observed behavior. (Table 5)

Table 5: Thematic Analysis -Characteristics of Active and Inactive Spaces

Active Spaces	Inactive Spaces
Located along continuous paths	Enclosed by walls or dead-ends
Exhibit overlapping uses (work, play, rest)	Show mono-functional or abandoned use
Include shaded edges and visual contact with lagoon	Have poor visual or physical access
Encourage spontaneous social gatherings	Often feel unsafe or underused

Table 6: Selected Spatial patterns according to the Activity mapping

Functional active Spatial pattern	Non-functional limited spatial pattern
Court yard housing selected type 01 (No 1 - figure 02)	Court yard housing selected type 02 (No 2 - figure 02)
Raw Housing (Monaco gama) Selected type 01 (No 16 - Map 2)	Raw Housing (Monaco gama) Selected type 02 (No 17 - Map 2)
Raw housing Leaner pattern selected type 01 (No 10 - Map 2)	Raw housing Leaner pattern selected type 01 (Figure 3)
House Cluster-Middle open (No 6 - Map 2)	House cluster Distributed (No 3 - Map 2)
Small public square selected type 01 (No 8 - map 2)	Small public square selected type 02 (No 12 – Map 2)
Dancing in the street selected type 01(No 8,12 –Map 2)	Dancing in the street selected type 01 (No 15 – Map 2)
Access to Water selected type 01 (No 2, 7 – Map 2)	Access to Water selected type 01 (No 1,4 – Map 2)
Promenade selected type 01 (No 14 – Map 2)	Promenade selected type 02 (No 18 - Map 2)

The above dichotomy helps architects and planners understand which elements promote spatial vitality and which restrict it. (Table 6)

4.3 COMMUNITY PERSPECTIVES AND CONFLICTS

Focus group discussions revealed deep community concern about recent spatial transformations. Many residents expressed frustration about:

- Loss of traditional access paths
- Social friction from enclosed or privatized zones
- Decline in youth participation in fishery due to spatial detachment

Conversely, some residents supported modern development for perceived aesthetic and economic benefits, indicating a conflict between modern aspirations and traditional spatial logic. This conflict must be carefully negotiated in future planning by balancing contemporary building regulations with **preservation of socio-spatial heritage**.

5. Discussion

This study of Siriwardhana Place highlights the dynamic interplay between spatial organization and social life in a traditional fishery community. Rather than serving as a neutral backdrop, the built environment functions as a **living medium** that supports livelihoods, rituals, and communal bonds. Drawing on field data, theoretical perspectives, and community observations, this section reflects on key insights, spatial challenges, and strategies for socio-spatial reconciliation.

5.1 BUILT FORM AS SOCIAL INFRASTRUCTURE

Amos Rapoport's theory, that space both shapes and is shaped by cultural practices is clearly evident in Siriwardhana Place. The area's spatial elements such as courtyard clusters, informal paths, and communal squares are products of lived traditions rather than formal design. These evolved structures accommodate fishing routines and social life. For instance, courtyard houses allow shared work such as net weaving and promote daily interactions, while promenades serve multiple roles: fish drying, transportation, and social gathering.

However, modern developments are replacing these adaptive spaces with rigid structures. Multi-story concrete buildings and walled enclosures encroach on shared voids, disrupting the social functions embedded in spatial forms. As Rapoport (1969) warned, alien interventions often bring dysfunction by breaking the continuity of cultural patterns.

5.2 SPATIAL FRAGMENTATION AND SOCIAL DISCONNECTION

From Durkheim's lens of social morphology, the physical configuration of space deeply affects social structures. In Siriwardhana Place, the **fragmentation of lagoon accesses** a core social and economic artery, has weakened communal connectivity. Map 2 indicates that traditional lagoon routes are now obstructed by added barriers to access to water and functional areas. This loss has not only limited physical movement but also reduced everyday encounters among residents. Community interviews confirm the social consequences. A 54-year-old fisherman noted that communal mornings at the lagoon edge have disappeared. Instead of broad neighborhood ties, people now mostly interact within their enclosed homes. Talcott Parsons' theory supports this: as shared spaces vanish, so do informal institutions like youth mentoring, caregiving, and collective fishery work **all vital to community resilience**.

5.3 SOCIAL AND CULTURAL CONSEQUENCES

Lagoon routes are not just functional; they symbolize cultural identity and personal dignity. Residents associate these spaces with belonging, freedom, and routine. When spatial access disappears, **emotional well-being also suffers**. Women voiced heightened concerns about safety in newer, more enclosed layouts. Blind alleyways and high walls reduce visibility and trust. One young mother mentioned feeling unsafe in contrast to the past, when open layouts encouraged communal surveillance and interaction. The erosion of spaces once used for religious festivals and street dances also means that children are growing up without community rituals that once nurtured shared pride and belonging.

5.4 PATHWAYS TO SPATIAL RECONCILIATION

The findings indicate that spatial reconciliation can be achieved through pattern-based design and small, low-impact interventions. Drawing from Christopher Alexander's *A Pattern Language*, planners can reintroduce meaningful spatial elements such as lagoon-edge pathways, semi-shared courtyards, and small social squares at alley junctions. These patterns improve permeability and community access without major redevelopment. Incremental actions reopening old paths, adding shaded seating, or creating communal workspaces can strengthen spatial vitality while preserving local rhythms. Crucially, future design solutions must emerge from the community itself. Elders' hand-drawn sketches of former pathways reveal how participatory memory can guide sustainable, culturally rooted regeneration.

6. Conclusion

The research highlights the need for integrated spatial planning that respects traditional fishery-based lifestyles. By reintroducing and strengthening identified spatial patterns, communities like Siriwardhana Place can retain their cultural identity while adapting to modern pressures. Spatial porosity, functional access, and community-specific design must inform future development to ensure **economic stability and cultural preservation**.

7. Acknowledgements

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