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Spatial Integration in the Fishermen Settlement of Sungai Pinang Nagari, Pesisir Selatan Regency

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ABSTRACT

Regional development has introduced land access through a main road, leading to shifts in settlement orientation and the spatial configuration of Sungai Pinang Nagari, a fishing village in Pesisir Selatan Regency. Previously oriented toward water as the primary access, the spatial layout along the riverbanks now faces the risk of degradation due to these changes. Therefore, a study is needed to plan the spatial integration of existing areas. This research employed a mixed-method approach, combining qualitative rationalistic methods to holistically understand local spatial values and quantitative methods based on the Space Syntax concept—specifically, integrity analysis—to identify spaces with high integration value. These highly integrated spaces function as connectors and integrators, linking and harmonizing with other spatial zones. The findings reveal three high-integrity spaces: Integrity Space A along the coastal zone, Integrity Space B in the communal zone, and Integrity Space C along the riverbank zone. These spaces form integrative areas known as "grey spaces," which support and connect various community activities. This study concludes that despite the shift toward a land-based orientation, spaces rooted in local wisdom retain significant potential as integrative and connective elements within a sustainable spatial framework.

Keywords: *Integrasi, Ruang, Kearifan Lokal, Mix Method*

INTRODUCTION

The Nagari Sungai Pinang settlement, located in the Mandeh Area, Pesisir Selatan Regency, is a community whose residents generally work as fishermen living along the coast and traditionally relying on sea access (Uzra, 2019). The development of the Mandeh Area has introduced new connections to surrounding regions through land access in the form of main roads. This development has affected Nagari Sungai Pinang, where residents who previously used sea routes by boat have shifted to land transportation via the main road. The change in access to the settlement has caused a shift in orientation—from being water-based to land- or road-oriented (Alitajer & Nojoumi, 2016).

The existence of road access has gradually transformed the character and orientation of the settlement, which now tends to develop along the main road (Liao et al., 2023). Previously, the riverside and coastal zones served as the settlement's front face and main areas for entrance and exit. However, these zones are now turning into the rear parts of the settlement, raising concerns that they will eventually become neglected areas (Asmal & Latief, 2023; Rizal et al., 2022). The spatial character and patterns formed from a long-standing habit of prioritizing the riverside and beachfront zones are slowly disappearing as the community shifts toward the main road. Consequently, areas that once served as centers of community activity are becoming underdeveloped and are feared to be increasingly degraded over time (Hiwasaki et al., 2019; Jackson, 2025). Furthermore, the rise of tourism has sparked concerns that tourism development will dominate spatial planning, leading to the neglect of elements inherent to traditional fishing settlements (Xi et al., 2015; Xu & Wang, 2024). This situation would inevitably affect the livelihoods of the fishermen in the Nagari Sungai Pinang settlement.

This issue is also evident in the spatial development pattern of settlements that tend to cluster near the main road (Fabinyi et al., 2022; Matovu et al., 2024). Such a tendency affects the existence of older spaces dominant along the river and coastal edges—which risks leading to their degradation (Cheng et al., 2025). A similar case occurred in the Carocok Anau fishermen's settlement, also located in the Mandeh Tourism Area. According to the RTBL (2015) of the Mandeh Area, the settlement was relocated to a location far from the coast. This relocation indicates that tourism had become the main focus of development, displacing long-established fishermen's settlements that existed prior to the rise of tourism in the region. Therefore, Nagari Sungai Pinang requires a spatial planning concept based on a study of the settlement's own spatial values. Conducting such a study is important to identify and preserve elements of local wisdom, which can serve as the foundation for addressing the changes in settlement character and orientation toward the main road (Gil et al., 2015; Varoudis, 2015). In this way, settlement planning can remain rooted and sustainable, grounded in locally derived values. Accordingly, this study seeks to identify spatial points that act as connectors, integrating new spaces formed along the main road with pre-existing local spaces shaped by traditional wisdom (Marcus, 2010).

Previous research on fishing settlements in coastal areas has highlighted the impact of spatial transformation on socio-cultural sustainability (Nijamdeen et al., 2023; Radel, 2018; Ridwan et al., 2025). For example, Uzra (2019) studied Nagari Sungai Pinang and documented changes in the socio-economic conditions of coastal fishers in response to regional development. Meanwhile, research using the Space Syntax approach by Siregar (2014) demonstrated how spatial configuration analysis can identify patterns of integration and segregation in residential structures. In the context of regional planning, the 2015 RTBL for the Mandeh Area recommended relocating fishermen's settlements in Carocok Anau—also within the same area—to support tourism development. This indicates a development bias that tends to overlook the existence and value of local spaces (Cutini et al., 2019).

Based on these previous studies, a research gap remains in analyzing spatial integration between new spaces that have emerged along land routes and long-established spaces that embody local wisdom along the water's edge. Spaces such as riverbanks and coastlines, once serving as the centers of socio-economic activity for fishing communities, are now at risk of marginalization. Moreover, no study has yet combined a qualitative approach that interprets the meaning of space from a local perspective with a quantitative approach—such as Space Syntax—to analyze spatial integration structures holistically.

Therefore, this study aims to analyze spatial integration in the fishing settlement of Nagari Sungai Pinang by combining rationalistic qualitative methods with quantitative Space Syntax analysis. The goal is to identify spaces with high integrity values and understand their role as connectors and integrators among existing spatial zones. The findings are expected to provide a foundation for sustainable spatial planning that not only responds to infrastructure development but also upholds the values of local wisdom within the fishing community.

METHOD

The research applies a mixed-method approach. The qualitative research is conducted rationally to obtain holistic field data referring to theoretical understandings derived from literature studies. The quantitative research employs the Space Syntax method with integrity

analysis based on spatial data obtained from field observations and interviews to examine relationships between spaces (Siregar, 2014). After identifying the spatial points with the highest integrity values, a re-identification process is conducted using the rationalistic method to collect detailed data about these spaces in order to determine the values, meanings, and factors that contribute to spatial integration.

Data collection was carried out through several techniques. Primary data were obtained through direct field observation to map the existing conditions of physical spaces and community activities, as well as through in-depth interviews with fishermen, community leaders, and area managers to explore the meanings, values, and perceptions of traditional spaces and recent developments. In addition, visual documentation in the form of photographs and field sketches was used to complement the observation notes. Secondary data were gathered from literature studies, planning documents such as the Building and Environmental Plan (RTBL) of the Mandeh Area, and demographic as well as historical data of Nagari Sungai Pinang.

Data analysis was conducted in stages and in an integrated manner. Qualitative data were analyzed rationally by organizing findings into themes such as local wisdom spaces, activity patterns, and changes in settlement orientation. The results of this qualitative analysis were then used as the basis for spatial data modeling in the Space Syntax analysis. At the quantitative stage, the spatial configuration was analyzed using DepthmapX to calculate the integrity (integration) value of each space, reflecting its level of accessibility and potential as a connector. Spaces with high integrity values were subsequently re-examined through a qualitative approach to understand their roles, meanings, and the factors that support or hinder spatial integration. By combining these two approaches, this study aims to produce a comprehensive understanding of the spatial integration structure in the fishermen's settlement of Nagari Sungai Pinang.

RESULTS AND DISCUSSION

The research found elements of the Local Wisdom Space in the form of riverside, beachfront and common spaces. This is because settlements that were previously oriented towards water have created many spaces of local wisdom in water-related zones. Then look back at the existence of the space so that it can know the spaces of Local Wisdom that survive, new spaces and spaces that survive and develop. Next, it is analyzed to find out the space that has high integrity.

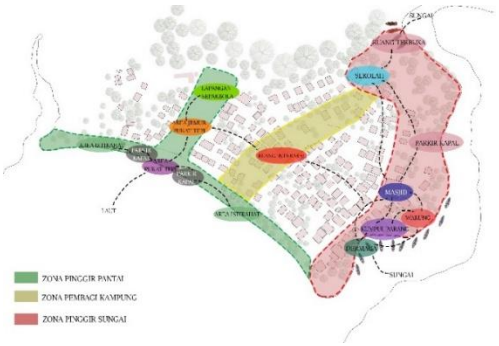

Figure 1. Identified Local Wisdom-Based Spaces
Source: Field observation and spatial mapping by the author (2024)

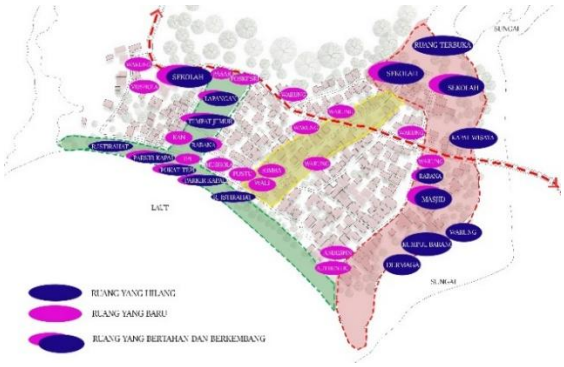

Figure 2. Spatial Configuration and Changes in Space Utilization
Source: Analysis of field observation and interview data (2024)

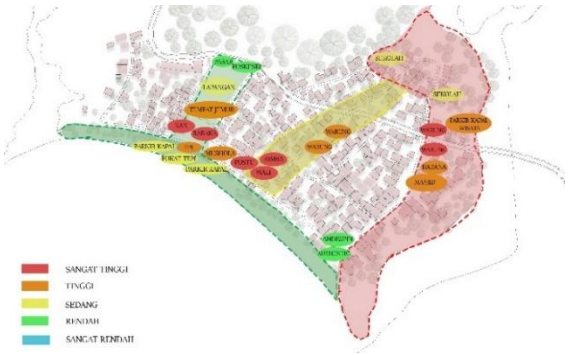

Figure 3. High-Integrity Spaces Identified through Space Syntax Analysis
Source: Space Syntax analysis using DepthmapX software (2024)

Based on the results of the analysis, getting a space with High Integrity including Integrity Room A as the central point of the Beachfront Zone, Integrity Room B as the central point of the Common Space Zone, while Integrity Room C as the central point of the Riverside Zone. This Integrity Room creates an integrated space in the form of Room A-B and Room B-C. interrelated layers of spatial structures.

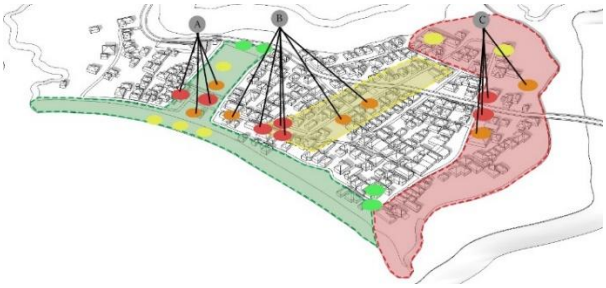

Figure 4. Spatial Integration Structure between High-Integrity Spaces
Source: Synthesized analysis from qualitative and Space Syntax methods (2024)

CONCLUSION

The research identified several spatial points, including Integrity Room A, Integrity Room B, and Integrity Room C. In addition, there are integration spaces that embody the concept of grey space (Grey Space), derived from the integrity spaces in the form of Integration Room A–B and Integration Room B–C. This Grey Space functions as an area that supports the activities occurring within the integrity spaces. Consequently, a spatial structure is formed—

consisting of elements that are capable of integrating both internally and with surrounding spaces.

Based on the study's findings, several recommendations can be proposed. For local governments and spatial planners, it is recommended to incorporate high-integrity spaces—particularly Spaces A, B, and C—as key components in the formulation of detailed spatial plans for the area. The development of grey spaces (Rooms A–B and B–C) should be optimized as flexible buffer zones that support traditional activities while remaining adaptable to new developments. For the community and local area management, it is advisable to strengthen the role of communal and waterfront spaces through empowerment programs grounded in local wisdom—for example, by revitalizing communal areas and preserving public access to rivers and beaches. For future research, similar studies should be conducted with a broader temporal scope to observe the dynamics of spatial integration over time, while also exploring the socio-cultural aspects that shape spatial use patterns in fishing settlements.

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