

Public Space as a Hybrid Space in the Urban Sprawl Phenomenon

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Abstract. Urban sprawl is commonly examined as inefficient physical expansion from city centers to suburban area. This pattern-oriented view often overlooks the long-term socio-spatial processes through which suburban public spaces adapt, negotiate, and become hybrid. The gap of urban sprawl studies has been dominated by spatial map analysis and the short-term causes and impacts of the phenomenon. The novelty in this study focuses on the integration of five aspects of Stan's hybrid space: coexistence, transfusion, interconnection, ambivalence, and heterogeneity as a long-term, strengthened by Carr et al.'s approach as public-space quality dimensions responsive, democratic, meaningful, and accessible space. A qualitative case study approach was employed through purposive sampling involving five participants, consisting of community leaders, community-organization members, housing-estate representatives, the developer, and the Sub-District government. Supported by in-depth interviews, field observations, and visual documentation. The findings show that public spaces in Darmo Permai operate as hybrid spaces with different levels of interaction between housing-estate residents and kampung residents. Punden Barongan Watu is the most dominant hybrid space, while the cemetery area, Sub-District Office, and Residential Park show specific but stronger interaction patterns. This study contributes to urban sprawl and public space studies by positioning public space quality as an indicator of socio-spatial resilience and negotiated coexistence in suburban transformation.

Keywords: aspects of public space quality, hybrid space, public space, urban sprawl

1. Introduction

The phenomenon of urban sprawl refers to unplanned urban development influenced by market forces through physical expansion and the inefficient conditions extending from city centers to suburban areas (Slaev and Nikivorof, 2013). Research on urban sprawl has been dominated by the analysis of spatial distribution maps, along with the causes and impacts of the phenomenon either at a specific moment in time or over a short period. Such conditions often result in negative impacts on suburban areas. This type of urban sprawl has been classified by Galster et al. (2001) as a static pattern. Studies on urban sprawl as a pattern include Strauss & Neamtu (2006) on local government management to address unplanned conditions; Polidoro et al. (2011) on the impacts of population density imbalance leading to low green space; Tewolde & Cabral (2011) on urbanization patterns causing the loss of agricultural land.

Further studies include Dupuy et al. (2012) on land conversion in urban sprawl areas using satellite imagery; Ebrahimpour-Masoumi (2012) on differences in urban sprawl between Western societies and Iran; Hof (2013) on housing developments driven by urban sprawl and vice versa; Du et al. (2014) on the conflict between urban expansion and farmland protection; Subramani & Vishnumanoj (2014) analyzing land use in five categories via remote sensing; Khalili et al. (2015) on the physical delimitation of cities from linear and horizontal development; Rahman & Muhammad Tauhidur (2016) on the increase of built-up areas using remote sensing methods; and Zeković et al. (2015) evaluating land policies and land use efficiency. Zhang et al. (2023) argue that sprawl should be measured multidimensionally and across scales by considering growth, morphology, density, land-use mix, and accessibility. Within peri-urban

contexts, Salem et al. (2025) further emphasize that urban-rural transition zones require adaptive, participatory, and spatial-data-based governance because such spaces are shaped by overlapping social, economic, ecological, and institutional processes.

Suburban urban sprawl phenomena may eventually undergo a process of self-improvement. This self-improvement occurs over an extended period. Such urban sprawl is classified by Galster et al. (2001) as a dynamic process. In these conditions, urban sprawl demonstrates resilience in suburban areas. Research on urban sprawl as a process is relatively rare, with the exception of Stan (2013). Stan (2013) asserts that such processes occur innovatively and creatively in suburban areas, producing spaces with hybrid characteristics. This is reinforced by Gordon and Richardson (1998), who state that extensive urban sprawl growth will eventually formalize and become a space of hybridization.

Recent research has broadened the debate on urban growth by measuring urban land changes in global megacities and by proposing proximity-based alternatives to fragmented, car-dependent urbanism (Zheng, Weng, and Wang, 2021; Moreno et al., 2021; Pozoukidou and Chatziyiannaki, 2021). These studies are useful for explaining spatial change, accessibility, walkability, and the distribution of urban services, while research on public-space quality emphasizes accessible and inclusive public and communal spaces as pathways toward urban well-being (Mouratidis, 2021). The conceptualization of hybrid spaces within modern urban dynamics can be analyzed through complementary theoretical perspectives. Di Marino et al. (2023) emphasize that hybrid spaces emerge from a distinct mixture of spatial-functional, social, and digital features, providing a foundational basis for identifying local economic patterns and mobility hybridity. Expanding on this complexity within the built environment, Thinh and Kamalipour (2024) highlight the strong interdependency between planned and organic urban forms, which serves as a framework for reading formal housing developments and informal settlements, such as kampungs, as an interconnected morphology. Complementing both perspectives, Bahers et al. (2022) shift the focus toward functional, non-physical flows, conceptualizing the hybrid space as a hub for the exchange of people, services, facilities, information, and socio-ecological processes that drive the interactive flows between formal housing estates and surrounding kampungs.

The existing literature still tends to separate three discussions: urban sprawl is usually treated as a measurable spatial pattern; hybrid space is discussed as a socio-spatial condition; and public-space quality is often assessed through comfort, safety, accessibility, or activity without being connected to the dynamic process of sprawl. The critical limitation of previous research is the absence of an analytical bridge that explains how public spaces in a sprawled suburban area become hybrid spaces and how this hybridity affects their responsive, democratic, meaningful, and accessible qualities.

This study addresses the research gap concerning the quality of public spaces as hybrid spaces within urban sprawl when sprawl is understood as a process rather than merely as a static pattern. The research question is: how do public spaces in Darmo Permai function as hybrid spaces, and how do the aspects of hybridity influence their public-space quality. The novelty of the research is the integration of Stan's (2013) hybrid-space aspects with Carr et al.'s (1992) public-space-quality framework in a processual case study of urban sprawl. By doing so, this article contributes theoretically to the study of suburban transformation by showing that public spaces can become socio-spatial mediators between housing-estate residents and kampung residents, rather than only being residual spaces produced by inefficient urban expansion.

2. Methods

This research explores and investigates field cases related to the condition and quality of public spaces as hybrid spaces within the phenomenon of urban sprawl. The research strategy

employed a qualitative approach and a case study method (Groat and Wang, 2013). The study required respondents who understood post-urban sprawl phenomena in their respective environments. Respondents were identified through purposive sampling. Meanwhile, the researcher also conducted direct field observations to approach and immerse in the studied context.

Research data were collected through in-depth interviews, direct field observations, and visual documentation. The Darmo Permai case was selected because it represents a suburban area shaped by the urban sprawl process and contains direct spatial adjacency between a planned housing estate and older kampung settlements, allowing the study to observe interaction between newcomers and original residents in shared public spaces. Participants were selected purposively according to their knowledge of the area, length of involvement in community activities, and ability to explain the use and management of public spaces. The study involved five participants with the following characteristics: community leaders from kampung areas, community leaders or representatives from the Darmo Permai housing estate, members of community organizations, representatives of the housing developer, and representatives from the Sub-District government. Interviews used an interview guide covering the history of public-space use, patterns of interaction between housing and kampung residents, accessibility, activity types, symbolic meaning, management arrangements, and perceived conflicts or cooperation. Each interview lasted approximately fifty minutes and was recorded or noted with participants consent. Field observations were conducted at Punden Barongan Watu, the Cemetery Area, the Sub-District Office, and the Residential Park for six months, focusing on activity patterns, user groups, access routes, spatial boundaries, and evidence of social interaction. The data analysis process followed qualitative coding and matrix comparison: first, the data were reduced and coded according to Stan's (2013) five hybrid-space aspects; second, each public space was evaluated using Carr et al.'s (1992) public-space-quality dimensions; third, cross-case comparison was used to identify dominant aspects, interaction intensity, and quality patterns. Validation was conducted through triangulation among interview narratives, field observations, photographs/maps, and document review to confirm the consistency of interpretation.

The findings of this research are twofold. First, to describe the existence of public spaces as hybrid spaces in the urban sprawl phenomenon, based on the aspects of hybrid space identified in Stan (2013). Second, to describe the quality aspects of public spaces as hybrid spaces in the urban sprawl phenomenon, with the analysis of public space quality based on the framework of Carr et al. (1992).

3. Discussion

3.1. The Link Between Urban Sprawl, Hybrid Space, Case Study, and Public Space

The phenomenon of urban sprawl serves as the setting for the presence of hybrid spaces. The validation of hybrid space existence within the urban sprawl phenomenon is found in the works of Stan (2013) and Prakasa (2022). Stan notes that the urban sprawl phenomenon occurs innovatively and creatively in suburban areas, producing spaces with hybrid characteristics. Meanwhile, Prakasa (2022) states that urban sprawl develops gradually over time, creating hybrid spaces.

The case study was selected in the Darmo Permai area of Surabaya because it represents the urban sprawl phenomenon. Darmo Permai fulfills the criteria for urban sprawl, which include low density, dispersed and discontinuous form; lack of diversity in land use and activities; poor definition of spaces; the emergence of new activity centers, public service centers, and commercial hubs; and limited accessibility to public transportation services (Prakasa, D.T., Soemardiono, B., Defiana, 2018). The residents of Darmo Permai consist of newcomers living

in the Darmo Permai housing estate and original residents living in the kampung. The location of the case study is shown in Figure 3.1.

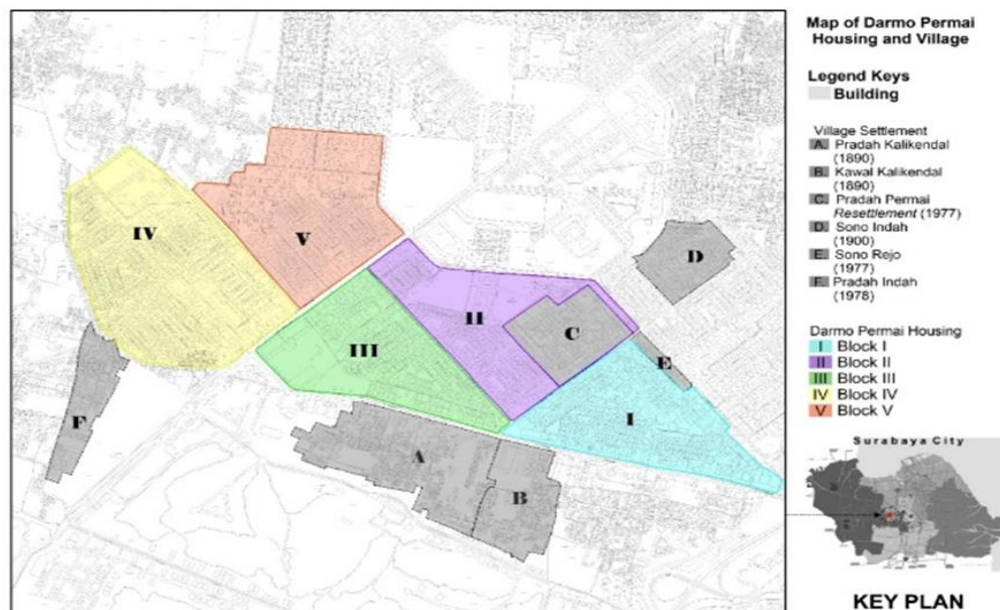


Figure 3.1. Location of Darmo Permai Housing and Village (Prakasa, 2024)

3.2. Public Space as Hybrid Space in the Case Study

In the context of urban sprawl in Darmo Permai, Surabaya, public spaces play a significant role as hybrid spaces where different social groups interact. The development of the housing estate since the 1970s has brought together newcomers from the downtown and the original village settlements, who continue to coexist within the same urban environment. This social and spatial coexistence is particularly evident in public spaces, which function as shared arenas for daily activities and social encounters.

In this case study, public spaces are examined as hybrid spaces and analyzed using the five hybrid space aspects proposed by Stan (2013), namely coexistence, transfusion, interconnection, ambivalence, and heterogeneity. These aspects are identified through field observations of selected public spaces *Punden Barongan Watu*, the Cemetery Area, the Sub-District Office, and the Residential Park. Furthermore, each aspect is evaluated in relation to the level of interaction observed, in order to understand how public space mediate social relationships within the urban sprawl context.

3.3. *Punden Barongan Watu*

Punden Barongan Watu accommodates hybrid space aspects of coexistence, transfusion, and ambivalence. It is notable for being located in the middle of the Darmo Permai housing estate. This site hosts the *sedekah bumi* ritual, a thanksgiving event honoring local ancestors. The event is attended by residents from surrounding kampungs such as Pradah Kalikendal, Kawal Kalikendal, Pradah Permai, Pradah Indah, Sono Rejo, and Sono Indah. Despite being in the center of the housing estate, the event runs smoothly, representing the coexistence aspect of a hybrid space.

The transfusion aspect is indicated by financial contributions from housing estate residents to support the event. Most participants are from village settlements, along with some housing estate representatives. Based on statements from village settlements, "if the earth charity

involves all RW (Citizens Association) heads, then the religious study activities, there are also representatives of the management from the housing residents". For housing residents accustomed to urban traditions, the event holds little perceived historical value, indicating an ambivalence aspect of the *Punden Barongan Watu* as a hybrid space. See Figure 3.2. for details.

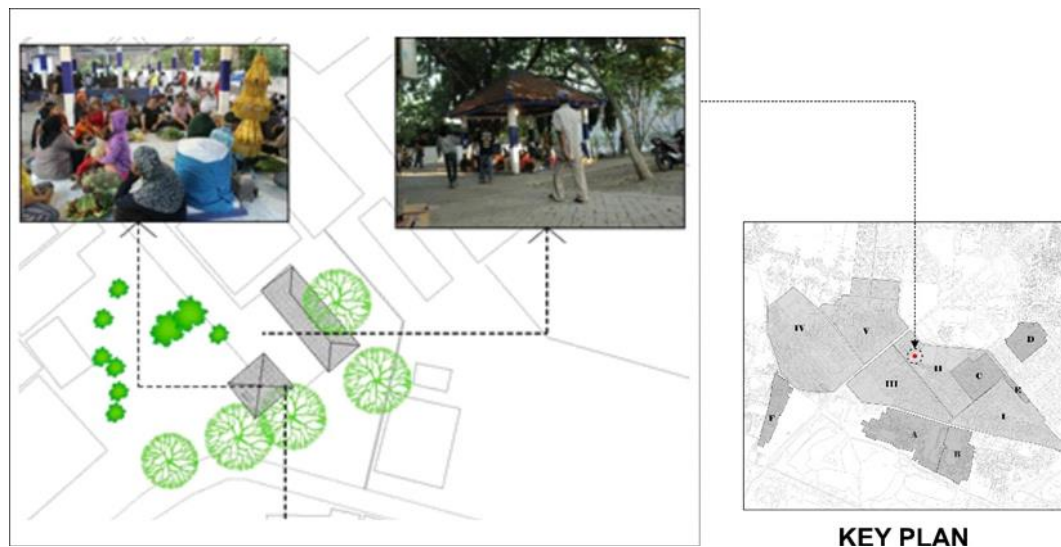


Figure 3.2. *Punden Barongan Watu* Public Space with Aspects of Coexistence, Transfusion and Ambivalence (Prakasa, 2024)

3.4. Cemetery Area

The Cemetery Area represents the transfusion aspect of hybrid space. It is located in Puncak Permai Cemetery, which can be used by Darmo Permai housing residents. The interaction here is one-directional, from village settlements to housing estate residents. Based on the statement from the village settlements, "*as Muslims, we allow the village cemetery to be used by both village settlements and housing residents*". The participants involved include village settlements and the housing estate management. This phenomenon is a manifestation of the transfusion aspect in the Cemetery Area. See Figure 3.3. for clarification.

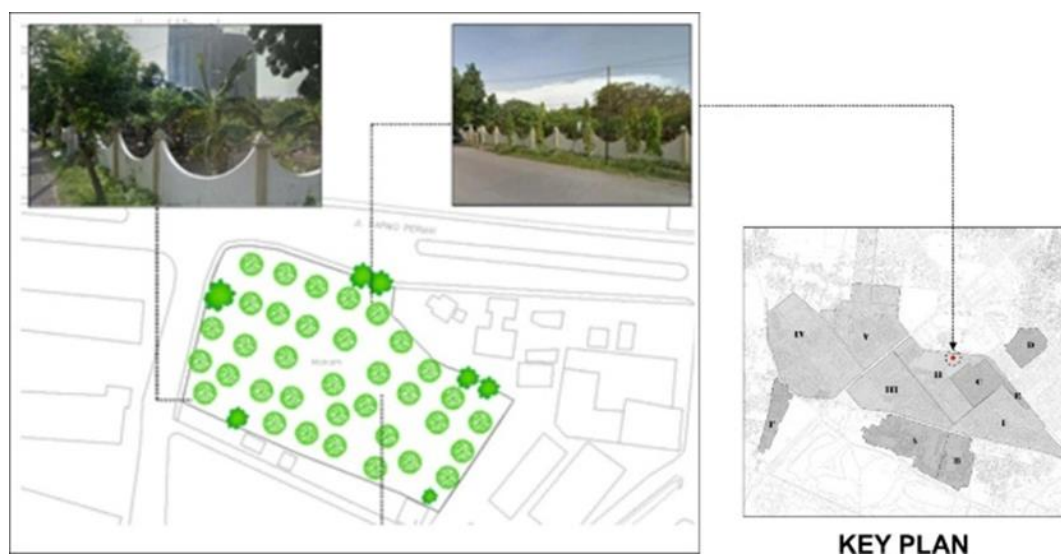


Figure 3.3. The Cemetery Area as a Public Space with Aspects of a Hybrid Transfusion Space (Prakasa, 2024)

3.5. Sub-District Office

Sub-District office accommodates hybrid space aspects of interconnection and heterogeneity. It demonstrates interconnection through reciprocal interaction between village settlements and Darmo Permai housing residents. Activities include fun walks, thanksgiving events, religious gatherings, and wayang kulit performances. Most participants are village settlements, with a smaller proportion from the housing estate. By inviting as many residents as possible to participate, the activities remain open to all, indicating heterogeneity in the Sub District Office. Based on the statement from the Head of Pradahkalikendal, namely *"there are 17th August activities involving village settlements and housing residents. Meaning that not all ceremonies are attended, so there are healthy walks and religious studies at the Village office"*. See Figure 3.4. for details.



Figure 3.4. Public Space of the Sub-District Office with Hybrid Space Aspects of Interconnection and Heterogeneity (Prakasa, 2024)

3.6. Residential Park

The Residential Park accommodates the interconnection aspect of hybrid space. It is a small park where sports activities take place, functioning as a two-way communication medium between housing and village settlements. Participants include a small number of both housing and village settlements. Based on a statement from the Head of the RW of the Darmo Permai housing complex, *"residents of the housing complex have always liked to walk and exercise in the housing complex park, where residents of the housing complex sometimes meet with village settlements, they exercise together in the park"*. See Figure 3.5. for clarification.

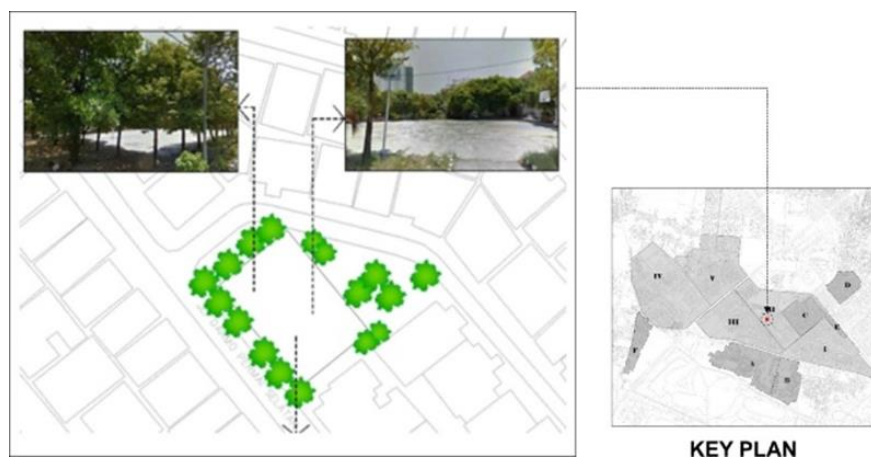


Figure 3.5. Public Space of Housing Park with Interconnected Hybrid Space Aspects (Prakasa, 2024)

3.7. Discussion of Public Spaces as Hybrid Spaces in the Case Study

The five aspects of hybrid space tend to exhibit varying degrees of interaction between village and housing residents. Coexistence and ambivalence tend to imply loose interaction between housing and village residents. Meanwhile, transfusion, interconnection, and heterogeneity tend to imply close interaction between housing and village residents.

The findings of hybrid space aspects in public spaces are unevenly distributed. *Punden Barongan Watu* is the most dominant, with three hybrid space aspects found: coexistence, transfusion, and ambivalence. Consequently, interaction between housing and village residents at *Punden Barongan Watu* tends to be loose. Meanwhile, the Cemetery Area is not dominant, with only one hybrid space aspect, transfusion. Although this aspect is not dominant, interaction between housing and village residents tends to be close. Two characteristics of hybrid space, interconnection and heterogeneity, were found at the Sub-District Office. Although these aspects are less dominant, interaction between housing and village residents tends to be close. Furthermore, the Housing Park is also not dominant, with only one hybrid space aspect found: interconnection. Interaction between village and housing residents remains close, even though this aspect is not dominant.

Of the five aspects of hybrid space in public spaces, transfusion and interconnection are the most dominant. This indicates that public areas dominated by interactions between housing and village residents tend to be close. Meanwhile, aspects of coexistence, ambivalence, and heterogeneity are not as dominant. This condition indicates that public areas with loose interactions between housing and village residents tend not to be dominant. For further details, see Table 3.1.

Table 3.1. Findings on Public Space and Aspects of Hybrid Space (Prakasa, 2024)

Public Space	Hybrid Space Aspects					Interaction
	Coexistence	Transfusion	Interconnection	Ambivalence	Heterogeneity	
<i>Punden Barongan Watu</i>	✓	✓	-	✓	-	Weak
Cemetery Area	-	✓	-	-	-	Strong
Sub-District Office	-	-	✓	-	✓	Strong
Residential Park	-	-	✓	-	-	Strong

Findings:

- The *Punden Barongan Watu* public space is the most dominant, with three hybrid spatial aspects found. The Sub-District Office is less dominant, with two hybrid spatial aspects found. The Cemetery and Housing Park are not dominant, with only one hybrid spatial aspect found.
- The aspects of transfusion and interconnection dominate the public space, while the aspects of coexistence, ambivalence, and heterogeneity do not dominate.

3.8. Quality Aspects of Public Space as Hybrid Space

Before discussing each public space, Figure 3.6 presents the conceptual framework used to clarify the relationships between the research variables. Urban sprawl is positioned as a

dynamic process that produces public spaces at the housing-kampung interface. These public spaces are examined through hybrid-space aspects and then linked to interaction intensity between housing-estate and kampung residents. The interaction pattern is subsequently interpreted through public-space quality dimensions: responsive, democratic, meaningful, and accessible space. This framework follows the recent emphasis on proximity, inclusion, access to public services, and public/communal space quality in contemporary urban studies (Moreno et al., 2021; Pozoukidou and Chatziyiannaki, 2021; Balleto et al., 2021; Mouratidis, 2021).

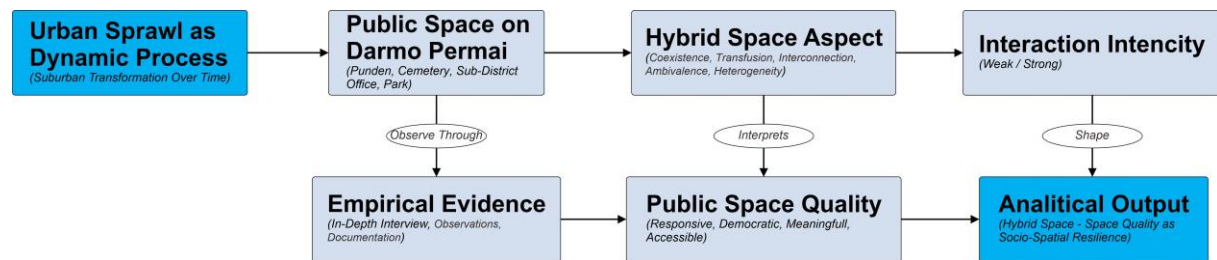


Figure 3.6. Conceptual Framework of Public Space as Hybrid Space in the Urban Sprawl Process (Author, 2026)

- *Punden Barongan Watu*

Responsive Space, at *Punden Barongan Watu*, is a public space that can be used not only as a green open space but also for ritual prayer ceremonies for village residents. This activity is usually held annually in August-September. It is predominantly attended by village residents, although newcomers still appreciate it. Democratic Space, at *Punden Barongan Watu*, is a public space that serves as a communication platform between the housing complex and the village to support its activities. The Sedekah Bumi event is a religious event where village residents can participate to express gratitude to their ancestors. Residents also contribute financially to help organize the event. Meaningful Space, at *Punden Barongan Watu*, is a public area connected to people, the environment, and the social context. *Punden Barongan Watu* is located in the center of the housing complex, so although residents are not directly involved in the event, the event can still take place without disturbing each other. There is a sense of mutual respect between newcomers and the village. Accessible Space, at *Punden Barongan Watu*, is characterized by easy access despite being located in the center of the housing complex. This area is connected by a neighborhood road that connects the village and the housing complex.

- Cemetery Area

The utilization of the cemetery land creates a Responsive Space in the Cemetery Area, which functions as a Green Open Space and also a burial ground for local residents. The cemetery is managed by the village residents, while residents of the housing complex can use it for a fee. This demonstrates that the Cemetery Area, as a public space, is open to everyone. Democratic Space in the Cemetery Area is characterized by its use by both newcomers and native residents. The traditions of the newcomers and native residents differ. Native residents bring traditions from their villages, while newcomers bring traditions from the city. Despite these differences, the Cemetery Area still accommodates both. Meaningful Space in the Cemetery Area is demonstrated by the relationship between the newcomers and the village residents. Residents of the housing complex occupied housing that at that time did not yet provide burial facilities. Eventually, the villagers agreed to share the Cemetery Area after a positive approach from the residents of the housing complex. Thus, the Cemetery Area fosters a reciprocal bond between the village and the housing complex. Residents of both the

housing complex and the village have easy access to the Cemetery Area. The Cemetery Area is located on the border between the housing complex and the village. Due to its location, the cemetery area is accessible by the Neighborhood Road from both communities, although it was originally owned by the village residents.

- Sub-District Office

The Responsive Space at the Sub-district Office is evident in the wide range of activities and interests. Activities at this location peaked during the commemoration of Indonesian Independence Day. Various events such as gymnastics, thanksgiving, shadow puppet performances, and religious studies were held here. The Democratic Space at the Sub-district Office is a public space accessible to the general public from various backgrounds. Participants in these activities ranged from children to the elderly. The majority of participants were from the village, with a small number from the Darmo Permai housing complex. The Meaningful Space at the Sub-district Office is a public area that fosters social connections. This space serves as a communication platform between the housing complex and the village. As a result, the two communities develop a close relationship, blurring the gap between them. Easy access via the area's main road allows for an accessible space at the Sub-district Office. The Sub-district Office is located on the main road in the area. As a result, residents of this neighborhood can easily access this area from all directions.

- Residential Park

Responsive Space, in the Housing Park area, is a public space that can be used for various activities. These activities include sports such as jogging and other activities. In addition to functioning as a green open space, this park serves as a means of interaction between village residents and the housing complex through joint exercise. Democratic Space, in the Housing Park area, is a public space that can be used by village residents despite being located in the middle of a housing complex. This park area is also quite inclusive and welcomes various groups. Meaningful Space, in the housing park area, is a public space that is connected to the social context. The Housing Park area is sufficient as a place for community socialization. These activities typically take place in the morning and peak on weekends. The neighborhood road in the housing complex provides easy access to the park area. This neighborhood road connects to the village area.

- Discussion of the Quality of Public Space as a Hybrid Space

The quality of public space in the hybrid space through Responsive Space encompasses a variety of activities. The Sub-District Office has the most activities compared to other public spaces. All public areas in the hybrid space within the Democratic Space are open to use by both housing and village residents. To create meaningful public spaces, residents of housing complexes and villages must interact in ways that foster mutual respect, engagement, and foster familiarity. Accessibility in public spaces is primarily through neighborhood roads, with a small portion accessed through main roads. Further details can be seen in Table 3.2.

Table 3.2. Findings on Public Space and Aspects of Hybrid Space (Prakasa, 2024)

Public Space	Hybrid Space Quality Aspects			
	Responsive Space	Democratic Space	Meaningful Space	Accessible Space
<i>Punden Barongan Watu</i>	• Green Open Space • House of worship	• Residents • Village Residents	• Mutual Respect	• Village Streets
Cemetery Area	• Green Open Space • Cemetery	• Residents • Village Residents	• Community Bonding	• Village Streets

Sub-District Office	• Independence Day Commemoration • Gymnastics • Thanksgiving • Wayang Kulit Performance • Qur'an Recitation	• Village Residents	• Family Gatherings	• Main Streets
	• Green Open Spaces • Places of Worship			
Residential Park	• Residents of the Housing Complex	• Village Residents	• Family Gatherings	• Village Streets

4. Conclusion

The most dominant hybrid space aspect in specialized public spaces was found at *Punden Barongan Watu*. Conversely, the hybrid space aspect in open public spaces was less prominent, as observed in the Sub-District Office, Cemetery Area, and Housing Estate Park. Loose interaction between housing estate residents and villagers was not dominant, whereas close interaction was more prevalent in public spaces. Furthermore, the transfusion and interconnection aspects of hybrid space were dominant in public spaces, while the aspects of coexistence, ambivalence, and heterogeneity were not.

In terms of public space quality, Responsive Space was characterized by diverse activities. All public spaces demonstrated openness for visitation by both housing estate and village residents, reflecting the essence of Democratic Space. The Meaningful Space quality of public spaces was primarily marked by the social connection between housing estate and village residents. Regarding Accessibility Space, most public spaces were accessed through neighborhood roads, with a smaller portion accessed via main roads.

5. References

- Atthailah, Shine Risty Eka Indriannisa, Nova Purnama Lisa, Bambang Karsono, (2017), Revitalisasi Ruang Kota Tidak Termanfaatkan. Studi Kasus: Kawasan Cunda Plaza – Lhokseumawe, Temu Ilmiah Ikatan Peneliti Lingkungan Binaan Indonesia (IPLBI) 6, E 133-140.
- Balletto, G., Ladu, M., Milesi, A., & Borruso, G. (2021). A Methodological Approach on Disused Public Properties in the 15-Minute City Perspective. *Sustainability*, 13(2), 593. <https://doi.org/10.3390/su13020593>
- Bahers, J. B., Athanassiadis, A., Perrotti, D., & Kampelmann, S. (2022). The place of space in urban metabolism research: Towards a spatial turn? A review and future agenda. *Landscape and Urban Planning*, 221, 104376.
- Carr, Stephen, et.al., (1992), *Public Space*, Cambridge University Press, 1992.
- Di Marino, M., Aboutalebi Tabrizi, H., Chavoshi, S. H., & Sinitsyna, A. (2023). Hybrid cities and new working spaces: The case of Oslo. *Progress in Planning*, 170, 100712
- Du, Shiqiang., Shi, Peijun., Rompaey, Anton Van (2014), The Relationship between Urban Sprawl and Farmland Displacement in the Pearl River Delta, China, *Land* 2014, 3, 34-51; doi:10.3390/land3010034.
- Dupuy, S., Barbe, E., Balestrat, Maud (2012), An Object-Based Image Analysis Method for Monitoring Land Conversion by Artificial Sprawl Use of RapidEye and IRS Data, *Remote Sens.* 2012, 4, 404-423; doi:10.3390/rs4020404.
- Galster, G., Hanson, R., Wolman, H., Coleman, S., Freihage, J. (2001). Wrestling Sprawl to The Ground: Defining and Measuring An Elusive Concept. *Housing Policy Debate* 12, hal. 681-717.
- Gordon, P. and Richardson, H.W. (1998), *A Critique of New Urbanism*, Meeting of the American Collegiate Schools of Planning, Pasadena.

- Groat, Linda W and Wang, David (2013), *Architectural Research Methods*, Second edition, John Wiley & Sons, Inc., Hoboken, New Jersey, Published simultaneously in Canada.
- Hof, Angela., Salom, Macià Blázquez (2013), The Linkages between Real Estate Tourism and Urban Sprawl in Majorca (Balearic Islands, Spain), *Land* 2013, 2, hal. 252-277; doi:10.3390/land2020252.
- Khalili, Mohammad Mehdi Nasiri., Abya, Hamid., Ebrahimi, Mohsen., Tavallaei, Simin Soleymani, Mohammad., Mousa Kamanroudi, Mousa, (2015), Analysis of physical expansion and sprawl growth factors of Sari city using Shannon and Helden entropy models, *Management Science Letters* 5 (2015), hal. 189–198.
- Kurniati, Ayu Candra Kurniati, dan Akhmad Zamroni, Akhmad (2021), Kategorisasi Karakteristik Ruang Terbuka Hijau Publik untuk Menunjang Kenyamanan Kota Yogyakarta, *Jurnal Ilmu Lingkungan*, Volume 19 Issue 1 (2021) : 127-139.
- Masoumi, Houshmand Ebrahimpour (2012), Urban Sprawl In Iranian Cities And Its Differences With The Western Sprawl, *Spatium International Review Udc* 711.2(55) No. 27, August 2012, hal. 12-18.
- Moreno, C., Allam, Z., Chabaud, D., Gall, C., & Pratlong, F. (2021). Introducing the “15-Minute City”: Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities. *Smart Cities*, 4(1), 93–111. <https://doi.org/10.3390/smartcities4010006>
- Mouratidis, K. (2021). Urban planning and quality of life: A review of pathways linking the built environment to subjective well-being. *Cities*, 115, 103229. <https://doi.org/10.1016/j.cities.2021.103229>
- Rahman, Muhammad Tauhidur (2016), Detection of Land Use/Land Cover Changes and Urban Sprawl in Al-Khobar, Saudi Arabia: An Analysis of Multi-Temporal Remote Sensing Data, *ISPRS Int. J. Geo-Inf.* 2016, 5, 15; doi:10.3390/ijgi5020015.
- Polidoro, Maurício., de Lollo, José Augusto., Fernandes Barros, Mirian Vizintim (2011), “Environmental Impacts of Urban Sprawl in Londrina, Parana, Brazil”, *Journal of Urban and Environmental Engineering*, vol. 5, núm. 2, 2011, hal. 73-83 Universidade Federal da Paraíba Paraíba, Brasil.
- Pouzoukidou, G., & Chatziyiannaki, Z. (2021). 15-Minute City: Decomposing the New Urban Planning Eutopia. *Sustainability*, 13(2), 928. <https://doi.org/10.3390/su13020928>
- Prakasa, D.T., et.al., (2018), “Community Participation as a Basis of Sustainability in Urban Sprawl Phenomenon Case Study: Darmo Permai Area, Surabaya”, *International Journal of Creative Research and Studies*, Volume-2 Issue-12, December 2018.
- Prakasa, D.T. (2022), “Periodization of Hybrid Space Becoming in Urban Sprawl Phenomenon Case Study: Darmo Permai Area Surabaya”, *International Journal of Innovative Research and Knowledge*, Volume-7 Issue-5, May 2022.
- Salem, M., Ravetz, J., Sareen, S., Dong, T., Haque, M., Bayoumi, W., Tsurusaki, N., & Xu, G. (2025). Managing the urban-rural transition: A review of approaches and policies for peri-urban land use. *Journal of Urban Management*, 14(4), 1115-1129
- Stan, A.I. (2013), “Morphological Patterns of Urban Sprawl Territories”, *Urbanism. Arhitectură. Construcții*, Vol. 4 / Nr. 4 / 2013.
- Strauss, Eric J., Neamtu, Bogdana (2006), Policy Tools for Addressing Urban Sprawl: Urban Growth Boundaries, *Transylvanian Review of Administrative Sciences*, 16 E/2006, hal. 136 153.
- Subramani, T., Vishnumanoj, V. (2014), “Land Use and Land Cover Change Detection and Urban Sprawl Analysis of Panamarathupatti Lake, Salem”, *Journal of Engineering Research and Applications* ISSN: 2248-9622, Vol. 4, Issue 6 (Version 2), June 2014, hal. 217-127.
- Tewelde, Mussie G., Cabral, Pedro (2011), Urban Sprawl Analysis and Modeling in Asmara, Eritrea, *Remote Sens.* 3, 2148-2165; doi:10.3390/rs3102148.
- Thinh, N. K., & Kamalipour, H. (2024). Mapping informal/formal morphologies over time: Exploring urban transformations in Vietnam. *Cities*, 152, 105168

- Zeković, Slavka., Vujošević, Miodrag., Claude Bolay, Jean., Cvetinović, Marija., Miljkovic, Jelena Živanovic., Maričić, Tamara (2015), Planning and Land Policy Tools For Limiting Urban Sprawl: The Example Of Belgrade, SPATIUM No. 33, June 2015, hal. 69-75.
- Zhang, L., Shu, X., & Zhang, L. (2023). Urban sprawl and its multidimensional and multiscale measurement. *Land*, 12(3), 630.
- Zheng, Q., Weng, Q., & Wang, K. (2021). Characterizing urban land changes of 30 global megacities using nighttime light time series stacks. *ISPRS Journal of Photogrammetry and Remote Sensing*, 173, 10–23. <https://doi.org/10.1016/j.isprsjprs.2021.01.002>.