

# Public Space as Development Control Element in Coastal Settlements of Kampung Tua Tanjung Uma, Batam

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## Abstract

Public space is a crucial element in urban design, especially in coastal settlements, as it plays a primary role in regulating development and striking a balance between land use and the social needs of the community. Rapid urbanization in Batam leads to environmental degradation and unplanned changes in land use, thereby limiting public access to public spaces. This research aims to identify and analyze how public spaces can be utilized effectively as an instrument to promote sustainable development in Tanjung Uma. This research uses descriptive qualitative methods to explore the role of public space in managing city growth and maintaining socio-economic balance and environmental sustainability in Kampung Tua Tanjung Uma, Batam. The research results indicate that the primary challenges are limited accessibility, deteriorating environmental quality, and inadequate public space facilities. Strategies for revitalizing public spaces, enhancing accessibility, and optimizing spatial planning are proposed to support sustainable development and improve community welfare by engaging local communities in the management of public spaces.

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**Keywords:** *Public Space, Sustainable Development, Coastal Settlements, Sustainability*

## 1. INTRODUCTION

Coastal settlements are areas located at the border between land and sea, where the interaction between these two environments creates unique social, economic, and ecological dynamics. According to Yistiarani [1], coastal regions can be defined as transitional zones where land and marine environments interact, with communities heavily reliant on resources from both areas. In Indonesia, an archipelagic nation with the second-longest coastline in the world, coastal settlements serve as hubs of community life, particularly for those engaged in fishing and small-scale tourism enterprises.

One example of a coastal settlement in Indonesia is Kampung Tua Tanjung Uma in Batam. As a traditional village, Tanjung Uma faces significant challenges in managing public spaces and promoting sustainable development. Rapid urbanization in this area has resulted in

serious environmental degradation, particularly due to waste accumulation and unregulated land-use changes, as highlighted by Batam News Asia [2] in the context of Batam's local response to global sustainability agendas. Public spaces, such as coastal areas and beaches, which once served as venues for social interaction and economic activities, are now neglected and, in some cases, privatized by local residents. This has led to restricted community access to public spaces, thereby reducing opportunities for social interaction and activities.

Public spaces play a crucial role in balancing the socio-economic needs of communities with the preservation of coastal environments. Iskandar, D. J. [3] asserts that public spaces are vital elements in policy formulation for the collective good. In the context of coastal areas, well-managed public spaces can function as tools for development control, ensuring that

these areas remain accessible to the public and are not appropriated for private interests.

Studies such as those by Fuad Zubaidi [4] in Teluk Palu and Kurnia Maulidi Noviantoro et al. [5] in Watu Pecak Beach highlight how public spaces in coastal regions can maintain a balance between economic activities and ecosystem preservation. By maximizing the potential of public spaces, communities, including those in areas like Tanjung Uma, can be actively involved in environmental conservation while supporting sustainable economic activities.

This study aims to identify and analyze how public spaces can be effectively utilized as instruments for sustainable development control in Kampung Tua Tanjung Uma.

## **2. Material and Methods**

### *2.1 Public Spaces*

Public spaces are essential elements in urban spatial planning, providing venues for social interaction, cultural activities, and economic pursuits. According to Carmona [6], public spaces are defined as areas that are open and accessible to everyone, regardless of social or economic status. In the context of coastal settlements, public spaces serve an additional role as environmental safeguards, preventing exploitation and damage to sensitive coastal ecosystems.

Carr et al. [7] outline several key characteristics of an ideal public space: 1) Accessibility: Public spaces must be accessible to all individuals, regardless of social, economic, or physical background. 2) Openness to various activities: Public spaces should be flexible and accommodate a range of activities, such as informal trade, recreation, or community events, without discrimination. 3) Support for diverse activities: Public spaces should be

designed to support various activities conducted by individuals or groups within the community.

In coastal settlements, public spaces often become hubs for informal economic activities, gathering places for the community, and areas that support environmental conservation initiatives. Furthermore, the physical condition of public spaces, as highlighted by Carmona [6] in his article on public space design and management, underscores the importance of cleanliness, maintenance, and functional adaptability as key elements for sustainability in urban planning.

The imperative to harmonize social, economic, and ecological dimensions in the stewardship of public spaces is paramount for cultivating sustainable urban environments Amback et al [8]. Well-planned public spaces can enhance the quality of life, strengthen social interaction, and protect surrounding ecosystems. The management of public spaces should involve local communities, ensuring these spaces remain accessible to the public and preventing privatization that could restrict community access.

### *2.2 Sustainable Development*

Sustainable development is a developmental process that meets present needs without compromising the ability of future generations to meet their own needs, as defined by Brundtland [9]. This concept encompasses three main pillars: economic, social, and environmental. Sustainable development aims to maintain a balance between economic growth, societal well-being, and environmental preservation.

Sustainable development is characterized by prudent management of natural resources, active community participation in decision-making, and the adoption of environmentally

friendly technologies. Nur & Husen [10] explain that proper spatial environmental planning and sustainable development can empower communities in maintaining ecosystem balance. This approach also focuses on mitigating the impacts of climate change, such as rising sea levels and environmental damage caused by human activities.

In coastal areas, sustainable development is crucial for preserving vulnerable ecosystems, especially in the context of increasing coastal urbanization pressures, such as coral reefs, mangroves, and other marine habitats Sakai & Arakawa [11]. According to Marasabessy, Laming, & Rahim [12], coastal area development can enhance the economic sector and improve the image of cities. However, if not implemented sustainably, it can lead to serious social and environmental consequences. Integrated local and national policies are essential to support sustainability efforts, including infrastructure development that considers long-term environmental impacts and the welfare of surrounding communities Suwarno & Abdullah [13].

Hartanti et al. [14] discuss the challenges of sustainable development in coastal areas, such as ensuring public accessibility in settlements and addressing the privatization of spaces that restrict local residents' access. Additionally, Massera and Wilkis [15] emphasize that inclusive public spaces support social functions and reduce inequalities within communities.

### *2.3 Coastal Settlements*

According to Botutihe, A., & Sjukri, M. [16], coastal settlements are residential environments located in areas where land meets the sea, with residents predominantly relying on the potential of coastal resources to meet their livelihood needs. Coastal settlements are characterized by a high dependency on marine resources, connections to marine-based economic

activities, and vulnerability to natural disasters such as flooding and coastal erosion, as described by Diposaptono et al. [17]. These areas are often inhabited by low-income communities that rely on local resources for their daily needs.

Jonsson & Heldt Cassel [18] highlight that social and economic interactions in public spaces have significant implications for community well-being, especially in coastal communities that depend on these spaces for daily activities.

In managing coastal settlements, ecosystem protection and local community empowerment are essential. The government must ensure that development in these areas does not harm the environment and that public access to coastal areas remains open Dahuri & Yulianto [19]. Strengthening regulations to prevent the privatization of coastal areas and actively involving communities in resource management are also necessary to support the sustainability of these regions.

## *2.4 Research Methodology*

### *2.4.1. Method*

This study employs a descriptive qualitative method, combining field observations and interviews with local residents in Kampung Tua Tanjung Uma to understand how the community utilizes public spaces and perceives their importance as part of daily life. This approach is designed to obtain comprehensive findings on the physical conditions, accessibility, and social activities in Kampung Tua Tanjung Uma. The use of a qualitative approach is in line with Nasution [20] view that qualitative research emphasizes understanding social phenomena from the perspective of the participants in their natural settings.

### 2.4.2. Research Location

The research location is in Kampung Tua Tanjung Uma, Lubuk Baja District, Batam City, Riau Islands, Indonesia.



Source: (Google Maps, 2024)  
Figure 1. Location of Kampung Tua Tanjung Uma

This village is strategically located, opposite Singapore and near Batam Port, providing easy access from the city center. As a coastal area, Tanjung Uma is rich in the coastal community's lifestyle and traditional fishing activities that are still preserved by local residents. This research analyzes three main locations with characteristics that reflect various aspects of public space utilization in supporting the daily lives of the coastal community.

### 2.4.3. Al-Mu'minin Mosque

Al-Mu'minin Mosque is one of the public space facilities that serves as a center for religious and social activities in Tanjung Uma.



Source: (Google Maps, 2024)  
Figure 2. Location of Al-Mu'minin Mosque

### 2.4.4. Hamdan Pier

Hamdan Pier functions as a connecting route and social interaction area for local residents.



Source: (Google Maps, 2024)  
Figure 3. Location of Pelantar Hamdan Pier

### 2.4.5. Beach of Tanjung Uma

The Beach of Tanjung Uma will be one of the subjects studied to examine the accessibility of coastal recreational spaces.



Source: (Google Maps, 2024)  
Figure 4. Location of Beach of Tanjung Uma

## 2.5 Research Cases

This research examines three main aspects of public space that can be effectively utilized as control factors in supporting sustainable development in Tanjung Uma.

- **Physical Condition of Public Spaces:** This aspect includes cleanliness, maintenance, and changes in land use around public areas such as beaches and parks.
- **Accessibility:** This aspect evaluates how easily public spaces can be accessed by local communities, as well as the potential

for privatization or restrictions on access for residents.

- **Level of Social Activity:** This aspect observes interactions occurring in public spaces, such as ongoing social and economic activities.

### 3. Result and Discussion

#### 3.1 Existing Conditions of Public Spaces

The coastal settlement faces significant challenges in managing public spaces, particularly in coastal areas, as detailed below:

Table 1. Public space in Al-Mu'minin Mosque

Aspect	Description
Physical condition of the public space	The physical condition of the public space around Al-Mu'minin Mosque is somewhat dirty, with food waste visible. The public facilities function well, but there are no trash bins, causing waste to often be scattered. There are staff members who regularly clean the mosque's courtyard.
Accessibility	Access to the mosque is quite difficult due to the narrow and winding road, with a width ranging from 1.5 to 4 meters. This road makes it challenging for visitors, especially those using large vehicles or with limited mobility.
Level of social activity	Social activities around the mosque include afternoon study sessions and regular worship activities. Food and beverage vendors also sell in the area, which enhances social interaction. The mosque is relatively safe and active.

Al-Mu'minin Mosque plays a vital role as a centre for social and religious activities in Tanjung Uma. Although the mosque's facilities function well, the cleanliness of the surrounding area still needs improvement. The narrow and winding access roads present a challenge; however, activities such as children's religious studies, worship, and nearby vendors demonstrate that the mosque remains a vibrant and relevant space supporting social and economic interactions within the community.

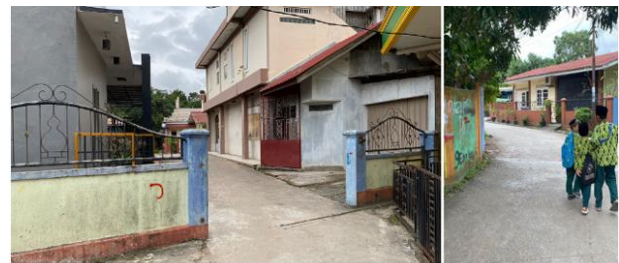


Source: (Authors, 2024)

Figure 5. Physical condition of Al-Mu'minin Mosque

#### 3.1.1 Public Space of Al-Mu'minin Mosque

The Al-Mu'minin Mosque area provides insights into the use of public spaces based on community activities. This mosque holds compelling potential for research on the role of public spaces in strengthening social cohesion and supporting the sustainability of local culture



Source: (Authors, 2024)

Figure 6. Access to Al-Mu'minin Mosque



Source: (Authors, 2024)

Figure 7. Social activities around Al-Mu'minin Mosque



### 3.1.2 Public Space in Hamdan Pier

The location has undergone environmental degradation due to the buildup of waste, making it an even more compelling subject for research.

Table 2. Public Space in Hamdan Pier

Aspect	Description
Physical condition of the public space	The physical condition of Hamdan Pier is very poor, with a lot of scattered waste. The existing facilities are also inadequate to support activities in this public space. This area is more frequently used as a gathering place for fishermen, but there have been no efforts to improve or maintain the condition of the public space around the pier, leading to a significant neglect of cleanliness.
Accessibility	Access to Hamdan Pier is quite difficult due to the narrow and winding road, as well as the densely populated environment. The limited road makes it challenging for visitors to easily access the area. There are no adequate safety measures or additional facilities.
Level of social activity	Hamdan Pier is more frequently used by fishermen to search for sea creatures and gather. However, this public space does not support other social activities and lacks safety due to the absence of guardrails around the area. The facilities for gathering are inadequate.

Hamdan Pier has become the main gathering place for fishermen to interact and share information. However, the physical condition of the pier is concerning, with a lot of scattered waste and limited supporting facilities. Access to the pier is also restricted due to narrow roads and dense housing. Despite this, the pier still holds significant social value for the fishing community, making efforts to improve facilities and manage cleanliness essential.



Source: (Authors, 2024)  
Figure 8. Physical condition of Hamdan Pier



Source: (Authors, 2024)  
Figure 9. Waste issues in Hamdan Pier



Source: (Authors, 2024)  
Figure 10. Accessibility in Hamdan Pier



Source: (Authors, 2024)  
Figure 11. Social activities in Hamdan Pier

### 3.1.3 Public Space in Beach of Tanjung Uma

The location of the road leading to the beach is narrow, steep, and eventually blocked by

residential houses, reflecting the complexity of the area's spatial layout.

Table 3. Public space in Beach of Tanjung Uma

Aspect	Description
Physical condition of the public space	The physical condition of the Beach of Tanjung Uma is not very clean due to the scattered waste. There are facilities such as restrooms, vendor stalls, shelters, seating areas, and lighting, all functioning well. This area serves as a gathering place for the community and families.
Accessibility	Access to this beach is quite difficult due to its hidden location and the narrow, uneven road. There are no additional facilities to support accessibility.
Level of social activity	Social activities at this beach include gathering with family and the community, playing, selling, taking photos, and fishing. There are also food stalls around the beach, adding to the liveliness. The beach is relatively safe during the day due to the crowds, but at night, the lack of lighting makes it feel less secure.

The Beach of Tanjung Uma offers adequate facilities such as restrooms, vending areas, and lighting; however, cleanliness remains an issue due to scattered litter. Access is relatively difficult due to narrow and hilly roads, though this could be improved with wider roads. The area serves as a popular spot for community and family gatherings, play, and commerce. Food stalls around the beach add to its appeal, but inadequate lighting at night reduces the sense of safety. Overall, the beach supports recreational activities despite needing some improvements.

Findings in this area suggest that the physical conditions, accessibility, and social activities across the three locations face unique challenges. Nevertheless, these spaces remain vital to the lives of coastal communities as centers for social interaction, economic activities, and recreation. Optimizing facilities and improving accessibility at each location will greatly enhance the sustainability of their social and economic functions.



Source: (Authors, 2024)

Figure 12. Physical condition of Beach of Tanjung Uma



Source: (Authors, 2024)

Figure 13. Public Space in Beach of Tanjung Uma

The issues in this coastal settlement area, based on observed phenomena, include piles of waste along the shoreline resulting from both local and marine activities. Therefore, the effective management of public spaces is needed as a tool to support sustainable development in the coastal settlement of Kampung Tua Tanjung Uma. Each proposed solution is not only aimed at addressing existing problems but also at creating sustainable long-term positive impacts for the community and the environment.

### *3.2 The Implementation of Solutions*

#### *3.2.1 Public Space in Al-Mu'minin Mosque*

Al-Mu'minin Mosque requires the placement of trash bins in strategic areas to prevent littering. Additionally, regular cleaning arrangements involving the mosque community, such as weekly communal cleanup schedules, should be implemented. The expansion and improvement of roads leading to the mosque are essential. Road widening should be prioritized to facilitate access, especially for those engaging in activities around the mosque. Al-Mu'minin Mosque has the potential to become a center for social activities by adding facilities that support environmental education, such as a children's learning garden that instills values of nature conservation.

#### *3.2.2 Public Space in Hamdan Pier*

Hamdan Pier requires a routine waste cleanup program involving fishermen and local residents, supported by facilities such as bins for organic and inorganic waste. Collaboration with environmental organizations can strengthen these efforts while ensuring long-term waste management through an effective recycling system. Road widening and the reorganization of residential layouts around the pier are necessary to improve accessibility.

Adding safety railings to the pier is also needed to enhance user safety.

By providing communal facilities such as seating areas or gazebos, Hamdan Pier can become a more comfortable social space. Additionally, supporting fishermen in utilizing the pier as a center for selling community-caught fish could boost local economic activities. For example, leftover catches could be used for compost or other products.

#### *3.2.3 Public Space in Beach of Tanjung Uma*

Cleanliness at the Beach of Tanjung Uma can be improved by providing adequate trash bins throughout the area, with a spacing of approximately 15 meters between bins, and educating the community on the importance of maintaining cleanliness. A routine waste collection program is also needed to reduce litter, along with collaboration with relevant parties for more efficient waste management. Additionally, accessibility needs to be enhanced by widening and repairing roads leading to the site, considering environmental and sustainability impacts. Using eco-friendly materials for road repairs and adding facilities such as lighting, seating areas, and shelters will make the public space more comfortable and accessible. To address inadequate lighting, the installation of solar-powered lights can improve safety, particularly at night. Another proposed solution is optimizing public spaces for community and local economic activities. Organizing vending areas more systematically and hosting community events such as local markets or festivals can enhance social and economic interaction within the community.

## **4. Conclusion**

The coastal settlement of Kampung Tua Tanjung Uma faces various challenges, including limited accessibility due to narrow



roads such as those at Hamdan Pier, environmental degradation with widespread waste found in every public space, and the lack of public facilities that support communal activities to enhance social connections within the community. The proposed solutions for this area include:

**1) Optimizing spatial planning and environmental conditions:** regular environmental cleanliness management, providing trash bins at specific distances, and implementing community work programs to improve cleanliness and social activities.

**2) Revitalizing public spaces:** introducing open or communal spaces such as seating areas or gazebos, learning gardens, and adding lighting in Kampung Tua Tanjung Uma.

**3) Improving accessibility:** expanding and improving the roads leading to the coastal settlement area of Kampung Tua Tanjung Uma.

These solutions aim to support sustainable development and improve the well-being of the local community. By involving the local community in the management and maintenance of public spaces, it is expected that a balance between social, economic, and ecological needs can be achieved in this area.

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