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CRIME PREVENTION THROUGH NATURAL SURVEILLANCE IN RECREATIONAL PARK TOWARDS SAFER RECREATIONAL ENVIRONMENT

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Abstract:

Recreational parks play a crucial role in enhancing the quality of life within urban developments, offering spaces for leisure, social interaction, and natural beauty. However, concerns persist regarding the safety of such spaces in Malaysia. To address this, the implementation of Crime Prevention Through Environmental Design (CPTED) approaches is essential. This comprehensive strategy utilizes urban and architectural design to reduce crime, enhance community cohesion, and alleviate fear. Focusing on Taman Tasik Shah Alam, this research aims to explore CPTED's application to create a secure living environment. By analyzing elements such as natural surveillance, crime statistics, and public perceptions of safety, the study proposes incorporating advanced safety measures, including improved lighting, surveillance cameras,

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and park designs conducive to natural surveillance. Furthermore, understanding criminal behavior patterns within the park context is vital for effective intervention. Collaboration between local authorities, stakeholders, and the community is crucial to successfully implement these CPTED principles and enhance safety and security in residential areas.

Keywords:

Natural Surveillance, Crime Prevention Through Environmental Design, Quality Living Environment, Recreational Park, Public Perception, Criminal Behaviour

Introduction

Crime Prevention Through Environmental Design (CPTED) is a comprehensive approach to crime prevention that utilizes urban and architectural design, as well as management of built and natural environments. The primary goal of CPTED techniques is to decrease victimization, deter criminal behavior, and cultivate a sense of community among residents to achieve territorial control, ultimately reducing crime and fear of crime. Initially proposed by Dr. C. Ray Jeffery in 1971, CPTED is also known as Designing Out Crime and defensible space. The concept emphasizes how the design of physical environments can influence individual behavior, leading to a decrease in crime incidents and fear of crime, thus enhancing overall quality of life. Originating from the Opportunity Theory of crime prevention established by UK Home Office researchers in the 1970s, CPTED focuses on creating defensive environments that integrate both physical and psychological strategies to discourage criminal activity and promote lawful use of the area.

According to Shamsuddin and Natasha Azim Hussin (2013), the design of a defensive environment should integrate strategies from both physical and psychological domains simultaneously. This approach aims to decrease the opportunities for criminal activity by implementing physical design features that deter criminal behavior while also encouraging lawful use of the space. By utilizing a combination of physical and psychological elements, such as environmental cues and architectural features, the environment can effectively reduce instances of crime while promoting a sense of safety and security for its users.

The focus of this study is to provide and enhance a safer recreational environment in Tasik Shah Alam by implement Crime Prevention Through Environmental Design. This study is to establish the application of the principles of CPTED at the Taman Tasik Shah Alam recreational area in ensuring maximum safety. A reconnaissance survey undertaken indicated several types of offenses committed by the visitors, which include parking on the pedestrian path, hawking without any license, littering, and fishing. There are also reported cases of vandalism, which resulted in damages at the restrooms and amenities of the area (Satibi, 2019). This poor maintenance of the facilities in the park, such as rest huts and pathways, is part of safety concerns. The study aims at creating a safer recreational environment for all users by finding solutions using the CPTED strategies.

Literature Review

Natural Surveillance

Natural surveillance refers to the design of an environment in a way that allows people to see and be seen. This can be achieved through the use of windows, lighting, and landscaping that do not obstruct the view of people passing by. The idea is that if potential criminals feel that they are being watched, they will be less likely to engage in criminal activity. In a study of natural surveillance in public housing developments, researchers found that "areas with good natural surveillance had significantly lower crime rates than areas with poor natural surveillance" (Kelling et al., 1974).

Recreation Parks

A recreation park is a public outdoor space that is designed for leisure activities and physical exercise. According to an article from the National Recreation and Park Association, "recreation parks are often thought of as the 'green lungs' of cities, providing residents with spaces to engage in physical activity, connect with nature, and socialize with their community" (NRPA, 2021).

Other than that, recreation parks can include a variety of amenities such as playgrounds, sports fields, walking and biking paths, picnic areas, and natural areas for wildlife observation. These parks are often maintained by local governments and are free for public use. One of the benefits of recreation parks is that they provide a space for physical activity and exercise, which can help to improve overall health and well-being. According to (Kuo & Sullivan, 2001) shown that spending time in nature can reduce stress and improve mental health, and recreation parks provide an accessible way for people to connect with the outdoors. Recreation parks also play an important role in community building, providing a space for residents to gather and socialize. In addition, parks can contribute to economic development by attracting tourists and new residents to a city or town stated by (NRPA, 2021). Overall, recreation parks are a valuable resource for communities, providing opportunities for physical activity, social interaction, and connection with nature.

Crime Preventive Through Environmental Design (CPTED)

Crime Prevention Through Environmental Design (CPTED) is a strategy focused on reducing crime and fear of crime by modifying the physical environment. It operates on the principle that the design and layout of spaces can impact criminal behavior. CPTED aims to prevent crime proactively by shaping environments to be less conducive to unlawful activities.

CPTED Principles:

1. Natural Surveillance – Ensuring that the environment is well-maintained contributes to creating a safer surrounding
2. Natural Access Control – Vegetation design elements, such as fences, flower beds, hedges, and planting beds
3. Territorial Reinforcement – Division or separation between areas designated for public use and those reserved for private purposes
4. Maintenance – The park must be properly maintained to deter criminal activities.

Effectiveness of Crime Prevention Through Environmental Design (CPTED)**1. Comparative studies**

These studies will compare for instance, crime rates before and after the introduction of CPTED strategies such as improved lighting, natural surveillance, and access control measures. The direct impact of the interventions on criminal behaviours will also be shown. Questionnaires will also be used to understand how park users perceive safety and relate it to actual crime statistics recorded in the same location. These design strategies are then placed in a greater context of understanding the possible benefits using case studies of other urban areas that have successfully used CPTED, such as New York and Chicago. Lastly, there will also be discussion on community involvement within the CPTED process, taking into consideration how the involvement with the local community in the design and maintenance of parks can attribute to ownership that adds to safety. This is multi-faceted; hence, by this approach, the study shall contribute significantly to the application aspect of CPTED principles in Malaysian recreational spaces, as well as the effectiveness of those principles in fostering a secure environment for users.

2. Behavioural Studies

This studies will investigate how changes in the physical environment, specifically through the implementation of Crime Prevention Through Environmental Design (CPTED) principles, influence human behavior and criminal activity in recreational parks. Focusing on Taman Tasik Shah Alam, the study will analyze the effects of natural surveillance—achieved through strategic landscaping, lighting, and park layout—on the likelihood of criminal behavior. By employing observational methods and crime statistics analysis, the research aims to identify patterns of criminal activity before and after the introduction of CPTED measures. Additionally, surveys will be conducted to gather insights from park users regarding their perceptions of safety and their behavioral responses to environmental changes. Previous studies, such as those demonstrating that areas with enhanced visibility and natural surveillance experience lower crime rates, will be referenced to support the hypothesis that well-designed environments can deter criminal behavior. Ultimately, this research seeks to contribute to the understanding of how environmental modifications can foster safer public spaces and promote positive social interactions among community members.

3. Community Engagement

The successful implementation of Crime Prevention Through Environmental Design (CPTED) initiatives within recreational parks, with a specific focus on Taman Tasik Shah Alam also depends on community participation. The study will examine how active participation of local residents in the design and maintenance of park facilities can lead to enhanced safety and a reduction in crime rates. By conducting interviews and focus groups with community members, the research aims to gather qualitative data on their perceptions of safety, their involvement in CPTED-related activities, and the impact of their contributions on park usability and security. Additionally, the study will analyze case studies from other regions where community-driven CPTED initiatives have been implemented, highlighting instances where resident involvement has resulted in improved park conditions and decreased criminal activity. Through this investigation, the research seeks to demonstrate that fostering a sense of ownership and

responsibility among community members not only enhances the effectiveness of CPTED strategies but also cultivates a safer and more vibrant public space for all users.

Component Of Crime Prevention Through Environmental Design

In accordance with the findings of the JPBD (2010), the implementation of Crime Prevention Through Environmental Design (CPTED) involves the identification of seven distinct development components. However, within the scope of this particular study, only one of these components is examined, specifically focusing on the aspect pertaining to lighting.

Street Lighting

The provision of bright lighting especially at night allows an individual to see or be seen clearly. Bright lighting can reduce public fear, especially in parking areas, bus stops, ATM machines and so on. Lighting should be at a level that allows a person's face to be identified in normal vision and helps the CCTV system monitor crime areas more effectively.

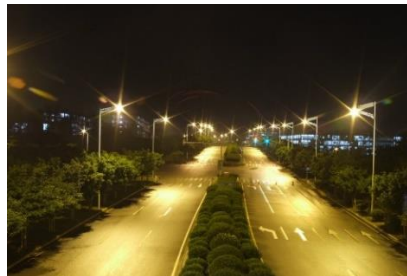


Figure 1: Street Lighting

Source: All in one solar street light project in Malaysia. Clodesun | Clodesun. <https://www.clodesun.com/all-in-one-solar-street-light-project-in-malaysia/>

Methodology

Data Collection Method

In this research study, data can be collected through two main methods which is primary data and secondary data. Primary data collection involves the use of observation at study area as part of the process in analyze. In contrast, secondary data is obtained by reviewing previous research studies, specifically focusing on articles related to crime prevention through environmental design in recreation parks, crime statistics in Taman Tasik Shah Alam and other relevant subjects. The type of research design that will be used is qualitative survey and it will be in the marking the observation on the plan to achieve the level of being an effective element of natural surveillance in Taman Tasik. Shah Alam. The component to be evaluated shall be the Layout Design, Access and Pedestrian Walkways, Soft Landscaping and Urban Design Element, Car Parks, Security Equipment, Maintenance and Administration.

Primary Data

While direct observation of the site was done to identify how the elements of natural surveillance exist in the current Shah Alam Lake Park. One of the elements assessed will be lighting. Among the methods used is the Linkert scale method. The Likert scale is a rating scale used for the degree of satisfaction based on the provision of aspects of CPTED in the study area. The likert scale that will be used has five options. Each item is scored from 1 to 5 which

is 1 Very Poor, 2 Poor, 3 Moderate, 4 Good and 5 is Very Good. This is information directly obtained from site surveys and markings on plans.

Secondary Data

The secondary data obtained from online researchers such as Crime Prevention Through Environmental Design Guidelines. Statistics on the crime rate in Taman Tasik Shah Alam obtained from several departments such the Police Headquarters of District (IPD) Shah Alam, Rancangan Tempatan Majlis Bandaraya Shah Alam, journals, articles, newspapers, book and reports for supporting the data.

Analysis and Findings

Components Of Analysis in Crime Prevention Through Environmental Design

The Components of Crime Prevention Through Environmental Design in recreations park are made based on direct observation. The components that were examined in this study are unit component and condition (refer to Table 2). The indicator is based on 1 which are Very Poor, 2 Poor, 3 Moderate, 4 Good and 5 is Very Good. The analysis matrix will be used to evaluate each level of effectiveness of the component by taking into account the indicators that have been set.

Table 1: The Element of Lighting Components in Crime Prevention Through Environmental Design

Component	Element
Lighting	a. Lighting is provided in the back lane, side lane, front buildings, overpasses, and bus stops.
	b. Bright and stacked lighting should be provided so that a person's face can be seen from a distance of 10 meters (32 feet) and clearly recorded by CCTV.
	c. Lighting must be provided in the entrapment space.

Lighting

Based on the analysis conducted, Taman Tasik Shah Alam benefits from an adequate provision of street lighting, with a total of 180 units of street lighting in good condition to ensure sufficient illumination during nighttime. This extensive network of streetlights plays a crucial role in providing a well-lit and safe environment for park users, enhancing visibility and reducing potential risks. However, it has been observed that there is a deficiency in lighting in the area under the bridge. This absence of adequate lighting can create a sense of insecurity and unease among park users, as enclosed spaces like the area under the bridge may be perceived as potential safety hazards. To address this concern, additional lighting should be installed in this specific area to improve visibility and foster a greater sense of security for individuals passing through it.

The importance of proper street lighting cannot be understated, as it enables individuals to see clearly at night, making it easier to identify potential hazards or obstacles. Moreover, bright and well-distributed lighting can significantly reduce public fear, particularly in crucial areas like parking lots and bus stops, where people often gather and transit during nighttime hours. The recommended level of lighting should allow for clear facial identification under normal vision, further contributing to enhanced safety and security in the park. Moreover, well-

illuminated spaces are also instrumental in supporting CCTV surveillance systems, making them more effective in monitoring and deterring potential criminal activities in the park's vicinity.

In summary, while Taman Tasik Shah Alam boasts a satisfactory provision of street lighting throughout most areas, the lack of lighting under the bridge should be promptly addressed to alleviate any feelings of danger and improve overall user safety. Proper lighting not only ensures better visibility for individuals but also plays a pivotal role in reducing public fear and enhancing security measures in vital locations within the park.

Table 2: Analysis on Lighting

Component	Element	Score	Remarks
Lighting	Lighting is provided in the back lane, side lane, front buildings, overpasses, and bus stops.	4	Overall, the provision of lighting in the back lane, side lane, front buildings, overpasses, and bus stops in the study area was given a score of 4 because it is satisfactory from the aspect of number and location but needs to be added in closed areas such as in the bridge area
	Bright and stacked lighting should be provided so that a person's face can be seen from a distance of 10 meters (32 feet) and clearly recorded by CCTV.	5	Based on the analysis, All the lighting in Taman Tasik Shah Alam is given a score of 5 because it is bright and organized. In addition to that, visibility can also be increased due to good lighting. This is so that a person's face can be seen from a distance of 10 meters.
	Lighting must be provided in the entrapment space.	2	Based on the analysis, the provision of lighting in the trapped area was given a score of 2 because there was no provision of lighting in the tunnel area. This should be improved lighting under the tunnel to create a safe environment



Figure 2: Street Lighting in Study Area



Plan 1: Street Lighting in Study Area

Recommendation

Recommendations

After studying the analysis and issues mentioned earlier, we've listed the recommendations and suggestions (refer to Plan 2). To enhance and make the recreation area more effective, it's essential to consider these suggestions. The problems, mainly related to safety, were discussed in the previous chapter.

Streetlamp in Tunnel

To effectively address the issue from analysis, it is crucial to ensure comprehensive and balanced lighting design across all areas, extending beyond just roads. The significance of this lies in the fact that adequate and well-placed lighting plays a pivotal role in diminishing opportunities for criminal activities, particularly in areas like under bridges or within tunnels. As the second proposal for the study area, it is strongly recommended to implement street lighting in the back lanes as well. By doing so, we can further enhance safety and security throughout the community, leaving no shadowy corners for potential wrongdoers to exploit.

According to (Zhao et al., 2022) the importance of lighting in a tunnel cannot be overstated, as it plays a crucial role in ensuring safety and comfort for users. Adequate lighting in tunnels is essential to enhance visibility and create a sense of safety. Well-lit tunnels allow drivers and pedestrians to have better visibility of the road and surrounding environment, reducing the risk of accidents and potential hazards.



Figure 3: Example of Proposal Street Lamp in Tunnel

Source: 5 Important Aspects We Should Care For in Tunnel Lighting Project - AGC Lighting. (2019, December 3). AGC Lighting.



Plan 2: Masterplan Proposal Natural Surveillance of CPTED in Taman Tasik Shah Alam

Conclusions

Finally, this research underscores the importance of Natural Surveillance as a principle of Crime Prevention Through Environmental Design in ensuring the safety of recreational parks and, by extension, Taman Tasik Shah Alam. Results have shown that successful use of Natural Surveillance strategies goes a long way towards providing an environment safe for recreational

users of the park and offers some promise of crime reduction in such facilities. The research, therefore, goes to show that CPTED principles allow the design element to create an ambiance of safety and community for the users, thereby improving the quality of experience at this recreational space.

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