

## **Innovation in environmental management to enhance the security of the Bangkok Metropolitan**

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Received: July 6, 2023; Revised: August 1, 2023;

Accepted: August 8, 2023; Published Online: August 20, 2023

### **Abstract**

The objective of this study was to examine the context and current conditions of the safety environment and environmental management guidelines to enhance the security of the Siriraj sub-district area, Bangkok Noi District, Bangkok. A qualitative research method was used to collect data by interviewing community leaders, representatives from the public sector, tourists, police officers, and twenty-one representatives from district offices. The interview results were analyzed by the content analysis method. The study found that Siriraj sub-district, Bangkok Noi District is a densely populated community area with a mix of urban and slum communities. Crimes occurring in the area are brawls, thefts or robbery at tourist sites due to the nature of the area with a lot of small alleys. In terms of environmental safety management, it was found that the area was well managed to create an environment that could effectively prevent crime in the area and cooperation between the public sector, private sector, government agencies and police officers in monitoring security in the area. Regarding an environment-based security enhancement approach, 1) enhance the network to increase the efficiency of security management in the area in the form of coordination and integration of information 2) utilize technology in the prevention and suppression of crime with suggestions for continuously integrating cooperation, develop activities that create cooperation between relevant agencies.

**Keywords:** Innovation, Environment management, Security

### **Introduction**

Tourism is an industry that plays an important role in economics and social development. of many countries around the world. Thailand is one of the countries where tourism has been considered as a main mechanism for stabilizing and driving the economy. Although to the statistics, the number of foreign tourists tends to increase continuously. However, it is also found that there is currently one threat against tourism for tourists (Jitpong, 2018).

“Bangkok Noi sub-district area” is one of the tourist attractions of Bangkok located in the Thonburi district with a total area of 11.944 square kilome-

ters which consists of five sub-districts, namely Siriraj sub-district, Ban Chang Lo sub-district, Bang Khun Non sub-district, Bang Khun Si sub-district and Arun Amarin sub-district. The Bangkok Noi sub-district is a collection of historical arts and culture attracting both Thai and foreign tourists to visit. The interesting point of this area lies in the variety of tourist attractions and interesting stories such as Ban Bu Khan Long Hin community. It is an ancient community in the Ayutthaya period. Wang Lang Market is a famous market and an old area with a variety of food. Additionally, Trok Khao Mao Community is one of the living areas in Bangkok Noi District that is ancient since the Ayutthaya period. It can be said that

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“Bangkok Noi sub-district” is a tourist attraction with many historical stories for Thai and foreign tourists. Foreigners usually come to visit and learn about the way of life of Thai people living in this area.

However, when considering the statistics of offenses from January 1, 2019 to August 31, 2022, in total there were two hundred twenty-three property offenses. Most of the committed offenses eighty-two counts of theft offenses relating to life, body and sex (overall). Most of the one thousand forty-three crimes committed by the state, almost half of them were drug offenses. (police station information system The Royal Thai Police, 2022), which the nature of the aforementioned offenses is directly related to the management of the environment within the community.

Reduction of the problem of crime without causing loss to the people as much as possible is applying crime prevention concepts to solve problems. In addition to the police officers playing an important role in the prevention and suppression of crime, there is also a concept of internationally accepted crime prevention, which is Crime Prevention Through Environmental Design (CPTED) which is an important strategy for crime prevention. The concept is based on the principle of designing the environment to be suitable and efficient enough to reduce the crime rate and fear of the residents. (Corruption Division, 2007)

Therefore, this article aims to study the context and current conditions of the security environment in Siriraj sub-district, Bangkok Noi District Bangkok and aims to propose ways to increase the efficiency of environmental safety to build confidence in the safety of tourists and serve as a guideline for relevant agencies and sectors in the future.

## Objective

1) To study the context and current conditions of the safety environment in Siriraj sub-district, Bangkok Noi District, Bangkok

2) Guidelines for environmental management to enhance the security of Siriraj sub-district, Bangkok Noi District, Bangkok

## Scope of the study

This study adopts Crime Prevention Through Environmental Design (CPTED) theory as a theory to manage the environment to create a safer neighborhood by preventing crime through environmental design. It is proper design and use of a properly composed environment to reduce the fear or incidence of crime. This reduces the potential of crime that may exist through the design of the structure or in the design of the neighborhood or through the process of planning and designing the environment according to the size and type of place as a decoration or design of a building, landscapes of neighborhoods and cities to avoid crime (Crowe, 2000; Ekblom, 2011).

Based on the principles of crime prevention through environmental design. It can be classified into 1) Defensible Space and Territoriality as design of the physical of the neighboring area which may increase or inhibit an individual's sense of control over space 2) Access Control is a measure to limit access to the building, or a specific room within the building 3) Natural surveillance is a method to design an area that increases the capacity of users. 4) Management and maintenance. It is the maintenance and appearance of the area, such as painting the place for decoration, installation of light poles, maintenance of lighting and installation of CCTV cameras 5) Fortifying a target or buildings is to create a safe building to prevent attacks or reduce the risk of theft including perimeter security. In this study, the principles of crime prevention through environmental design were applied and used as a framework for the study. The result was analyzed and summarized as a way to increase the efficiency of safety in terms of the area's safety environment.

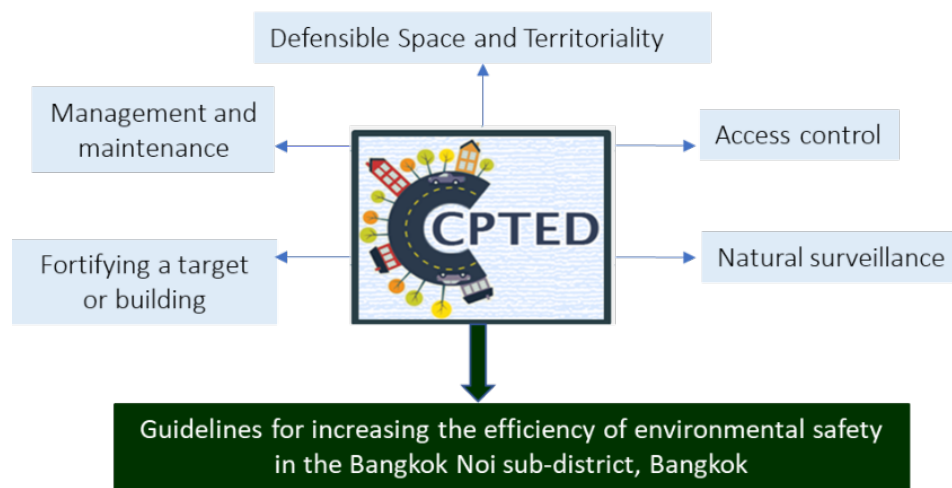


Figure 1. Scope of the study

## Research Methodology

The researchers adopt qualitative research methods to evaluate the context and current conditions of the safety environment of the Bangkok Noi area, Bangkok and to study approaches to increase the efficiency of environmental safety in Bangkok Noi area, Bangkok. The researcher examined documentary research by synthesizing information from documents, publications, laws, regulations, rules, books and other documents including information in various forms such as publications or electronic media, etc., involved by studying and researching from documents, articles, books, including research related to the safety of the environment of the area and consolidate information in formulating a conceptual framework for research. The in-depth interviews were conducted with the main informants: 1) Community leaders in Siriraj sub-district areas; Bangkok Noi District Bangkok for five people (one person per community) 2) Community representatives for five people (one person per community) 3) Local tourist representatives for five people 4) Commanders of Bangkok Noi Police Station 5) Police under Bangkok Noi Police Station worked in the area at least three years for three people

The data obtained from the interviews were analyzed by content analysis method.

## Result

### 1. The study results of the context and current conditions of the safety environment of Siriraj sub-district, Bangkok Noi District, Bangkok

From the study of the context and current conditions of the safety environment of Siriraj sub-district, Bangkok Noi District, Bangkok, it was found that Siriraj sub-district, Bangkok Noi district is a community area consisting of both small and large communities throughout the area with a mix between urban and slum communities. The type of residence is mostly single houses, condominiums and hostels in the area with a dense population living in the community. The nature types of crime that occurred in the area were related to a quarrel, theft or snatching in tourist attractions area because the context of Siriraj sub-district consisted of many small alleys. It can be used as an escape area for criminals. Regarding the environmental safety study framework, it can be considered in the following five issues.

- (1) Defensible Space and Territoriality: From study results, it was found that, in general, private and public areas were clearly separated especially the area of government agencies with a clear territorial boundary, including a safety officer in preventing crime in residential areas. A division

of the area can be observed with the fence or house wall as well as condominium areas. However, only some areas are found where there is an overlap between public and private areas due to the use of many public areas by people, causing encroachment on the private areas of people living in the vicinity, such as the Wang Lang Market area or the area around Rakhang Kositaram Temple, etc. In most cases, traveling from one attraction to another is usually done on foot. It may cause inevitably encroachment on the personal space of people living in that area.

(2) Access Control/Limiting Through Movement:

From the study results, it was found that the characteristics of access control in the area of Siriraj sub-district with no restriction of access to clear areas. Due to the context of the area, there are many roads and alleys causing the linking area to penetrate through many channels. This causes difficulty in limiting the area with measures. There is also a boat channel that can be used as a route for criminals to escape. In addition, the nature of the area with adjacent communities in the area of Siriraj sub-district, Bangkok Noi district, Bangkok There are communities that are lined up in adjacent areas, more than thirty-two communities, which may allow those who commit crimes to escape to adjacent areas more easily. However, there are still some areas that have clear access restrictions, such as Siriraj Hospital, dormitories and condominiums. In most cases, there is a clear access limit and access control to the area with security measures to control access to the area at all times.

(3) Natural Surveillance: From the study results, it was found that in the overview of crime surveillance in the area is efficient and obtains cooperation from all sectors, including government, private and public sectors. which can be divided into two types

1) Surveillance in nature in a formal manner which relies on individuals or entities that have official authority to monitor crime. The first agencies with the

authority to prevent and suppress crime are:

1.1) There is a division of patrol operations and security surveillance in the area to cover each area. The duration of the operation is eight hours and there will be a rotation of duty of the operational staff to complete twenty-four hours. Within one day, there will be staff circulating to the red box checkpoint to inspect the area on a regular basis. In addition, the police also cooperate with the Bangkok Noi District Office in exploring risky areas or sensitive spots that may cause crime in the area. There is also an adjustment to the environment at risk points, such as adding more lighting and installing CCTV. However, the police initially must enter the area regularly to create awareness and recognition for criminals or homeless people until the area is improved and totally safe.

1.2) District Office, which is an agency that has a role in taking care of the area, is responsible for improving the environment to make the area safer and more convenient for people living in the Siriraj area. In addition, people can report risk points or points that need to be improved through the Traffy Fondue application, which was developed to allow people to report areas. Additionally, another aspect is to take care the overall safety of the area by municipal workers. Although municipal officials do not have the authority to prevent and suppress incidents but there will be coordination with the police to stop the incident.

2) Synchronization of information and cooperation from community leaders in which each community will have a monthly meeting together with officials in various departments. The community chairman and the community can provide information that will identify risky areas or dead spots in the community area which may cause an assembly of young people to cause crime in the area. It is also found that by the nature of living in the community. The houses are adjacent to each other causing people in the community to be close and familiar as well as recognizing those who live in the commu-

nity. When people who do not live in the community or strangers entering the area, majority of people will act as a watchdog and notify the community president or local police immediately.

Therefore, as a whole, it is found that surveillance in both informal and formal service of Siriraj sub-district is very effective in preventing crime in the area due to the cooperation of all sectors.

3) Management and maintenance: From the study, it was found that the management and maintenance of the premises is the direct authority of the Bangkok Noi District Office, which currently has tools and applications that help the district office to monitor the condition of the deteriorated area. In which the people living in the area still have the duty to monitor which areas need to be maintained or improved for a suitable condition and the district office will be responsible for improving the area. In addition, the district office also pays attention to surveying the area in order to inspect and improve the appearance.

4) Target Hardening: From the study, it was found that overall communities in the Siriraj area looks like a single-family building with a fence and a wall around with the appearance of the old house. Since it is an old community area with old condition and weak structure but the people living in the Siriraj Sub-district community pay more attention to the maintenance and restructuring of buildings and houses. in order to prevent invasion and attack from those who may come to commit crimes in the area. There are also attempts to use tools or technology for security purposes, especially CCTV.

## **2. Guidelines for environment management to enhance the safety of Siriraj sub-district, Bangkok Noi District, Bangkok**

From collecting data from key informants, it can be concluded the issue of approaches increasing the efficiency of environmental safety in the Siriraj sub-district, Bangkok Noi District, Bangkok. In the context of the current situation, which can be divided into two important approaches, as following

1) Using the network to increase the efficiency of security management in Siriraj sub-district, Bangkok

Noi District, Bangkok

From the study results, it was found that the use of local public sector networks in surveillance as the community leader acts as a representative of the people in the area to coordinate various information from the public and relevant agencies both coordinating the district office about improving the environment and coordinate with the police when there is a crime or issue. The 191 hotline is used to report various incidents and the police officers are able to stop the incident immediately. The coordination between the police and the community leader or people in the area also uses a communication channel through the Line application, a group created to coordinate various information between the police and the community enabling police officers and people closer together. In terms of the role of the community in managing the environment and ensuring safety in houses or shops as well as dormitories that are equipped with CCTV cameras that police officers can coordinate and request to see CCTV from the private sector in case of unsafe incidents. It can be concluded that creating cooperation by using a network of all sectors in the area is an important mechanism for effective crime surveillance in the area.

2) Using technology to prevent and suppress crime in the

From the study results, it was found that there has been a development of technology used in the prevention and suppression of crime, including closed-circuit television (CCTV) technology, which is one of the key factors that effectively prevent and suppress crime in the area. Since people in the area are aware of the importance of having CCTV in the public and private areas enabling CCTV coverage in both public and private areas. In which most people are well cooperated in allowing officers to see CCTV footage when a crime occurs. In addition, if there is a development to integrate data from CCTV cameras in public areas to police stations, and

manpower to monitor images from CCTV cameras, it will cause the suppression or prevention of crime in the area more efficient. Additionally, using a face detection camera to detect the face of a suspect or offender will reduce the number of crimes in the area. As a result, these technological factors will clearly increase the efficiency in enhancing the environmental safety of the Siriraj sub-district area.

## Discussion

Siriraj sub-district Bangkok Noi District is a community area with a dense population with a mix of urban and slum communities. The nature of the crime that occurs in the area is brawls and theft or robbery in tourist attractions. Due to the nature of the area, there are many small alleys facilitating possibility of criminals escape from the area, which is consistent with the research of Insuan (2016) mentioned that communities in the area Bang Na Police Station which has many roads that lead to other alleys (shortcuts), is the main cause of property crimes. Therefore, it can reflect whether it is an area under the supervision of any police station but if there is a road or alley that connected to each other facilitating the living of people. It is undeniable that it is an escape route of criminals. This will cause difficulty for the police to track criminals in that area with absence of CCTV cameras or evidence in order to track criminals.

In terms of environmental safety in territorial restrictions, it was found that there is a clear classification and division of private area. Government and public areas. In this regard, it was also found that the intrusion of tourists into private areas which is consistent with the research of Sisophon (2015) who found that in the context of the community that is an old community and a tourist destination. People living in the community may encounter the problem of encroachment of tourists into the private areas of the people. For the access control characteristics in the area of Siriraj sub-district, there is no restriction of access. Due to the context of the area, there are many roads and small alleys connected through many channels. This is also consistent

with the research of Suradanai (2018) who studied crime control from the school environment. It was found that educational institutions having many entrances and exits may cause crime occurred in the academy, criminals can escape easily. Yet some areas with insufficient lighting may affect that area becoming a risk point for crime.

In terms of natural surveillance, it was found that overall crime surveillance in the area was effective and received cooperation from all sectors, including government, private and public sectors including the official surveillance in the form of police officers and district offices. There has been a division of police officers with patrol operations and security surveillance in the area. However, Insuan (2016) pointed out that the area or route of the house with the unlocked door-window, streets and alleys with no CCTV cameras, no lights and alarms installed, insufficient police force in the area. These factors will increase the risk of crime in the community. Therefore, cooperative actions in the development of the district office and patrols by police officers can reduce the factors that cause crime. In the case of informal surveillance is to monitor the area of the people. In the case of informal surveillance is to monitor the area by the people with the nature of living in the community. The houses adjacent to each other causing people in the community to be close and familiar as well as remembering those who live in the community. When people who do not live in the community or strangers enter the area, majority of people will act as a watchdog and notify the community leader or local police immediately. This is consistent with the idea of Jacob (1961) as cited in Marzbali et al. (2011) such as living, trading and recreation as a factor in crime prevention.

In terms of management and maintenance, it was found that management and maintenance of premises are the direct duties of the Bangkok Noi District Office. Currently, there are tools and applications that help district offices to monitor the condition of the deteriorated areas and improvements and also pay attention to exploring the area and improving the area for a better condition. As for the fortifying of buildings, it was found that overall communities in Siriraj sub-dis-

trict are old communities but the people living in the community pay more attention to the maintenance and restructuring of buildings and houses in order to prevent invasion and attack from those who may commit crimes in the area especially with the installation of CCTV cameras. This is endorsed with the research of Wichiansri and Siriwato (2021) who studied the use of CCTV to reduce crime: a case study in Nonthaburi Province, which found that the use of CCTV reduces crime in the area of Nonthaburi Province and Phosri (2018) who has studied the level of self-crime prevention of people residing in Districts 5 and 8 of Muang Samut Prakan Police Station. It was found that the majority of people focused on protecting themselves from crime with different characteristics, such as closing doors and windows every time before leaving the house or locking the car every time after getting out of the car. As the people living in Siriraj sub-district communities that pay attention to the maintenance and restructuring of houses in a good condition preventing criminals from entering the house by cleaning the house, sealing doors and windows in order to prevent tampering to steal things in the house, etc.

In terms of environmental management guidelines to enhance the safety of the Siriraj sub-district, Bangkok Noi District, Bangkok, it concluded that two main approaches were 1) Using the network to increase the efficiency of security management in Siriraj sub-district, Bangkok Noi District, Bangkok 2) Adopting technology to prevent and suppress crime in the area. This is relevant with the research recommendation of Surad-anai (2018) who wish to reduce the opportunity of being victims of crime and awareness of personal safety, a case study of Chulalongkorn University to create a network and create cooperation between security officers, police officers and communities surrounding the school in monitoring and solving problem of crime in the area. Since networking or cooperation with all relevant sectors will cause the effective monitor and surveillance of crime in the area because all sectors work together to improve the environment. Cooperation in tracking crimes or defense preventing local crime, there will be, in each sector, different roles in the operation, for example, the police officers have the main duty to

monitor together with the security officers of the agency or private sector, including the public or students themselves acting as guard against crime in the area. However, if there is a collaborative action, it will make the surveillance of crimes more effective and Tadpring and Suriyamanee (2020) found that the guidelines for crime prevention of business owners should install closed-circuit television cameras using in surveillance or crime prevention for safety of their customers and create a database of private closed-circuit television cameras in the area for the benefit of crime prevention and post-incident investigation.

In addition, Ketsilp (2017) mentioned the strategy for controlling crime from the environment that will be integrated to create guidelines for managing the environment which consists of the design of the environment, as following 1) the design of the home environment or buildings that can be clearly seen as eyes for watching at all times including the design of the area to have sufficient lighting, installed warning signs, and the design of security systems such as important areas of the house or buildings should be designed and equipped with alarms, emergency phone, thief alarm, closed-circuit television (CCTV) cameras, etc. 2) Dangerous areas that need more attention, especially the isolated routes should be limited as much as possible. and improved by designing to be visible as clearly as possible, installation of lighting, CCTV cameras, adding security personnel or avoid such routes, etc. The dangerous area should be avoided because it is an area where there are no pedestrians and difficult to ask for help. It also includes residential building or various buildings adjacent to deteriorating sources, entertainment venues, game shops or near public canals which is an area with high crime risk since it is a route of entry and exit for offenders. Therefore, prevention must be prepared by exploring the area within the house, village or building. If a sensitive area is found, it must be corrected or eliminated immediately by organizing the space mixed with activities, the residents will sense the ownership of the space together, and being able to be the eyes and ears of each other.

## Suggestion

1) There should be an integrated cooperation plan for all sectors to determine guidelines for working together.

2) Police stations and district offices must continuously develop activities that create cooperation between agencies involved with the community chairman and people in the community and create communication channels for effective two-way communication. At present, there is an official meeting held once a month.

However, there should be additional meetings or organizing other activities that makes stronger participation.

3) Relevant agencies should cooperate with neighboring agencies, there should be coordination in the monitoring of CCTV or other evidences in order to be able to arrest criminals as soon as possible.

4) There should be measures to prevent crime in the area with the same direction. The police should be the main host in brainstorming relevant agencies to determine their roles and duty to work together.

## Reference

- Crowe, T.D. (2000). *Crime Prevention through Environmental Design: Applications of Architectural Design and Space Management Concepts* (2<sup>nd</sup> Edition). Oxford.
- Eklom, P. (2011) Deconstructing CPTED...and Reconstructing it for practice, knowledge, management and research. *European Journal on Criminal Policy and Research*, 17, 7–28.
- Insuan, C. (2016). Police Officers' Perspectives on Physical Environmental Factors Affecting Property Crimes in the Area of Bang Na Police Station. *Interdisciplinary Journal*, 13(1), 69–89.
- Jitpong, K. (2018). The state of safety problems during tourism affecting the use of tourism services in Bangkok of foreign tourists. Graduate school thesis Silpakorn University <http://ithesis-ir.su.ac.th/dspace/bitstream/123456789/1994/1/57602420.pdf>
- Ketsilp, T. (2017). The development of a prototype of environmental management in cooperation with the community to reduce the risk of crime in education areas: A case study in the areas of Mahidol University, Salaya Campus, King Prajadhipok's Institute. [https://www.kpi.ac.th/media\\_kpiacth/pdf/M8\\_424.pdf](https://www.kpi.ac.th/media_kpiacth/pdf/M8_424.pdf)
- Marzbali et al. (2011). A Review of the Effectiveness of Crime Prevention by Design Approaches towards Sustainable Development. *Journal of Sustainable Development*, 4(1), 160–172.
- Phosri, S. (2018). Self-criminal prevention of people residing in District 5 and 8 of Muang Samut Prakan Police Station. Master of Public Administration Thesis, Rangsit University. <https://rsuir-library.rsu.ac.th/handle/123456789/698>.
- Srisophon, S. (2015). Safety and a sense of security from crime in the environment of a residential community in the old area of Phra Nakhon district, Bangkok, a case study of Trok Silp community - Trok Tuek Din. *Veridian E-Journal*, 8(1), 1517–1533.
- Suppression Division. (2007). *Theory of crime control from the environment*. Police Printing House.
- Suradanai, U. (2018). Crime control from school environment to reduce the chance of being a victim of crime and awareness of personal safety: a case study of Chulalongkorn University. The 2nd UTCC Academic Day National Academic Conference and Presentation.
- Tadpring, S., & Suriyamanee, C. K. (2020). The use of closed-circuit television cameras to prevent residential crime: a guest house case study. in the Phra Nakhon area Bangkok. *Journal of Criminology and Forensic Science Royal Police Cadet Academy*, 6(2), 58–71.
- Wichiansri, M., & Siriwato, S. (2020). The use of CCTV. CCTV to reduce crime problems: A case study of Nonthaburi province. National Academic Conference Rangsit University Year 2020.