

Guidelines for Innovative Managing Crime Prevention in Waroros Market, Chiang Mai Province, Using the Physical Environment Design

Apiwat Sinpru^a and Kannika Kukudrua^b

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Abstract

This quantitative study evaluated at the relationship between personal factors and crime prevention policies in Chiang Mai's Waroros market. It featured 400 Waroros market users, including merchants, facility managers, business executives, and people. Multiple regression analysis is used for testing a hypothesis.

The study found that the Warorot Market area in Chiang Mai Province has the best level of crime prevention management by providing sufficient lighting at the store dividers ($\bar{x} = 3.54$, S.D. = 0.522). With an average of 3.46, Waroros Market values proper lighting. There is a management of monitoring all entries and exit points to Waroros Market. Maintaining a beautiful, and undamaged building structure successfully prevents crime by 3.16. It was discovered that overall personal factors affecting the management approach to crime prevention in the Waroros Market area of Chiang Mai Province with a statistical significance of 0.01, which may be predicted by 5.20 percent. From this study, the suggestions can be concluded as following: 1) Constructing distinctive nameplates. This includes signposts and fire escape signs at the Waroros Market entrances and exits. 2) Building barriers at each entrance-exit route to make offenders enter and exit more difficult. The facade of establishments should be separated from the interior to deter offenders from entering the market.

Keywords: Prevention Management, Environment Design, Crime in Market

Introduction

Nowadays, the criminal situation in Thai society is getting more diversified and complicated as a result of shifting global social conditions and technological advancements. The component of safety is interconnected with one's own sentiments and the physical and social environment. It is a state of being that can be mirrored in the physical environment produced by man and nature, as well as in the individual's sense of security within that environment. In the majority of metropolitan regions, safe neighborhoods are still predominantly linked with crime-freeness. This is because crime is a problem that has a direct impact on urban dwellers' quality of life (Monthon Yiampisan and Manat Srivanit, 2010).

Additionally, it is a subject that the majority of people are worried about and interested in resolving in order to have the least influence on society. The frequency and severity of crimes committed in a society reflect the level of security in people's lives and property, which has a direct impact on people's quality of life. (Sudhansa Suebsaman and Kosin Hintao, 2013). Fear of crime is related with larger communities, such as places of employment or recreational activities. Apart from the actual environment deteriorating due to a lack of maintenance or care, it can also develop a dread of its degeneration.

^a Student of Master of Public Administration Program in Security Management Faculty of Police Science, Royal Police Cadet Academy.

^b Police Colonel Dr.(Lecturer 4) Police Cadet.

*Corresponding author email : max.elazer@gmail.com

Additionally, because it is the characteristic that draws criminals to degraded regions, some physical characteristics associated with an increasing in crime are more prevalent. (Sasikan Srisopon, 2015 citing Kihl et al., 2005).

Chiang Mai is a substantial city with significant economic and cultural growth that has been sustained and advanced through time. With population growth and an influx of visitors, criminal security is a concern that should be addressed. Waroros Market, or Kad Laung, is a bustling market in the centre of Chiang Mai and the city's largest and busiest commercial area. Additionally, it serves as a hub for producers, merchants, consumers, and visitors. Additionally, Waroros Market is a culturally varied community area and a vital location for community activities as well as significant cultural events in Chiang Mai. It is a one-of-a-kind location in the traditional Lanna style and also serves as a vital hub of wealth. The Waroros Market has evolved and expanded over time, resulting in a dense urban environment inside the Waroros Market and its neighboring surroundings. Both during the day and at night, it has a relatively high population density. The building deteriorates with time as a result of its extensive use and the density of the neighboring structures. Additionally, there are issues with limited corridors as a result of previous urban design and insufficient illumination in some regions, as well as physical environmental issues that impair the livability of urban settlements. Additionally, there is still a crime concern in the Chiang Mai region. According to Chiang Mai Province's data on criminal cases, property-related offenses grouped by kind of offense, 256, there were 1,789 criminal cases, of which 1,452 resulted in arrests (Chiang Mai Provincial Statistical Office, 2018). As a result, crimes have a negative influence on the image, security, and safety of inhabitants and tourists, as well as their personal belongings.

The concerns with the physical environment of the Waroros Market stated above reflect the passage of time, the rise of the economic sector, and the community's existence, including the expansion of visitors who come to shop in this market. The 24-hour usage of the region and the management of the physical environ-

ment within the restrictions creates issues such as limited expansion of roadways, but rather see an increase in automobiles and road users. Additionally, the corridor is small owing to the limited space, which is incongruent with the amount of people that use it. Given that such a physical setting is conducive to a broad variety of crimes, the researchers believe that there should be a means to avoid prospective crimes. This is critical and vital, as the Waroros Market attracts a large number of individuals seeking the services of dealers and buyers. It might be as a consequence of bad guys or fraudsters spotting an opportunity to commit crime, or as a result of the many places in the market that foster insecurity in both the lives and properties of people visiting the area's services. As such, the researcher is interested in the degree of crime prevention management, the physical environment, and the link between the physical environment and the personal characteristics of Waroros Market area users. This is to offer information on the physical environment's management in order to help avoid future crimes in the area.

Research objectives

1. To determine the degree of crime prevention guidelines in the Waroros Market region of Chiang Mai province through the design of the physical environment.
2. To examine the association between individual characteristics and crime prevention management measures in Chiang Mai province's Waroros Market region.
3. To evaluate the human characteristics that influence crime prevention management in Chiang Mai Province's Waroros Market region.

Materials and Methods

This quantitative research examines crime prevention management in four areas: surveillance, access control, area division, and maintenance. The population for this study was divided into four subgroups: 4) client groups or visitors—individuals visiting the Waroros Market region for a variety of purposes, including tourism, shopping, employment, and recreation. Due to the di-

verse and enormous population, a precise population count is impossible. This necessitated the investigator using W.G. Cochran's formula, with a confidence level of 95% and a margin of error of .05, as the basis for the computations utilized in the investigation (Cochran, 1953). The research sampled 400 persons and used a questionnaire as the research instrument.

The researcher determined the questionnaire's reliability using the Cronbach's Alpha Coefficient algorithm. The dependability was 0.964, which was considered to be rather high. In research, two distinct forms of data analysis and statistics are used: 1) Descriptive Statistics: The statistics utilized include frequency, percentage, mean, and standard deviation. 2) Inferential Statistics: Statistics are used to determine if the mean of two sets of data is correlated. Multiple linear regression and analysis were used to determine the correlation between the means of the two variables (Person square).

Result

For quantitative research titled "Guidelines for Managing Crime Prevention in Waroros Market, Chiang Mai Province, Using Physical Environment Design," the researcher would like to present the research results according to the research objectives as follows:

1. From a study titled "Guidelines for Managing Crime Prevention in Waroros Market, Chiang Mai Province Through Physical Environment Design." The results indicated that security was classified as follows: This is to avoid crime by placing sufficient lighting around the store partitions. No. 2 Surveillance: Waroros Market places a premium on appropriate illumination through-

out. No. 3 Access Control: The Waroros Market entrance is monitored via all available channels. No. 4 Maintenance: maintain the building's structure in excellent shape and free of broken or damaged components. As seen in the figure below, the results achieved will provide adequate protection against market crime.

2. The association between individual characteristics and techniques to crime prevention in Chiang Mai Province's Waroros Market region. The results indicated that the area user group was statistically significantly connected with crime prevention management based on environmental design in the Waroros Market area of Chiang Mai Province ($r = 0.182$, $\text{Sig.} = 0.000$). As indicated in Table 1, the average monthly income was substantially connected to crime prevention management based on environmental design in the Waroros Market region of Chiang Mai Province at the 0.05 level ($r = 0.103$, $\text{Sig.} = 0.039$).

3. Personal variables influence the management approach to crime prevention in Chiang Mai Province's Waroros Market region. The results indicated that the group of individuals who used the area had an effect on the management of crime prevention through the design of the environment in Chiang Mai Province's Waroros Market region, with a statistical significance of 0.01. The variables associated with these seven personal aspects can contribute 5.20 percent ($R^2 = 0.052$) to crime prevention management in the Waroros Market region of Chiang Mai Province, with a statistical significance of 0.01. The Standard Error of the Estimate (SEest) is equal to 0.458, and the forecast equation is as indicated in Table 1.

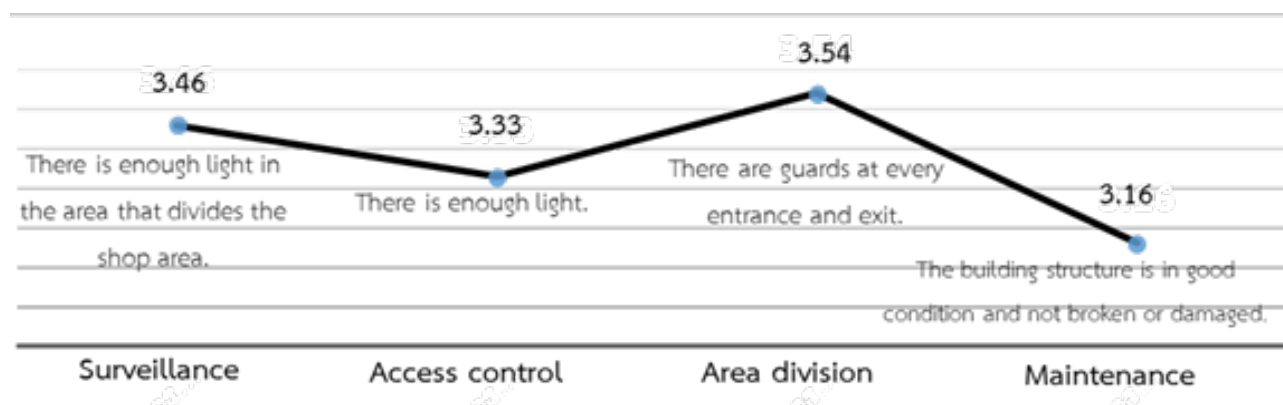


Chart 1: Guidelines for managing crime prevention

Table 1. The findings of a regression coefficient study between personal attributes and a method to crime prevention based on environmental design in Chiang Mai Province's Waroros Market region.

Personal factors	B	Std. Error	Beta	t	Sig.
1. Gender	0.010	0.048	0.011	0.207	0.836
2. Age	0.000	0.002	0.009	0.150	0.880
3. Status	-0.131	0.087	-0.079	-1.503	0.134
4. Occupation	0.019	0.051	0.020	0.367	0.714
5. Education level	-0.023	0.051	-0.024	-0.444	0.657
6. Average monthly income	0.097	0.051	0.099	1.929	0.054

Constant = 3.335, SEest = + 0.458,
R = 0.228, R² = 0.052, F = 0.035, Sig. = 0.004

** sig < 0.01

When the regression coefficients for each variable (B) were examined, it was discovered that the individual user group factors had a statistically significant effect on the guidelines for managing crime prevention in Waroros Market, Chiang Mai province, using physical environment design, with a statistical significance of 0.01. The forecast equation may be stated as follows in the form of raw scores and standard scores based on the findings of the data analysis: In raw score form, the forecast equation serves as a guideline for controlling crime prevention through environmental design: + 0.177 = 3.335 (area user group). The prediction equation for crime prevention management through environmental design is 0.190 (area user group).

Discussion

1. Comments on guidelines for managing crime prevention in Waroros Market, Chiang Mai province, using the physical environment design.

Surveillance has the highest average, and the majority of people believe that the Waroros market is properly illuminated. This might be because Waroros Market has a high number of booths positioned within the market area, and hence sufficient lighting is supplied for the businesses and surrounding market. This is also regarded an effective deterrence against crime. Suwat Kraisakul and Chutapron Kongrukkawin (2015) said that

street lighting installations. Along with improving commuter convenience and travel safety, it is viewed as a crime-prevention tool that contributes to the lowering of crime anxieties. Additionally, the lighting fixtures in the business are an indication of ownership or occupation of the area. This dissuades the villain from adopting the environmental crime prevention paradigm of ordered facility management. Additionally, it establishes ownership of the place or inhabitants, deterring criminals from acting (Purachai Piumsomboon, 1983). Concerning the issue with the lowest average, the general consensus is that the restroom is concealed. This might be because the Waroros Market installs a toilet in a dark corner that is concealed from view, generating an atmosphere of insecurity. Based on the architecture of the user environment in the Waroros Market region of Chiang Mai province, the management method to reducing crime is to upgrade the restroom so that it is located in a safe place and not in a blind spot. This is to eliminate the possibility of wrongdoing and minimize the likelihood of becoming a victim. Given that crime occurs when there is a criminal or a motivation but no potential for crime, if there is a criminal or a motive but no potential for crime, crime will not occur (Utid Suparp, 2017).

The entry and exit routes of the Waroros Market are among the topics with the highest average and greatest degree of opinion. This might be because the

Waroros Market area features several entrances and exits to assist consumers' access to market services. On the other side, it may serve as a conduit for offender looking to enter and commit crimes quickly due to the abundance of escape routes. This is in direct conflict with the suggested standards for developing crime-prevention settings, which include rules for installing access control systems and designing buildings. It informs the individual that the location they are about to visit is private, which leads the attacker to feel they will be investigated if they break in (Purachai Piumsomboon, 1983). The issue with the lowest average and average assessment is that the Waroros Market's entry and departure are clearly visible. This might be because the Waroros Market location lacks clear entrance-exit signage and lacks a prominent landmark. This finding is congruent with Kevin Wongleedee and Siripen Yamjanya's (2012) study, "Market Factors and Safety Factors for Foreign Tourists in Jatujak Market."

The findings indicated a modest degree of satisfaction with the signage and service stations. Based on the architecture of the Waroros Market area in Chiang Mai's user environment, one strategy for crime prevention management is to offer a sign that is clearly visible, easily viewable, of an acceptable size, and covers the market area.

The area with the highest average and opinion score is the provision of suitable illumination at shop dividers. This might be because Waroros Market has an excellent physical environmental management design with regards to lighting management. This instills trust in the area's users, who can readily monitor or detect any irregularities that may emerge as a result of the clarity. This is consistent with a study conducted by Kanit Nienvitton (2011), which recommended "environmental design to reduce the chance for crime in residential areas in Bangkok's urban community." It discovered that external access to shelters, pedestrian management, and lighting systems were all environmental elements inside the neighborhood. Each of the three variables was related with an increased chance of committing crimes against property, life, or the body. The issue with the lowest average and moderate opinion was that each

business owner had a spot to obstruct the entry, making it inaccessible to customers. This might be because the business owner was required to arrange the merchandise without obstructing the entry owing to the facility's architectural design constraints for the numerous points of sale, so creating an opportunity for criminality.

The problem with the highest average and highest opinion is that the building's structure is in good condition and unharmed. This might be because the proprietors of the Waroros Market are well-maintained. According to the notion of maintenance (Maintenance & management), i.e., maintenance and management are related with a sense of ownership and pride in one's place, including well-maintained locations, which would result in reduced crime (Purachai Piumsomboon, 1983). Among the lowest-averaged and most opinionated issues were clean and ready-to-use restrooms. This demonstrates that the toilets at Waroros Market are inoperable, unsanitary, and unclean. This is congruent with the findings of a research done by Kevin Wongleedee and Siripen Yamjanya (2012) titled "Market Factors and Safety Factors of Foreign Tourists at Jatujak Market." The findings indicated a moderate level of satisfaction with public restrooms. The management strategy to crime prevention is based on the user environment design of Chiang Mai Province's Waroros Market region. The maintenance function is to manage the sanitation system and maintain clean restrooms in accordance with the Department of Health and Ministry of Public Health regulations.

2. Individual characteristics: the user group and monthly income are associated with the method to crime prevention management in the Waroros Market region of Chiang Mai province. The findings indicated that area user groups were associated with crime prevention management through the use of environmental design in accordance with the research hypothesis. This might be because each occupant of the Waroros Market requires extensive security in terms of monitoring, zoning, access control, and upkeep. This is consistent with research undertaken by Kanit Nienvitton (2011), titled "The environmental design approach to reducing the chance for crime in residential areas in the Bangkok ur-

ban community." The findings indicated that certain personal characteristics were connected with the chance of committing a crime.

Monthly income correlates with approaches to organized crime prevention that are based on research assumptions about how the environment should be designed. This finding is congruent with Prapon Wiboonsuk's (2001) research, "Involvement of crime reporting members in crime prevention at the Wang Thonglang Police Station." The study discovered a link between income and engagement in crime prevention. This is congruent with a previous study by Rungrawee Sukang (2001), which revealed that income was connected with engagement in crime prevention among sub-district community police members: a particular study at Bang Bua Thong District Police Station.

Individual characteristics such as gender, age, status, occupation, and educational level were not associated with methods to organized crime prevention based on the environment's design in response to research hypotheses. This might be because gender, age ranges, socioeconomic position, occupational groupings, and educational levels all contribute to the development of recommendations for managing crime prevention through physical environment design. The findings contradict 2011 research by Kanit Nienvitton titled "The Environmental Design to Reduce the Opportunity for Crime in Residential Areas in the Bangkok Urban Community." The findings indicated that personal characteristics (age range, socioeconomic position, and educational level) were connected with dependent variables relating to the risk of property, life, and bodily crime in urban residential areas. These disparate findings might be explained by distinct geographical circumstances, indicating that other variables should be studied in future study. The purpose of this study is to determine the efficacy of recommendations for crime prevention through environmental design.

3. User group characteristics influence rules for crime prevention in Waroros Market, Chiang Mai province, through physical environment design. Individual elements in the field of user groups were discovered to have an effect on recommendations for managing

crime prevention in Waroros Market, Chiang Mai province, employing physical environment design based on study assumptions. This is consistent with previous research by Kanit Nienvitton (2011), "The Environmental Design to Reduce the Chance of Crime in Residential Areas in the Bangkok Urban Community," which examined comparable factors. The findings indicated that certain personal characteristics were connected with the chance of committing a crime. This could be because the area's users come from a variety of demographic groups, including merchants, site administrators, and individuals. Additionally, because these variables were self-reported by respondents, they were directly related to the outcome variables. While personal characteristics of area users were shown to be statistically associated, other characteristics such as gender, age, status, occupation, and educational level were not related. The findings contradict 2011 research by Kanit Nienvitton titled "The Environmental Design to Reduce the Opportunity for Crime in Residential Areas in the Bangkok Urban Community." Personal characteristics, age range, socioeconomic situation, and educational level were shown to be associated with outcome factors. As a result, additional research or re-testing of individual variables affecting approaches to crime prevention through environmental design should be conducted. This is because the findings in this study are personal factors that have a cumulative effect of just 5.20 percent on the management of crime prevention based on the design of the Waroros Market environment in Chiang Mai Province.

Conclusion

1. By creating the physical environment as a whole with a modest level of protection, crime may be prevented in the Waroros Market region of Chiang Mai province. When each component was considered, it was discovered that the area with the greatest degree of consensus was "area division," with the highest average, followed by a reasonable level of opinion in all other areas. Maintenance had the lowest mean.

1.1 Surveillance: The Waroros Market is brightly illuminated, which has the highest average grade. The lowest average was the presence

of unambiguous indications with modest response, such as traffic signs or fire escape signs.

1.2 Access control: The entry-exit channel has the greatest average. Waroros Market is comprised of several channels with a high degree of opinion. The least typical aspect was that moderate viewpoints could easily see Waroros Market's entry-exit.

1.3 Area division: The greatest average is the availability of sufficient illumination at the shop divider, accompanied by a high degree of feedback. The least average feature was that each business owner had an inaccessible barrier location, which earned generally favorable feedback.

1.4 Maintenance: With modest input, the greatest mean score indicated that the building was in good shape and undamaged. The cleanliness and accessibility of bathrooms received the least favorable assessments.

2. The association between individual characteristics and crime prevention management principles in the Waroros Market region of Chiang Mai Province. The findings indicated that the area user group was statistically associated with crime prevention through environmental design in Chiang Mai Province's Waroros Market area, at a statistically significant level of 0.01. Additionally, at a statistically significant level of 0.05, the average monthly income was connected with crime prevention through environmental design in the Waroros Market region of Chiang Mai Province.

3. Personal elements influencing the approach to crime prevention management in Chiang Mai Province's Waroros Market region. The findings indicated that the area usage group had a statistically significant influence on crime prevention management in the Waroros Market area of Chiang Mai Province, Chiang Mai Province, at a level of 0.01. The variables associated with these seven personal aspects can contribute 5.20 percent ($R^2 = 0.052$) to crime prevention management in the Waroros Market region of Chiang Mai Province, with a statistical significance of 0.01. Standard Error of the Estimate (SEest) is 0.458 and may be used to create

forecast equations.

Recommendations

1. According to research on crime prevention management through the design of surveillance surroundings, the least frequently seen concern was the absence of obvious signposts such as road signs or fire escape signs. In terms of access management, it was determined that the least obtrusive place was that the Waroros Market's entrance-exit was plainly visible. As a result, authorities responsible for the Waroros Market area's administration should consider making the Waroros Market entrance-exit signs more legible and prominent. incorporating distant road signs and fire exit signs.

2. According to the findings of a study on crime prevention management based on the architecture of the access control environment, the study determined that the region surrounding the Waroros Market had various entry and departure points. Access control is claimed to be more difficult to enforce in public, but can be accomplished through the use of a "psychological barrier." For instance, posting markers, drawing lines on the floor, or erecting barricades to indicate that this is a designated area. The key of psychological barriers is that if a location appears out of place or is more difficult to enter and exit, the offenders' perceptions will change and they will be less inclined to intervene. Therefore, officials responsible for managing the Waroros Market area should consider erecting a barrier across each channel to make it more difficult for people who do not desire to enter and conduct crimes to enter and depart the market area.

3. Based on the findings of a research on crime prevention management and the zoning environment's design. According to the survey, the least common concern was how readily store owners placed their merchandise in an inaccessible location. As a result, people responsible for the Waroros Market area's administration should provide access and exit barriers for each business. Additionally, it is advised that retailers organize their merchandise proportionately to separate the space in front of and within the store to deter criminals.

Recommendation for Further Study

1. Additional elements impacting the rules for managing crime prevention in Waroros Market, Chiang Mai province, should be investigated via the lens of physical environment design. This aims to use the research findings as a guidance for administering the Waroros Market area in Chiang Mai Province as a crime-free zone.

2. Research on similar market segments using the same factors should be increased. This is to consolidate the studies and compare them so that other market segments may utilize them to design the next location.

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