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Environmental Improvement and Urban Crime Prevention: A case Study of Selected Slum Communities in Bangkok, Thailand

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Crime is a global concern, as it is a major threat to human well-being. In this paper, we argue that the issue of crime in modern days, especially in urban cities, is more complex than generally understood. Focusing on selected urban slum communities scattered in Bangkok, Thailand's capital city, we examined and demonstrated how environmental improvement could reduce and prevent urban crimes. A total of 320 respondents randomly selected for structured, face-to-face interviews. Data analysis was carried out through the use of Structural Equation Model (SEM). Results indicate that community-based environmental improvement generated elements that are favorable for crime prevention. These elements include community consciousness, a sense of community ownership and responsibility, community cohesion, and community self-defense mechanisms.

Keywords: *environmental improvement, slum community, crime prevention*

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Introduction

Crime is a prime concern of the people all over the world, rich and poor, as it creates a great deal of personal insecurity and difficulties for their daily life. In every society worldwide, whether they are cities or towns, an enormous amount national and public resources and man powers invested in law enforcement and criminal justice processes have been devoted to combating crimes on a yearly basis. Considering the nature of crime today, such as one associated with drug, it is safe to say that crime not only persists but, in many places, also gets worse. Even in urban areas of developed countries urban crime exists which results in personal and family insecurity. Indeed, crime is a global problem.

Solving the crime problem demands urgent and serious attention. It calls for a radical view of crime for a more adequate understanding of its nature, so that more alternative solutions could be created in a more cost-effective and sustainable manner. In this paper, we attempt to address the issue of urban crime by employing a holistic perspective which takes into account important role of the environment in crime prevention. We intend to add a more comprehensive knowledge on the issue and hope to contribute a more adequate understanding as well as to generate alternative approaches to this problem. Like many contemporary theories and practices which dominate the field of criminology, this study stands on the belief that prevention is better than suppression, correction, and even eradication, for that matter. Moreover, crime prevention approach has been recognized world wide as a contribution to sustainable development as stated in the Annex of Resolution 2002/13 of the United Nations Economic and Social Council (United Nations Economic and Social Council, 2002).

There has been numerous crime prevention approaches developed under the rubric of social science. They appear under different names including, for examples, social bond theory (Gottfredson & Hirschi, 1990), containment theory (Reckless,1970), strain theory (Agnew, 1992), social learning theory (Bandura, 1977), social learning and social structure, reasoned action theory (Fishbein, 1980), crime opportunity theory (Hindelang, Gottfredson & Garofalo (1978), and many more. These preventive approaches share a similar concept which is a combination of community policing and law enforcement. It involves building community self-help, as in neighborhood watches, and strengthening community-based mechanisms in preventing and reducing crimes.

The view that environment plays an important role in reducing and preventing crimes, particularly in the urban areas, has long been recognized. Several studies reported that urban crime is not an individual act randomly happening here and there. Rather, it occurs in "crime hotspots" which are often associated with deteriorated physical environment where certain groups of population with different socio-economic disadvantages live (Taft & England, 1964; Shaw & Mckay, 1969; Newman, 1972; Taylor & Harrel, 1996; Leventhal & Brooks-Gunn, 2000). Some studies suggest that extreme poverty and physical incivilities commonly found in communities with deteriorated environment not only provide a positive context for crime, but also provide undesirable behavioral model for children and adolescents (Farrington, 2007; Castonguay & Jutras, 2008; Pitner & Astor, 2008). Such environments are referred to under different terms in different settings, for example, slums, favelas, skid rows, shanty towns, ghettos, barrios, and so on. Because of this, new approaches to crime prevention often consider environmental improvement as a vital element leading to success.

This new approach that emphasizes improvement of community environment has its origin in the early 19th century. It was linked to "ecological approach to crime prevention" developed by Park and Burgess (1925) at the Chicago School of Criminology. At that time, it was just a broad concept of transdiscipline among environmental science and criminology. More attempts were made by younger scholars from the Chicago School of Criminology in USA. This group of scholars who still had a belief in this ecological approach continued their research on "Environment and Crime Prevention in Town". They proposed a clear interconnection between bad habit (crime) and physical environment and also crime prevention through environmental design (Newman, 1972). A decade later in 1982, this concept led to the development of the "Broken Window Theory" by Wilson and Kelling (1998), who used the term "broken window" to represent a degraded physical environment. These two authors were able to show the relationship between physical deterioration and crime. It was found that high crime rate often occurred in abandoned neighborhood where the physical environments were deteriorated with broken-window houses, trashes, graffiti, and so on. In 1998 Wilson and Kelling published a widely known book, *Fixing Broken Windows: Restoring order and reducing crime in our communities*, proposing a concept addressing urban crime prevention under the assumption that clean and tidy environment could possibly reduce crime rate (Wilson & Kelling, 1998). In other words, improving deteriorated physical environment has a causal relationship with crime elements. The popularity of this concept led to further developments in many countries under different names.

In Cincinnati, Ohio, USA, in 2011, the Broken Windows Theory gave birth to the Neighborhood Enhancement Program (NEP). NEP launched many successful programs with an emphasis on community engagement, especially those associated with victims of crime, empowering them to build a sense of neighborhood with the aim of improving quality of life. As a result, NEP has won numerous awards for its success in urban crime reduction (http://www.cincinnati-oh.gov/community-development/neighborhood-development/nep/). Elsewhere in Japan, the "Operation Flower" program was developed in 2006. It was well received. Report released by one of the neighborhood watch organizations showed that houses with flowers in front had less burglary (Kubota, 2009).

Despite its recognized success and popularity, the environmental improvement as a school of thought still leaves a huge gap for understanding the totality of crime. It is easy to accept that improving deteriorated physical environment could be effective for the victim side of crime. That is, while it can make people who are potential victim more secure, it does not say much about the offender side or the future and potential crime offender, especially the juveniles and youths, all of whom are the main group involved in drug abuse. There is still a major debate and it is too simplistic to say that "improved" physical environments could indeed determine criminal behaviors.

This paper sets to clear this particular issue. It will examine the role the environmental improvement plays, and how this could effectively reduce urban crimes. We expect that some of the results and findings presented in this paper could alter the general views and perceptions about human-environment relationship and as a result generate an alternative approach to effectively dealing with urban crimes.

Ecosystems and Human Well-being

In dealing with a highly a complex phenomenon such as urban crime, we should begin with a conceptual frame of reference that would enable us to have a holistic view of it. In recent years, because of the fact that the environment in broader terms has increasingly become a global concern, new information and knowledge have also been developed as a result. We see that "ecosystems and human well-being" is useful and will serve as a conceptual framework for our study.

Developed as a report of the Millennium Ecosystem Assessment in 2005 by World Resources Institute, this new framework enabled a group of scientists with diverse disciplines to capture a holistic picture supported by key empirical evidences of our current status of the World, our Planet Earth, in which we live and clearly show the profound inter-connection between the Planet Earth and human beings. It gives a new view of a large but single, unified unit referred to as "ecosystem" which is defined as "a dynamic complex of plant, animal, and microorganism communities and the non-living environment interacting as a functional unit". (Millennium Ecosystem Assessment, 2005: v). What is important is that human relationship to an ecosystem can be understood through "ecosystem services" provided by the system for the benefit of human beings in enhancing their well-being. Viewed from an "ecosystem" perspective, human well-being includes the following constituents:

> *the basic material for a good life,* such as secure and adequate livelihoods, enough food at all times, shelter, clothing, and access to goods; health, including feeling well and having a healthy physical environment, such as clean air and access to clean water; *good social relations,* including social cohesion, mutual respect, and the ability to help others and provided for children; security, including secure access to natural and other resources, personal safety, and security from natural and human-made disasters; and *freedom of choice and action*, including the opportunity to achieve what an individual values doing and being …" (Millennium Ecosystem Assessment, 2005: v)

Moreover, ecosystem as a concept could be applied to a wide range of complex systems-from a larger, undisturbed environmental system such as natural forest to large and small human-modified systems such as agriculture, landscape, cities, towns, and community settings. As for communities with high population density referred to as slums in Bangkok or other local names in other big cities worldwide, it can be perceived as an ecological habitat within an urban ecosystem in which the low-income people live.

Viewed in this way, we can place slum communities, our study setting, in a proper context. As far as an ecosystem is concerned, diversity of biological units, of human settlements and cultures, all play a large part in stability and sustainability of the larger system as in cities, nation-states, and the world ecosystem. In other words, urban slums have the right to exist along with other forms of human settlements in the same ecosystem. Urban crimes, to which slum communities are vulnerable, must

be placed in a larger context of human well-being influenced by the multiple ecosystem services flowing from a larger urban ecosystem of Bangkok city. Sustainable development of people's security and well-being needs shared responsibility between the slums and the cities.

From an ecosystem perspective, the community is viewed as a habitat within which the people live and are inseparable part from any malfunctioning and degradation from within. Accordingly, crimes are the end result of a certain individual or group of the community population as a result of community degradation. As such, in order to be adequately understood, crime prevention should be viewed on the basis of the "fundamental crime elements," all of which lead to criminal acts. These include (i) the offender, (ii) the opportunity to do harm, and (iii) the crime victim. All of these elements should be taken into account if crime prevention is to achieve. This is different from the conventional view on combating crimes which largely focuses on tangible evidences, namely reports on criminal cases as the main measurement.

This alternative approach proposes that a more and broarder elements for crime prevention must be evaluated. It puts emphasis on effective *preventive mechanisms* that would address the three fundamental crime elements mentioned above. This approach also calls attention to collective behavioral changes that can affect number of offenders and victims in the community and broader society. Firstly, it involves self-discipline among the people in compliance with social/community order, community rules and regulations and not breaking the law. According to a social action theory (Weber, 1978), personal actions are a result of stimulation; a group of people will be willing to participate in activities in the form of cooperative action. This is more obvious among children. Secondly, it needs a strong, cohesive community relation, the kind of community relation that would reduce the opportunity for offenders to do harms. Thirdlt, strong community-based defense mechanism must be in place, so as to reduce a number of victims of crime. All these will be demonstrated in the analysis that follows.

Methods and Data

(a) Research setting

Eleven slum communities in Bangkok were chosen as the settings for this study. In addition to low income, the selected communities also share relatively poor

physical environment with poor housing and high density of population. Among these, one community was treated as a 'study community' for the reason that it received development program implemented by a non-governmental organization known as the Community Organizations Development Institute of Thailand (CODI). The program implemented in this community focused on development in both physical and social aspects. Physical development aimed to improve the community landscape such as cleanliness, garbage management, streets, planting trees, housing, and children's playground, while social development program focused mainly on environmental education and group activities to raise awareness and sense of belonging among residents. The rest (10 communities) did not have such development programs; they are referred to here as 'comparison communities'. Analysis will address the question of whether improvement of deteriorated physical environment brings about elements that are believed to contribute to crime prevention as proposed by the ecosystem perspective.

(b) Data collection anddata analysis

The quantitative data upon which this analysis is based were collected through face-to-face interview of 320 residents using structured questionnaire. Participants for the interview were randomly selected from all communities included in the study – 160 respondents from the 'study community' and 160 from 'comparison communities'. It is important to note that collection of quantitative data were conducted at one point in time only, no repeat or follow up was attempted. However, since the questionnaire was designed to collect both retrospective and current data, comparison of the results pertaining to the past and current situations in the 'study community' as well as 'comparison communities' is possible with regard to improvement of physical environment and crime reduction elements (as will be shown in Table 2 below).

The questionnaire included the following main variables: (1) improving of environmental network; (2) improving of environmental setting; (3) self-discipline to comply with social order; (4) community relation; and (5) self-defense mechanism. Each of the main variables consists of a set of indicators which are translated into questions to be asked in the questionnaire for data collection. Table 1 gives a summary of variables included in analytical model.

Table 1: Summary of the variables and indicators included in the quantitative interview

Main variables	Indicators
1. Improving of environmental network	1) Environmental education and training program 2) Environmental rehabilitation program 3) Social networking project
2. Improving of environmental setting	1) Housing reorganization 2) Cleaning day campaign 3) Community setting in order
3. Self-discipline to comply with social order	1) Community order in practice 2) Cleanliness in action 3) Level of cooperation with community leadership
4. Community relation	1) Public activities 2) Community information flow 3) Community conflict
5. Self-defense mechanism	1) Moving out of the community 2) Crime prevention activity 3) Outsider detection capacity 4) Civilian self-defense

The data analysis employed Structural Equation Modeling (SEM). SEM is suitable for analyzing a complex research question such as the one being addressed in the present study. In addition to its advantages in identifying path connection between variables at more than one level, it can also give causal relation of the variables in the model while showing strength of the relationship among them. In our analysis here, this is executed through the use of Factor Loading which is scored as beta-weight (influence of latent variable on observed variable) and Total Effect or Direct Effect scores which show influence of independent variable on dependent variable. At the final stage of model development, both Factor Loading and Total Effect scores are used in order to determine whether the environmental improvement *could* increase elements (or factors) that are believed to prevent crime. In the process to demonstrate this, first we shows four SEM models: Model 1 and 2 show the results indicating overall influence of improvement of environmental network (IENN) on improvement of environmental setting (IENS) for 'comparison communities' at two points in time - past and current. Model 3 and 4 show similar results for the 'study community.' Next, path connections (with associated strength and direction) between variables (both latent and observed) are presented (Figure 1). The main objective is to iden-

tify influence of IENN on IENS and all other latent elements that are believed to lead to preventing crimes in the community.

Results

In this study we are first interested to know whether programs aimed to improve (deteriorated) physical environment lead to elements/factors that are believed to prevent crime in the community. The main independent variable here is improving (deteriorated) physical environment (IDE) which consists of two sets of factors. One set consists of the programs aimed to improve environmental awareness among the community residents. In the model this is called "improving environmental network" (IENN) which includes such elements as environmental education program, environmental rehabilitation and social network. The other set consists of the people's actual participation in activities that results in improved physical setting of the community such as reconstructing/rearranging houses, community cleaning campaign and renovating community landscape. This is called "improved environmental setting" (IENS) in the model. To be effective toward crime prevention, the IENN activities must lead to the desired outcome, i.e. improved environmental setting (IENS). Put in statistical terms, IENN must have sufficient strength (expressed in terms of beta-weight or correlation coefficient) to improve IENS and subsequently other elements that are believed to have influence on crime prevention according to the theoretical perspective underlying our analysis. Table 2 demonstrates this.

Table 2: Study sites were set in two groups to test and compare direct effect from IENN (expressed as scores of coefficient) to IENS

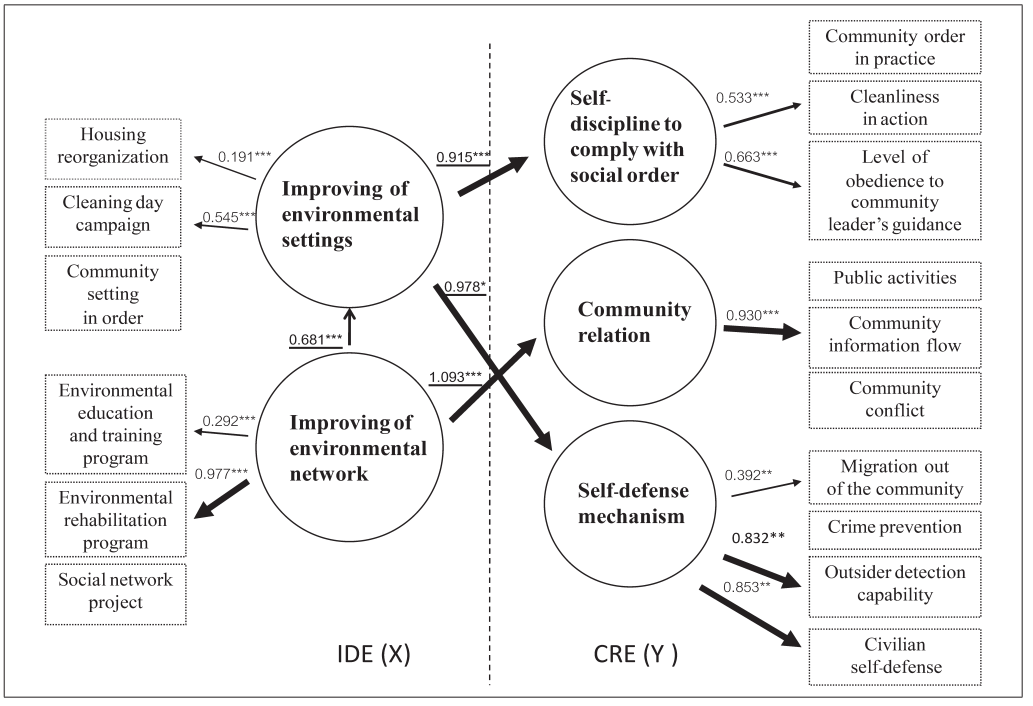
	Comparison communities				**Study community**			
	Past Model 1		**Current Model 2**		**Past Model 3**		**Current Model 4**	
	IENN	**IENS**	**IENN**	**IENS**	**IENN**	**IENS**	**IENN**	**IENS**
IENS	0.154	0	0.332	0	0.649	0	0.681	0

Statistical significance $p<0.01$

As seen in Table 2, level of influence of improving environmental network (IENN) on improving environmental settings (IENS) for the comparison communities at both points in time (past and current) is weak and not statistically significant (models

1 and 2). This can be compared to stronger influence observed for study community (Model 3 and 4). Note that the strongest influence is observed in Model 4. The difference between study community and comparison communities in this respect can be explained in terms of the presence and absence of programs aiming for improving community environment. It may be recalled that, among the communities selected for this research, only study community received physical and social development programs while comparison communities did not have them. As such, the strongest influence of IENN on IENS observed in Model 4 is, perhaps, due to this the presence of program for environmental improvement in the study community. This is of particular interest. Given this, it may worth further investigation into the connections between these two set of factors (IENN and IENS) as well as their connections with other elements that are believed to be favorable for crime prevention. This is shown in Figure 1.

Figure 1: A model demonstrating directions and weight associated with the impact of independent variables on dependent variables



Note: - Variables in □ = observed variable, in = ○ latent variable; 0.xxx = beta-weight; x.xxx = correlation coefficient
- Causal relationship: = ➡ strong (score > 0.80); ⟶ = moderate (score 0.5-.08); ⟶ = weak (score < 0.5)
- Statistical significance: * p = 0.10; ** p = 0.05; *** p = 0.01

In Figure 1 there are two groups of variables/factors. The group on the left includes variables/factors pertaining to improving deteriorated physical environment (IDE) which consists of two main categories: improving environmental network (IENN) and improving environmental setting (IENS). Each of these has a set of elements associated with it which can be empirically measured. In the analysis, all variables/factors under IDE are treated as independent/explanatory variables. The group on the right is treated as that of dependent variables. They include variables/factors that can potentially result in crime reduction elements (CRE). The CRE consist of three main categories: self-discipline to comply with social order, community relation, and self-defense mechanism. Each of these categories has a set of elements associated with it which can be empirically measured.

The overall picture emerged from Figure 1 suggests that improving deteriorated physical environment (IDE) can lead to crime reduction elements (CRE). It is with strong crime reduction elements that opportunity for committing crime in the community could be prevented. Yet, the process in which IDE variables/factors exert their influence on CRE variables/factors is by no means linear and straightforward. Indeed, this is a complex process.

As shown in Figure 1, improving environmental network has statistically significant impact on a number of other variables/factors. These include environmental rehabilitation program (Beta–weight = 0.977, $p<0.01$), environmental education program (Beta-weight = 0.292, $p<0.01$), improving environmental setting (Direct Effect = 0.681, $p<0.01$) and community relationship (Direct Effect = 1.093, $p<0.01$). The first two are endogenous to improving environmental network. Note that, except for impact on community relationships, the impact of improving environmental network on other crime reduction elements (CRE here treated as dependent variable) is not direct; rather it is through improving environmental setting as can be seen in the model. The direct and statistically significant impact on community relationship suggests that improving environmental network can directly improve relationship among residents in the community. Perhaps, this is possible through people's participation in community development programs activities. With improved relationship, flow of information among residents can also be improved. This is believed to result in good understanding among residents which in turn provides an atmosphere favorable for crime prevention.

The impact of improving environmental network on improving environmental setting is moderate but highly statistical significant (Beta-weight = 0.681, $p<0.01$).

This indicates that programs and activities under improving environmental network can actually result in improved (deteriorated) physical environment of the community to a moderate extent. With improved physical environment, people in community are more self-disciplined and hence more willing to comply with community rules and regulations. This is confirmed by strong and statistically significant impact of improving environmental setting on self-discipline to comply with social order (Direct effect = 0.915, $p<0.01$), which in turn shows significant impact on cleaning campaign action (Beta-weight = 0.533, $p<0.01$) and level of respect (obedience) to community leadership (Beta-weight = 0.663, $p<0.01$). On the other hand, improved physical environment also has a strong and significant impact on self-defense mechanism in community (Direct Effect = 0.978, $p<0.10$) which results in improved collective self-defense (Beta-weight = 0.853, $p<0.05$), improved capability to monitor criminal acts from outsiders (Beta-weight = 0.832, $p<0.05$), and people's not wanting to move out of community (Beta-weight = 0.392, $p<0.05$). Ultimately, then, successful improving community environment results in a strong community which is a healthy context of crime prevention.

Discussion and Conclusion

It should be clear from the results given above that improving deteriorated physical environment of in slum community leads to a number of factors that make the community coherent and stronger. Such a community has strong immunity against criminal acts. However, a question may be raised as to how improving deteriorated environment of slums communities could prevent and reduce crime. The answer should be more or less obvious from the above analysis. First, when people in the community participate in activities to improve various aspects of community environment on a regular basis, sooner or later good relationship among them builds up. With good relationship among people in the community a sense of belonging also follows, and this facilitates good information flow. A good information flow makes it difficult for crime offenders, whether members of the community or outsiders, to commit undesirable acts. Moreover, with improved environmental setting – clean streets, improved house arrangement, improved lighting in the community, etc. – it is more convenient to monitor and guard against criminal acts by community members. In such a community there is more possibility for successful crime prevention.

People living in urban slums, particularly adolescent and youth are vulnerable to be in the grip of crime either as offenders or as victims. This study has shown that improving deteriorated physical environment does indeed provide physical and social contexts favorable for crime prevention. The key to success, however, lies mainly in the process involved in programs and activities implemented in the community. It centers on a community rebuilding process which requires active participation of the people themselves, up to the level where they have a strong collective sense of belonging, pride as a member of community and a sense of ownership. In other words, the community becomes strong and healthy. Such a strong community could reduce opportunity for criminal acts and thus reduce victims of crimes. All of these elements would bring about community security and well-being.

In light of this analysis, success in reducing urban crimes does not depend solely on law enforcement but also, to a very large extent, on improvement of well-being of the people through various measures. One such measure which is of vital importance is improving physical environment which should be implemented with full participation, responsibility and mutual respect among community the members.

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