

BEYOND CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN: AN APPROACH TO BUILDING SAFER PUBLIC PARKS IN DELHI

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Abstract: People in urban areas of Indian cities live in fear of crime due to an increase in crime. With ever-increasing urbanization, research constantly shows that crime and the fear of crime are major societal concerns. This research aims to examine the theories and data from environmental criminology that have been successfully applied to planning policy in the West. This study argues that current CPTED approaches require a critical thinking process to produce a safer living environment for the community and develop strategies more appropriately in Indian setting. This study discusses numerous theories and investigations that have been done about techniques based on Indian content.

Key Words: New Urbanism, Crime Prevention through Environmental Design, Crime, Safety, Urban Design.

INTRODUCTION

The world has seen an unprecedented surge in urbanization during the last few decades. Over half of the world's population now lives in cities, with most post-industrialized countries having more than seventy-five percent of their residents residing in urban areas. Increased urbanization has unquestionably had a significant impact on individuals, communities, businesses, nation-states, and the natural environment. Because of the enormous increase in migration combined with a rapid influx of cultural and social values, today's cities are gradually becoming "global-towns". With increased urbanization, however, the issue of public safety and security has emerged as a new difficulty. Delhi, for example, is one of India's 53 megacities and one of the most dangerous. It is one of the most susceptible places in the world for practically all social groups. Fast urbanization leads to endless suburbia, resulting in advancements in the National Capital Regions (NCR), which leads to workplace separation, the absence of recreational and diverse offices, and non-unified development patterns. Unsafe roads or walker walkways provide potential for rise in the levels of frailty and sexual viciousness among people in urban areas because of carelessness in mixed-use zone planning, as and establishment of appropriate public administrations. Furthermore, these regions become hotspots for criminal activity. The city must be secured and made more resilient and supportable as soon as possible. The government of today should protect public safety and security while also expanding its knowledge beyond present policing and security initiatives. There is a pressing need to consider novel new methods of crime prevention. Throughout history, several studies have supported the idea that intelligent urban planning can help to avoid or reduce crime. Various studies have proven how the physical environment influences human behaviour in the past. Deterrents have been designed by urban designers and planners to prevent offenders from committing the crime. Moreover, by creating urban spaces to promote public safety and security, citizens become less fearful of crime and more focused on community development. As a result, cities become more livable cosmopolitan centers with vibrant economies and engaged citizens. This study aims to investigate the safety and security of urban parks of Delhi through the lens of the newly developed theories from Environmental Criminology and suggest suitable strategies.

SIGNIFICANCE OF THIS RESEARCH

Because of a lack of sensitive crime preventive design considerations, the crime infestation of public places in metropolitan areas has jeopardized the community's social sustainability in the urban fabric. The use of inclusive design techniques in public spaces will drastically reduce the area's crime rates. Goal 11 of the Sustainable Development Goals reaffirms the importance of open spaces in cities. 'By 2030, ensure universal access to secure, inclusive, and accessible green and public places, particularly for women and children, older people, and people with disabilities,' says the Sustainable Development Goal. This helps to achieve the eleventh Sustainable Development Goal, which is to "make cities and human settlements inclusive, safe, resilient, and sustainable." To achieve 'urban sustainability,' all city dwellers must have access to open areas where citizens can engage and establish and maintain community.

BACKGROUND

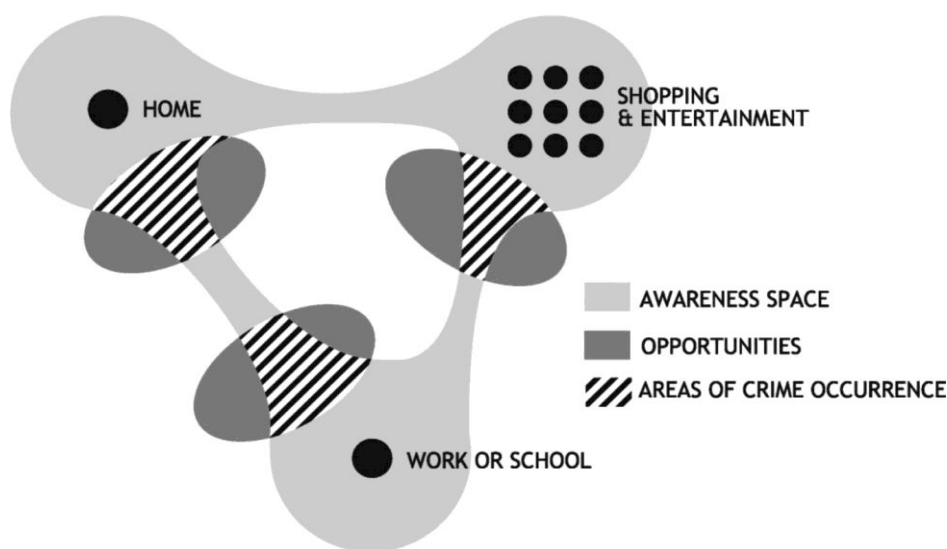
The acknowledged crime prevention theories, which are classed as 'Location-based Classical Theories' and 'Multi-factor Environmental Criminology Theories,' focus on the link between environmental design and human security. "The study of crime, criminality, and victimization as they relate first, to particular places, and second, to the way that

individuals and organizations shape their activities by place-based or spatial elements," according to the definition of environmental criminology (Bottoms, 1997). According to research, crime is not dispersed randomly over metropolitan area, but rather in distinct crime clusters at specific locations and times. The study of 'dangerous locations' has been ongoing since the 19th century and mapping the distribution and demography of crime has a long and illustrious history. The logical roots of environmental criminology are highlighted in this paper (Guerry, 1833; Quetelet, 1835). The ecology of crime was a term used to describe early beliefs about where criminals lived and where crimes were committed. The 'Chicago School' of urban sociologists in the United States plotted offenders' whereabouts (White, 1932). The analysis of the location of offences, on the other hand (Schmid, 1960) and victimization studies in the 1960s and 1970s altered the focus of research on the subject (Brantingham, Residential burglary and urban form, 1975). The idea that urban architecture could impact criminality was promoted by authors such as (Lynch, 1960), (Jacobs, 1960), (Newman, 1973), and (Brantingham, Residential burglary and urban form, 1975).

Further research investigated the 'geography' of crime and the dread of it (Garofalo, 1981). Environmental criminology as an academic discipline evolved through time in the late twentieth century. The distribution of crimes and offenders across the city is not random, and some areas have disproportionately high levels of corruption. In recent years, these "crime hot areas" have gotten a lot of attention, with some arguing that the potential impact of crime and fear of crime on our towns and cities must be addressed right away by urban planners and architects. As a result, environmental criminology focuses on the spatial location of crime and fear of crime, as well as how place-based factors influence people's behaviour. It is based on three connected crime opportunity theories that offer a different viewpoint on topics such as permeable urban topologies, mixed-use developments, and increased densities, as well as promoting cross-disciplinary discourse and, as a result, potentially more effective decision-making.

1. (Cornish, the reasoning criminal, 1986) 'rational choice theory' argues that most opportunistic criminals are sound in their decision-making and recognize, evaluate, and respond to various environmental cues. These are environmental factors and signals within the built environment, which relate to the perceived risk, rewards and effort associated with an offence and are central to the offender's decision-making process.
2. (Cohen, 1979) 'routine activities theory' argues that there must be a motivated offender, a suitable target, and the absence of capable guardians for a crime to occur. Crime is, therefore, more likely at this conjunction of criminal opportunity (Ekblom, 2008). Offenders, like most citizens, have routine daily activities (work/school, visiting friends, shopping and entertainment) during which they might discover or search for potential targets. These everyday activities and travel routes form the 'awareness space' of the offender (Brantingham, 1984).

Figure 1: Awareness space of the offender-Routine Activities Theory, Source: Cozens (adapted from Brantingham and Brantingham (1981)).



Indeed, according to Brantingham and Brantingham (1993, p. 10) "all persons, even those who perpetrate the crime, acquire an awareness space from which crime targets are usually chosen." The 'crime pattern theory' of Brantingham and Brantingham (1981, 1984) aims to comprehend criminals' search and selection processes, as well as how persons and objects linked with crime move around in space and time. Property crimes are concentrated at or near activity nodes and attractors, where people congregate, while crimes against the person are primarily committed at home or in and around drinking establishments (Fattah, 1991). (Brantingham, Patterns in crime, 1984). The house, shopping

centres, work/school, sports areas, parks and recreation centres, and roads linking these nodes are all examples of these locales. Indeed, Felson (2010) observes how daily life is divided into different settings, resulting in significant amounts of crime in Crime and Everyday Life. The following locations are the most dangerous:

- Public routes (mainly footpaths, parking facilities and unsupervised transit areas).
- Recreational settings (especially bars and some parks).
- Public transport (especially stations and their vicinities).
- Retail stores (especially for shoplifting).
- Educational settings (especially at their edges).
- Offices (especially when entered for theft).
- Human support services (especially hospitals with 24-hour activities).
- Industrial locations (especially warehouses with 'attractive' goods).

Furthermore, all of the theories can be categorized as part of the first generation, which focused on ensuring enough visibility, defining borders, preserving a lovely image of the neighbourhood, and preventing outsiders' access to the region. Because it focuses on the social and cultural aspects of the environment rather than the physical element, the second generation CPTED is seen as a complementing supplement to the first generation CPTED. Third Generation CPTED creates a new theory that incorporates human motivation and goals within a neighbourhood, expanding both the situational focus of classic CPTED and the social ecology/neighbourhood focus of Second-Generation CPTED. The third generation of CPTED concepts, which focus on reprogramming urban environment using digital means and other technology interventions, may be more appropriate in the Indian context. It also combines the first generation's surveillance and control philosophy, as well as effective surveillance and control.

Table 1: Summary of all the Theories (1st and 2nd Generation CPTED principles)

Theory	Description	Researcher	Weakness
Rational Choice Deterrence Theory'	Crime is seen as a choice that is influenced by its costs and benefits.	(Clarke & Cornish, 1985)	Assumes that human beings are rational actors who consider the consequences of their behaviour before deciding to commit a crime; however, this is often not the case.
Routine Activities Theory	Crime occurs when there is an intersection of a motivated offender, an attractive target, and a lack of capable guardianship	(Cohen & Felson, 1979)	Neglects to address social aspects of committing a crime, such as personal education, socio-economic status, etc.
Defensible Space Theory	Attributed layout, size of the projects and poor access control as primary reasons for high crime rates	(Newman, 1972) (Newman, 1996)	territoriality could reduce the possibility of crime committed by 'outsiders' but could also increase the risk of crime at the hands of fellow residents or 'insiders'. Unstable social climate not factored in.
Crime pattern theory	seeks to understand the search and selection processes that criminals use and analyses how people and objects associated with crime move about in space and time.	(Brantingham, 1981, 1984)	Criticized for being too focused on individuals instead of groups.
Prospect and Refuge Theory	Environments afford a certain amount of Prospect (long lines of sight, wide-angle of view) and Refuge (multiple exit points close at hand)	(Fisher & Nasar, 1992).	The degree of prospect and Refuge and also how the mystery would be perceived as comfortable in a natural or an Indian urban context remains unexplored.

3.1 Crime Prevention Strategies:

The physical dimensions of CPTED are used in situational crime prevention (SCP) theory. Nonetheless, it focuses on current, specific crime concerns rather than forecasting crime problems for new developments based on previous experience with similar designs. SCP is also strongly tied with environmental criminology and uses problem-oriented policing's problem-solving paradigm (Goldstein, 1990). Both approaches have action research as a fundamental theme. The issue is investigated, hypotheses regarding the major drivers are generated, a variety of solutions are discovered, selected measurements are operationalized, and the results are assessed. SCP is based on a crime-prevention approach developed by the British Home Office in the 1960s and 1970s (Clarke, 1997). It is mostly micro-scale in nature, is crime-specific and multi-tactical in nature, and is largely affected by opportunity theories, which support environmental criminology. Clarke (1997) developed 16 aspects to SCP by expanding on early SCP theories. These have since been increased to 25 (Cornish, 2003) and go beyond typical physical interventions like CPTED. The 25 intervention strategies are listed in the table below.

Table 1: Situated Crime prevention pointers for reducing opportunity and motivation for crime

Reduces opportunities for crime			Reduces chances and motivations for crime	
Increase the effort	Increase the risk	Reduce the rewards	Reduce provocations	Remove excuses
Target harden	Extend guardianship	Conceal targets	Reduce frustration and stress	Set rules
Control access to facilities	Assist natural surveillance	Remove targets	Avoid disputes	Post instructions
Screen exits	Reduce anonymity	Identify property	Reduce emotional arousal	Alert conscience
Deflect offenders	Utilize place managers	Disrupt markets	Neutralize peer pressure	Assist compliance
Control tools/weapons	Strengthen formal surveillance	Deny benefits	Discourage imitation	Control drugs and alcohol

SCP now includes temptations, inducements, and provocations in addition to opportunity. (Wortley, 2008) organized the SCP categories of removing excuses and lowering provocations into a framework of 16 Situational Precipitators (Cornish, 2003). There are four ways in which the immediate environment can influence criminal behaviour. Environmental cues can lead to criminal behaviour, while social forces can put pressure on people and push them to commit crimes. Situational variables can erode moral restrictions and allow criminal behaviour to flourish, while the surrounding environment can also encourage criminal behaviour. Some of these criminal precipitators are related to urban governance concerns and a lack of integrated planning in an entertainment zone within the night-time economy, according to a study by (Cozens, 2009). For example, there are insufficient public transportation and taxi ranks, a concentration of major venues, and a dearth of restroom facilities. **3.2**

Bringing Situational Crime Prevention theory as part of CPTED to Urban Public Parks:

According to Felson and Boba (2010), one of the most dangerous criminal environments is public parks. Urban public parks provide nature in metropolitan areas, yet they can also be a hotbed of criminal activity. Green spaces that are well-maintained are very important for parents with infants, children, elders, people who work near the recreation center, and people who live nearby. Parks provide opportunities for social interaction, mental well-being, and general physical fitness. Outside time also helps with mental health, negligence, grumpiness, and impulsivity.

In the context of Delhi, public park security and safety is becoming an important concern in today's social orders. Districts and police departments are always on the lookout for new ways to prevent crime. Crime Prevention Through Environmental Design (CPTED) is a widely used general approach to preventing misbehavior in many settings. Well-kept trees and foliage in parks, regulated plants, proper lighting, and adequate park furniture are some of the parks' tactics for creating clear sightlines and advancing regular observation. The placing of park furniture can serve as a source of checking while also enhancing social bonds among park visitors. In large parks, litter, spray painting, and other concerns are common. Interstitial space evacuation can assist eliminate wrongdoing openings in parks while also facilitating access for customers with special needs. The "theory of permeability" is based on the notion that higher degrees of confinement indicate prospective hazards and opportunities for an offender to hide; thus, highly enclosed areas generate a sensation of panic.

Visual permeability refers to the degree to which the features of an area can be seen by an individual without interruption. A sense of enclosure or spaciousness can be moderated by the size, type, and density and foliage of vegetation, as well as the form of landscape elements. Vegetation height in a setting determines the close and distal borders and affects the sense of enclosure.

When compared to other visual border features, the shape of walkways and trails inside a park might influence the perceived spaciousness and safety perception (e.g., trees, fences, walls, etc.). Paths and trails are horizontal regions that are substantially connected with perceived spaciousness and locomotive permeability. Wide paths surrounded by permeable vegetation could appear to be more spacious than narrow paths with high barriers. Furthermore, the perceived spaciousness of a path might be negatively related to its elongation, which is defined as the ratio of the apparent length to the width of the way. The sensation of being afraid might be heightened. Winding park walks and natural trails, especially when surrounded by deep forest, might heighten a person's dread. In addition, the route's demarcation and surface material have an impact on the landscape's readability, which is another aspect that may influence perceived protection. The degree to which the environment provides signs of orientation and wayfinding is termed as landscape readability.

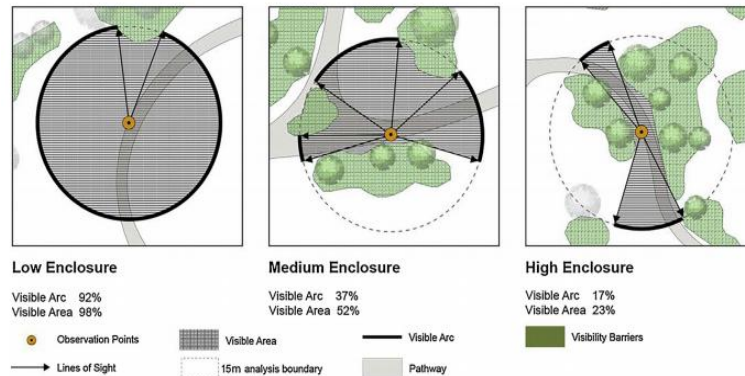


Fig 2: Mapped indicators of degree of enclosure: Examples for low enclosure, medium enclosure, and high enclosure environments.

METHODOLOGY

A mixed-method approach will be utilized to analyze the efficiency of CPTED for parks to determine the viability of proposing SCP in a public park in Delhi. This mixed-method technique involves gathering, evaluating, and mixing qualitative and quantitative data without tying the two together. The main goal of combining qualitative and quantitative approaches is to gain a deeper understanding of the issues being investigated. The inventory in this study was based on crime mapping, field inspection, people counting, and interviews.

The study area which this report focuses was also known as one of these criminal hub parks of Delhi, which is developed and maintained by the Delhi Development Authority, in the locality of Mayur Vihar phase 2. Sanjay Lake is an artificial lake developed by Delhi Development Authority (DDA) in Trilokpuri in East Delhi, India, adjoining Mayur Vihar II residential area. The lake is Spread over an area of approximately 17 hectares (42 acres) in the middle of a 69 hectares (170 acres) forest area, also known as Sanjay Lake Park. Sanjay Lake was developed in the 1970s by DDA and opened in 1982. The lake attracts some migratory birds and has many indigenous trees. The area of the park is 687965.5 sq. M. = 170 Acre = 68.796 559 181 hectares and the Land-use is Recreational. The park has been revitalized with the creation of pedestrian paths, defined entryways, and a boundary wall along the lakefront. However, there are still instances of mocking, burglary, and robbery. Residents now use the park for morning walks and playground activities, but they remain concerned and avoid going there after dark. Although the park was intended and advertised as a public park, previous concerns still exist in the neighborhood, and a long-term solution has yet to be found.

CPTED Principles	Crime Mapping	Field Inspection(Audits)	Users Interviews	Online Survey
Surveillance		yes	yes	yes
Territoriality	yes	yes		
Access Control	yes	yes	yes	
Target hardening		yes		
Activity support		yes		yes
Image of the place		yes		yes

Here the crime-prevention-through environmental–design (CPTED) features shall be identifying those factors that increase the probability of crime and disorder. These can be static (such as the geographic location, or offenders' age and sex) or dynamic (such as the maintenance quality or the offenders' attitudes). The audit can help to identify the

factors one can change, as well as those that you should protect. Further, In the Field inspection a Safety and Security audit can help to identify the factors are:

1.Lighting

- a. Is the lighting sufficient to allow a person to get a good look at another person from a reasonable distance (12 to 15 feet)?
- b. Have you chosen and maintained landscaping elements in such a way that light is not blocked?
- c. Have lights been put in locations where evening activity is appropriate, rather than in areas where nighttime activity is prohibited?
- d. If the park is intended for night use, how well does the lighting illuminate pedestrian paths?
- e. Are there any evening activities (such as baseball games or nighttime nature hikes) that attract visitors after dark?
- f. Clear sightlines are critical because they allow people to see without being obstructed. Is it possible to see most of a small park or play area from the street?
- g. Are there any homes or businesses that overlook tiny parks or the margins of larger parks?
- h. Do walkways have clear sightlines, particularly where they curve or change grade, allowing people to see into and out of a space?
- i. Have we chosen and maintained our landscape materials in such a way that they do not obstruct sightlines from the street or along paths?

2: Movement Predictors:

- a. Do people have a choice of routes to and from areas of the park?
- b. Is there more than one entrance or exit, especially when there is a fence around a play area or a small park?
- c. Are there activity anchors located near movement predictors, where appropriate?

3.Entrapments :

- a. Is there low-lying or high-branching vegetation along the path's side, rather than trees and bushes that criminals can use as entrapment spots?
- b. Are our children's play structures designed to prevent entrapment in the equipment or within a fenced area?
- c. Are toilets designed to avoid hidden corners or entrapment zones?

4.Signs

- a. Are there clear directions to important sites of interest on park entrance signs? • e. Are there signs at key decision locations, such as the crossroads of two main roads?
- b. Do area locators have a map of the immediate region with an expansion to show where people are in the park and where the nearest park headquarters and exit routes are?
- c. Are there signs indicating where and how people can seek assistance and report maintenance issues? • Are the park's operating hours well marked?
- d. Are there identification numbers conspicuously displayed on park telephones that are known to police and park personnel?

5. Activity Generators

- a. Are activities grouped or located near the park's edges?
- b. Are there any additional activity generators nearby, such as refreshment kiosks, where children's playgrounds can be found?
- b. Does the design of smaller parks or miniparks allow for refreshment stands?
- d. Does the park include a variety of seating options for visitors?

6.Maintenance

- a. Is there a clear party responsible for park maintenance?
- b. Are there signs of physical disorder (e.g., garbage or graffiti)?
- c. Do mown edges of three to four feet along paths or near plants and trees indicate that these areas are naturalized through intent rather than neglect?
- d. Where an area has deteriorated because its capacity has been exceeded, can planners design the environment to be more resistant to deterioration, or can they move activities to other sites to allow regeneration?
- e. Are there signs and garbage cans to encourage community responsibility?
- f. Do larger parks provide recreational opportunities beyond team sports and children's play—e.g., community gardens, small zoos or farms, puppet shows and plays, and seniors' activities—to encourage a diversity of users?
- g. Do Park activities and design encourage a diversity of users, or do some users take over the park and drive out other users?

- h. Are neighborhood parks designed to accommodate a range of activities (e.g., space for street vendors, street entertainers, concerts, picnics, food services, and green markets), even if they are intended primarily for passive use?
- i. Do scheduled park activities accommodate a range of interests and park users?

7. Formal Surveillance

- a. Is official park surveillance provided by either the police or park personnel?
- b. Do park employees know how to handle different types of emergencies?
- b. Is security training provided to park employees?
- d. Does the park have a written safety plan that includes printed materials, signs, and interpretive programming?
- e. Does the parks department have a safety officer who is responsible for the entire park system?

Traditionally, CPTED has focused on the etiology of social and psychological reasons and has offered situational solutions rather than addressing "root causes." The proposed approach in this study lends more weight to situational aspects in crime and how potential offenders consider them, providing a better conceptual grounding for situational prevention. Emphasizing criminals' decision-making helps us understand why crime relocation (to another time or place, for example) is not a foregone conclusion of situational measures. Criminal psychology has long held the belief that some people are more likely to commit crimes than others. They believe that criminals who are psychologically unstable commit more crimes because of their mental depravity or emotional instability. They also believe that, in addition to psychological factors, sociological factors such as a lack of education, unskilled labour, and poor sanitation facilities can contribute to inferiority complexes, with the result being that people try to compensate for their flaws through unrealistic self-assertion, which leads to criminality. Various examples of successful situational measures, as well as a general pessimism about the efficiency of other means of crime control, may cause one to believe that situational prevention will become more popular. There is limitation to this approach since difficult to persuade people and organizations to take the necessary action and prevent the risks of victimization.

4.1 Some ways to reduces opportunities and motivations for crime in the context of public park exploring motivation, provocations and excuses for crime are:

1. Improving coordination of public transportation with the office closing time near the park.
2. Improving better housing by changing the land use adjacent the park.
3. Psychological assessment of the risk, rewards morality of the act in question of the offender.
4. Developing more sense of "ownership" and "belongingness" among the residents of the adjacent park.
5. Using displacement bias, where displacement can take many different forms and is usually divided into five categories (Repetto, 1974). An offender may attempt to commit the offence elsewhere (geographic displacement) or at a different time (temporal displacement), change his modus operandi (tactical displacement), choose a different target or victim (target displacement), or turn his attention to a completely different type of crime in response to blocked opportunities or increased risks in relation to a specific offence (activity- related displacement).
6. Passers-by may be deterred from entering the park due to the extreme Target hardening. Porous borders can encourage all user groups to utilize the system 24 hours a day, seven days a week.

CONCLUSION

Existing perceptions of urban public places and residential neighbourhoods can be modified or updated. Culture-oriented strategies exploring the situational crime prevention plan will require greater patience and tolerance on the part of Indian management to achieve the desired results. Although short-term changes in a social system's values, attitudes, and beliefs are unlikely, long-term and mid-term behaviour should be considered. Citizens must recognize that the only ones who can reform institutions with greater zeal and are actively active in public movements are citizens. The study identifies characteristics linked to increased crime in parks and their environs. It was also discovered that violence is not evenly distributed throughout the metropolitan landscape. Some park areas have a lot of crime, while others have little to none. As a result, while the presence of neighbourhood parks is frequently linked to an increase in crime, the association between parks and crime is not consistent between areas. More research is needed to understand better the relationship between the characteristics of the park's community and the park's role as an amenity or a nuisance. A report like this will consider the socioeconomic features and built environment of the community where the park is located. Qualitative research on the different types of people who visit the park and charting their behaviour over the year will also help to understand park dynamics better. Only through gaining such insights will we be able to get a better understanding of the dynamics of the community's park presence, utilization, and crime. Situational crime prevention is a method that incorporates a variety of practical and common-sense approaches to crime prevention. It depicts the day-to-day measures that individuals and organizations can employ to safeguard themselves and their assets.

BIBLIOGRAPHY

- [1] Bottoms, A. a. (1997). *Environmental criminology (Vols. In The Oxford handbook of criminology,)*. (M. M. Maguire, Ed.) Oxford, UK: Clarendon Press.
- [2] Guerry, A. (1833). *Essai sur la Statistique Morale de la France avec Cartes*. Paris: Crochard. .
- [3] Quetelet, A. (1835). *Sur L'homme et le Development de ses Facultes; Essai de Physique Sociale*. Paris: Bachelier.
- [4] White, C. (1932). *The relation of felonies to environmental factors in Indianapolis*. *Social Force*,10, 498–509.
- [5] Schmid, C. (1960). *Urban crime areas: Part I*. *American Sociological Review*, 25, 224-237.
- [6] Brantingham, P. J. (1975). *Residential burglary and urban form*. *Urban Studies*, 12, 273-284.
- [7] Jacobs, J. (1960). *The death and life of great American cities*. London: Jonathon Cape.
- [8] Lynch, K. (1960). *Image of the City*. Cambridge, MA: MIT Press.
- [9] Newman, O. (1973). *Defensible space people and design in the violent city*. London: Architectural Press.
- [10] Garofalo, J. (1981). *Crime and the mass media: A selective review of research*. *Journal of Research in Crime and Delinquency*, 18(2), 319–350.
- [11] Cornish, D. a. (1986). *The reasoning criminal*. New York: Springer-Verlag.
- [12] Cohen, L. a. (1979). *Social change and crime rate trends: A routine activity approach*. *American Sociological Review*,44:, 588–608.
- [13] Ekblom, P. (2008). *Crime risk assessment/crime impact assessment Available at <http://www.designagainstcrime.com/files/Crime%20risk%20assessment%20crime%20impact%20assessment.doc>*.
- [14] Brantingham, P. J. (1984). *Patterns in crime*. New York: Macmillan Publishing Company.
- [15] Fattah, E. (1991). *Understanding criminal victimization: An introduction to theoretical victimology*. Scarborough, Ontario: Prentice-Hall.
- [16] Felson, M. a. (2010). *Crime and everyday life*, , 4th ed. Thousand Oaks, CA: Sage Publications. .
- [17] Goldstein, H. (1990). *Problem-oriented policing*. New York: McGraw-Hill.
- [18] Clarke, R. (1997). *Situational crime prevention: Successful case studies*, , 2nd ed. New York: Harrow and Heston.
- [19] Cornish, D. a. (2003). *Opportunities, precipitators and criminal decisions: A reply to Wortley's critique of situational crime prevention*. . *Crime Prevention Studies*, 16:, 41-96.
- [20] Cozens, P. a. (2009). *Designing crime precipitators in Northbridge after dark: Urban governance in slumber*. *Annual State of Australian Cities Conference (SOAC): City Growth, Sustainability, Vitality and Vulnerability.*, (pp. 24–27). Sydney.
- [21] Wortley, R. 2. (2008). *Situational crime precipitators*. *Environmental criminology and crime analysis*, 48-69.
- [22] Reppetto, T. A. (1974). *Crime Prevention and the Displacement Phenomenon*. Cambridge,Mass: Cambridge,Mass.
- [23] (n.d.).
- [24] Paul Michael Cozens (2011) *Urban Planning and Environmental Criminology: Towards a New Perspective for Safer Cities*, *Planning Practice & Research*, 26:4, 481-508.