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CCTV PLACEMENT IN GABORONE CITY, BOTSWANA: A CRITICAL REVIEW THROUGH THE LENS OF SITUATIONAL CRIME PREVENTION THEORY

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ABSTRACT

Public surveillance technology through the installation of Closed-Circuit Television cameras (CCTV) has been widely acknowledged as a tool for monitoring population movements and preventing crime. Based on this technological value, the installation of CCTV cameras has become a growing trend in many cities globally. The year 2018 will be remembered as the year when CCTV cameras were first installed in the city of Gaborone, Botswana, and its surrounding villages for purposes of detecting criminal activities and preventing crime. The value of CCTV cameras in preventing crime and as an investigative tool has been an area of interest among researchers. Among scholarly studies on this field, the focus has been on the effectiveness of CCTV cameras in preventing crime and their value as an investigative tool. Since CCTV cameras have just been installed in the city of Gaborone, it may be too early to evaluate the extent to which they effectively prevent crime in this city. The purpose of this study is to document the use of public surveillance cameras in Gaborone and its surrounding areas and assess their geographic placement in light of the principles of Situational Crime Prevention (SCP) theory. Using data collected through site observation and key informant interviews, we argue for a rigorous review and assessment of the current installation and placement of CCTV cameras in Gaborone city and further scholarly study to measure and evaluate the effectiveness of CCTV camera use for crime prevention in this city.

Keywords: CCTV camera; Situational Crime Prevention (SCP); public surveillance; Gaborone City; Botswana

INTRODUCTORY BACKGROUND

Policing strategies are normally influenced by the escalation of crime and criminal activities. Traditional policing methods like the use of informal surveillance or foot patrols have proven to be having little impact on crime prevention and reduction (Goold, 2004). To keep up with high crime rates, a majority of developed countries have modernized their policing strategies through the utilization of modern technology. For instance, the people of the United Kingdom have, for the past decade, been the most-watched citizenry in Europe through the use of Closed-Circuit Television (CCTV) cameras (Goold, 2004). Modern policing has been taking precedence where the use of CCTV cameras seemingly demonstrated to be successful in reducing crime (Welsh & Farrington, 2010). The deterrent value of informal surveillance lies in the constant physical presence or visibility of either community members or the police. However, it has to be noted that "*the police cannot be everywhere at once*" (Burke, 2009, p. 363).

Botswana is a landlocked country in Southern Africa sharing borders with South Africa, Namibia, Zambia, and Zimbabwe. In the year 2018, Botswana deployed CCTV systems in its capital city, Gaborone, and the surrounding villages such as Tlokweng and Mogoditshane. Gaborone is the largest city in Botswana, with an estimated population of 230,700 (Statistics Botswana, 2013). The city is surrounded by Mochudi village in the north, Tlokweng in the east, Ramotswa in the south, and Mogoditshane in the west. Residential areas in Gaborone include Phakalane (located around 20 km north of the city), several Extensions, Naledi, Broadhurst, Phases, Blocks, Gaborone West, The Village, and New Canada. As of 2019, the city had eight major shopping malls: Molapo Crossing, Fairgrounds, Main Mall, Station Mall, Airport Junction, Game City, African Mall, and Riverwalk. Gaborone city also has one international airport, Sir Seretse Khama International Airport, and a train station providing service within the country. There are five major exit roads from the city and three highways in and around the city.

The most prevalent criminal activities in the city are crimes of opportunity like smash-and-grabs from parked cars and cars in traffic, purse snatching, traffic law and regulation violations, for instance, going through red traffic lights, driving while using a cellphone, driving under the influence of alcohol, and residential burglaries (Overseas Security Advisory Council, 2019; Statistics Botswana, 2019). These opportunistic criminal activities require the constant presence of either members of the community or police officers on patrol, which cannot always be possible. CCTV cameras have been well-known for criminal deterrence and crime prevention as they provide round the clock observation or surveillance (Caplan, Kennedy, & Petrossian, 2011). The cameras reduce the physical opportunities for committing crimes and increase the risk and chances of an offender getting caught. They identify and deter criminals from committing crimes as they record every act. Within the circle of scholars, the value of CCTV cameras in preventing crime and as an investigative tool has been an area of research interest. Among scholarly research in this field, the focus has been on the effectiveness of CCTV in preventing crime and their value as an investigative tool (Caplan, Kennedy, & Petrossian, 2011; Department of Justice, 2011; Ditton & Short, 1996; Phillips, 1999; Tilley, 1993; Welsh & Farrington, 2010). It is however imperative to note that CCTV cameras are effective only to the extent that they are strategically placed. Despite this, research focusing on assessing the placement of CCTV cameras has been relatively lacking. This study aims to document the use of public surveillance cameras in Gaborone city and its surrounding areas.

It assesses their geographic placement in light of the principles of Situational Crime Prevention (SCP) theory. In doing so, the paper assesses whether or not the cameras are installed at optimal locations. In addition, the study also observes the grey areas or the blind spots surrounding the cameras, identifies the hotspots that are not within the viewing range of cameras, and examines the extent to which the installation and placement of CCTV cameras consider the balance between the idea of providing safety for the public and respecting the privacy of citizens.

THE VALUE OF CCTV AND SITUATIONAL CRIME PREVENTION APPROACH

Defining Closed Circuit Television (CCTV)

As mentioned, the use of Closed-Circuit Television (CCTV) Cameras has become an essential crime prevention tool used by security and police departments in many cities. Generally, CCTV is defined as:

"*Electronic monitoring systems which make use of video cameras, connected by means of a 'closed' (or non-broadcast) circuit, to capture, collect, record, and relay visual information about the event-status of a given space over time*" (Deisman, 2003, p. 7).

CCTV involves electronic observation of people and activities taking place at a particular location, for the purpose of obtaining information regarding people's identities and their activities (Lyon, 1994). In instances where a CCTV operation is in action, it is referred to as surveillance. Through surveillance, images and videos are recorded and transferred remotely to a monitor, where they are available to be stored, watched, and reviewed. This makes it easy for the police to respond quickly to the incident as they notice potential criminal activities streaming on the monitor screen.

There are several types of CCTV systems with different objectives. This includes the following: a static system where the cameras are not moving as they focus on a single view; a fixed system where the cameras are constant and permanently installed in one place; a pan-tilt-zoom system known as PTZ system where the cameras swing in a vertical or horizontal plane to follow a subject; and a mobile system where the cameras are placed in police vehicles generally used for speed traps (U.S. Department of Homeland Security, 2013).

Situational Crime Prevention: An Explanatory Framework

The current study is based on the analysis of the installation of CCTV cameras in and around the city of Gaborone. It is framed within a combination of the theoretical perspectives of Situational Crime Prevention (SCP) and Opportunity Theories of Crime. While traditional criminological perspectives look at the root causes of crime in order to combat it, these perspectives instead focus on the convergence of specific circumstances in time and place that create opportunities for offending to occur in a more predictable fashion (Santos, 2013). The underlying assumption as proposed by Clarke (2003) is that there is a relationship between the physical environment and crime. To effectively combat crime, an understanding of various circumstances that culminate in a

criminal event should therefore take precedence over attempts to understand the reasons behind a specific offender committing a specific crime.

The concept and practice of SCP is predicated on the underlying assumption that "*criminal behavior is predominantly rational and autonomous….and capable of adjusting and responding to adverse consequences, anticipated or experienced*" (Clarke, 2003, p. 365). It also draws on the penal principle of certainty of punishment where certainty is "*the probability of apprehension and punishment*" (Burke, 2009, p. 47). Installation of surveillance cameras represents a manipulation of the physical environment to increase the risk of detection and subsequent apprehension. It is not just the notion of being seen on its own that is deterrent, but equally important is that of being seen by someone who is likely to take appropriate punitive action. The presence and most importantly, optimal positioning of CCTV technologies, minimizes target vulnerability and therefore, the risk of victimization (Burke, 2009). The lower the risk of being caught and the higher the reward, the more likely a target will be selected. Target selection is a systematic process derived from a calculation of the risks, opportunities, and conveniences as determined by an offender at a particular time and place (Burke, 2009; Santos, 2013). Consequently, this makes offending more predictable regardless of whether the offense is that of violence, property theft or a traffic violation (Wang, Rudin, Wagner, & Sevieri, 2013). As Brantingham & Brantingham (1981, p. 128) noted, crime is a complicated event which "*occurs when four dimensions are in convergence: law, an offender, target and a place. Without law, there is no crime. Without an offender, someone who breaks the law, there is no crime. Without some object, target or victim, there is no crime. Without a place in time and space where the other three come together, there is no crime. These four elements, law, the offender, the target and the place are characterized as four dimensions of crime*".

SCP is typically focused on the third and fourth dimensions of crime – target and place. Or as suggested by Clarke (1983), SCP is a multi-stage approach to crime prevention that focuses on the reduction of criminal opportunities through target hardening, environmental management, and surveillance. By providing "*intervention in the sequence of decisions that the potential offender has to make*" (Burke, 2009, p. 52), the presence of CCTV technologies subsequently curtails opportunistic offending by increasing the risk of detection and punishment. In specific situations crime hosts are altered in such a way as to make them less suitable for offending. This suggests that target selection is not an ad-hoc exercise. Those targets (persons and inanimate objects such as property or buildings) reflecting higher potential payoff and placed in an area where the offender can easily escape without being seen are more likely to be selected (Burke, 2009). SCP is based on an analysis of the frequent occurrence and distribution of a given crime problem by asking questions such as when, where, and how the crime occurred (Clarke, 1995). The approach then identifies risk factors, formulates and implements appropriate preventative measures, and evaluates the results. This position is buttressed by Burke (2009). In Burke's views, the deterrent effect of electronic surveillance using CCTV cameras lies in their ability to provide round the clock observation, identification of suspects through footage, increased chances of apprehension as well as heightened possibility of punishment. To further refine the theory, Clarke (1997) identified twenty-five (25) techniques of situational crime prevention. These techniques are grouped into five (5) categories: (1) increasing the effort; (2) increasing the risks; (3) reducing the rewards; (4) reduce provocations; and (5) remove excuses. These techniques outline the strategies that help to tackle

a crime problem based upon the fundamental effort, risk, reward, provocation, and excuse criteria. In light of categories developed by Clarke, Anderson & Pease (1997) added that the motivation for criminal offending is not always caused by an individual or societal construct but merely related to immediate opportunities identified by individuals.

The use of SCP theory is often compared to a researcher being involved in an investigation. Russo (1997), for example, noted that the SCP approach mirrors operation research because the researcher works closely with people who actually do the job. The researcher engages with essential stakeholders such as academia, police, practitioners, and private industry to design and build products and policies with reference to situational crime prevention principles of designing out crime (Ekblom & Tilley, 2000). The researcher then pinpoints the problem and collects data. In some instances, data is collected before a problem is identified or when the problem is difficult to define. After solutions or policies have been adopted, another set of data is collected to discover whether or not solutions adopted were successful. Sherman, Gartin, & Buerger (1989) also noted that crime seems to be preventable when preventative measures or criminal justice policies are derived from criminological theories. In addition, Barlow & Decker (2009) indicated that theoretically based prevention strategies are practical and efficient ways to manage a variety of criminal offending.

The identification of situational contributions to offending can lead to effective crime prevention programming. McLean, Worden, Kim, Garmley, & Bonner (2010) examined how the characteristics of some places contribute to opportunities for crime and victimization. Their study evaluated the implementation of a collaborative program which intended to improve personal safety within a small location. Though the intended mandate was to address the personal safety of potential victims, the strategy was also successful at indirectly altering the perceptions of potential offenders by hardening the location. This agrees with the position of Burke (2009), who suggests that offenders are deterred when they believe that they might be caught. Increased probability of apprehension increases the certainty of punishment, which is a more effective deterrent than severity of punishment. The study suggested that the specific context of criminal events is comprised of the offender, victim, and spatial attributes. As such, effective crime prevention requires a deeper understanding of each component. Hirschfield, Newton, & Rogerson (2010) also provided evidence of the importance of target hardening strategies. Their research examined the specific details such as timing, location, and *modus operandi* in domestic burglaries in Liverpool, England that occurred between the years of 2005 and 2007. This study found that the analysis of neighborhood burglary as a whole is less informative than a specific analysis of individual residences. Such evidence strengthens the importance of identifying the unique nature and context of individual criminal events.

Implementation of strategies like CCTV can benefit society by increasing safety and reducing crime rates. However, it is still not clear whether or not the use of CCTVs can effectively prevent crime. In this context, more research focusing on the intersection between crime prevention strategies and criminological theories is certainly required.

CCTV and Crime Prevention

CCTV is a situational crime prevention technique that remotely keeps citizens under surveillance to ensure public order and safety (Akers & Sellers, 2009). Some literature proved that CCTV installation is more effective in deterring certain types of crime than others. In particular, it is seen as having an impact on property crimes, especially burglaries, and theft of and from vehicles. In their study on the role of CCTV in reducing burglaries and the level of fear of crime in houses, Chatterton & Frenz (1994), for example, found that the use of CCTV in housing was effective in reducing burglary. Phillips (1999) reviewed studies that evaluated the effectiveness of CCTV in reducing crime, disorder, and fear of crime in different sites. He found that CCTV can be effective in deterring property crime but only to a certain extent when it comes to personal crime, public order offenses, and fear of crime.

CCTV surveillance in car parks has also been a research area. When evaluating the effectiveness of the use of CCTV cameras in car parks, Tilley (1993) found that car parks with CCTV cameras installed had lower rates of car crime as compared to car parks without any CCTV cameras. In view of this finding, Tilley concluded that, depending on each circumstance, CCTV can have a positive contribution to crime control. Furthermore, in their study Ditton & Short (1996) also found a reduction in vehicle crime after installation of CCTVs. In addition, some scholars argue that CCTV's effectiveness in deterring and reducing crime rates should be the main advantage of installing cameras (Caplan, Kennedy, & Petrossian, 2011). In their view, we should not expect CCTV cameras to stop crimes completely. More work therefore should be in the hands of the CCTV users to be able to solve crimes. CCTV contribution to crime reduction depends on how effective the system is being installed and how quickly CCTV users react to crime when an indication of criminal activities is displayed through the system. Based on this, scholars such as Akers & Sellers (2009) contend that the explanation and the installation of CCTV should be consistent with traditional police reactions to crime problems, such as increasing street patrols and hiring more police officers who will be able to apprehend and convict criminals.

Measuring the effectiveness of CCTV surveillance is a very complicated process as this involves considering various factors contributing to the increase or decrease in crime rates. The stagnancy of crime rates in areas with CCTV might be caused by inappropriate application, misplacement or insufficient application of CCTV. The CCTV cameras in Gaborone city were installed in 2018. Given the limited time frame of the use of CCTV cameras in Gaborone city, measuring their effectiveness seems to be too early. As such, rather than focusing on assessing the effectiveness of CCTV surveillance, this study focuses on assessing as well as evaluating the placement of CCTV cameras in Gaborone city.

METHOD

This study employed a mixed-methods approach, which collected and analyzed data using both quantitative and qualitative methods to get a better understanding when documenting the installation of CCTV cameras in Gaborone and assessing their placements (Creswell, 2002). Data for this study was collected between January and May 2019. Quantitative data was collected by

means of observation method, whereas qualitative data was collected in the form of semi-structured interviews with five experts.

As mentioned in the background, the city had eight shopping malls when the study was conducted. Three (3) shopping malls were purposively chosen for study: Main Mall, Station Mall, and River Walk Mall. These malls were chosen based on being the biggest in size and the large number of people shopping in them. Eleven (11) cameras were observed from these selected malls. In terms of residential places, three areas were selected: Old Naledi, Block 6, and Phase 2. These residential places were chosen based on the high intensity of crime rates and the high number of reported crimes. Fifteen (15) cameras were observed in these areas. From a total of eight (8) major roads (five (5) exit roads and three (3) highways), six (6) streets were chosen as observation sites. This included Queens Road, Notwane Road, Mobutu Drive, Samora Machel Drive, Old Lobatse Road, and Station Road. These roads were chosen because they connect to each other and link directly to the selected shopping malls and residential places included in the study sites. A total of fifteen (15) cameras installed along the selected roads were observed. In total, forty-one (41) CCTV cameras were observed in this study.

For each observed area, two sets of field notes, namely methodological field notes and substantive field notes (Burgess, 2003) were developed. The methodological field notes relied on an observation checklist. The substantive field notes involved intensive recording and note-taking of personal impressions pertaining to the installed cameras. The observation focused on the types of CCTV cameras installed and sites where they were installed. Among others, attention was paid to the CCTV pointing angles, issue of lighting, the height of CCTV structures, and questions of privacy invasion. In terms of CCTV pointing angles, observation was guided by questions such as whether or not the pointing angles are aiming at the weakest breach points; whether or not the cameras were guarded by other cameras; whether or not the cameras were at the most optimal locations, not leaving any blind spots to create opportunities for criminals; and whether or not there were any obstructions or issues that might obscure the view of the cameras. Lighting was another critical issue as far as CCTV camera installation is concerned. During the study fieldwork, the observation focused on the extent to which lighting was adequate enough to improve the image and video quality, particularly at nighttime. The height of the CCTV structures was another aspect of concern. The observation paid attention to whether or not the cameras were out of reach. In relation to the issue of privacy invasion, observation of CCTV cameras installed at residential places was guided by questions around the extent to which the cameras were pointing at the residents' yards, houses, or properties.

Qualitative data for this study was collected through semi-structured interviews with five CCTV experts specializing in CCTV installation, Information Technology, and Criminology as key informants. In order to give participants opportunities to express themselves and explain further, a semi-structured interview format was followed. This design was chosen so that it gives a guide to what should be entailed when conducting observation on CCTV cameras (Creswell, 2002). The semi-structured interview was also conducted to help in understanding how the CCTV operates. For confidentiality purposes, the anonymity of participants was maintained.

Photos of CCTV cameras and the surrounding areas were taken during the observation. Some of the CCTV cameras that were installed in the residential places were just a few meters away from the yards of some residents. This implies that when the observation was conducted and when pictures of the CCTV cameras were taken, their compounds appeared in the background of the photo, which invaded their privacy. Responding to the issue of privacy, residents were asked for permission to take pictures and were also informed that their compounds might appear in the background of the pictures taken.

RESULTS

This section presents and analyzes the study findings with images and figures used to illustrate and emphasize the study findings. The following themes guide the presentation and analysis of study results: (a) types of CCTV systems, (b) attachment of warning labels to the CCTV structure, (c) adequacy of the lights around the CCTV system (d) optimal location and elimination of breach points, (e) vulnerability of CCTV cameras, and (f) the balance between public safety and privacy.

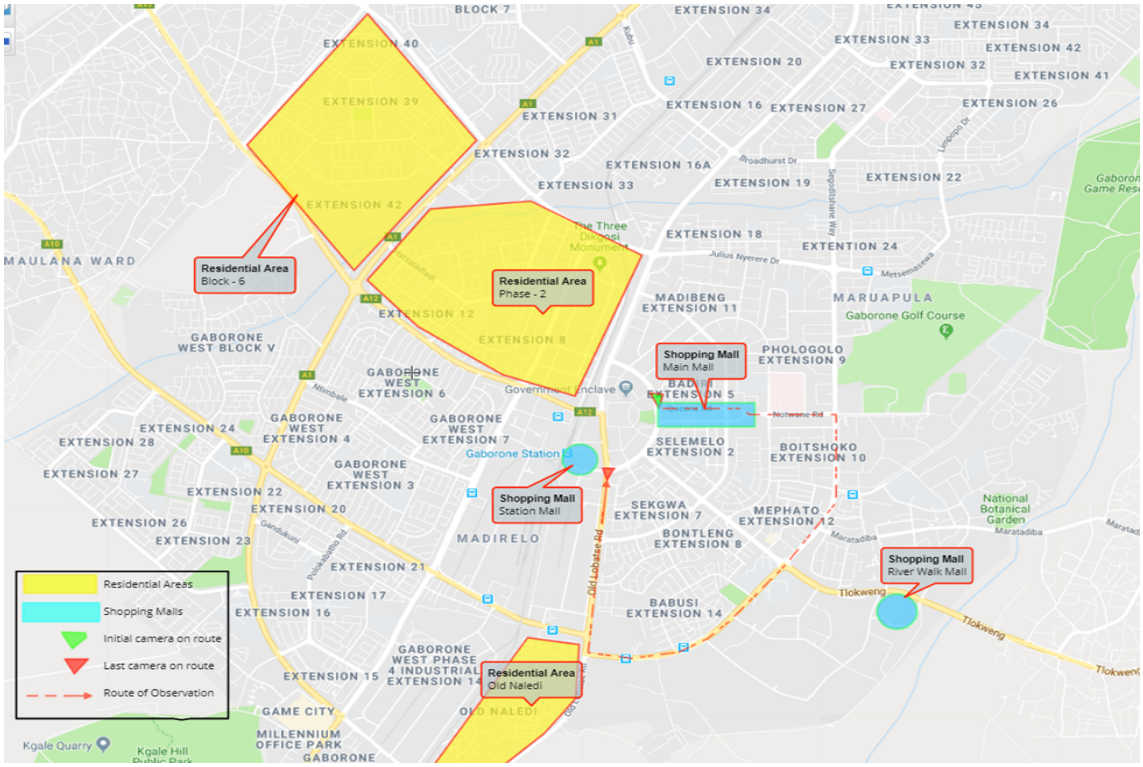

Figure 1. A map of Gaborone city showing highlighted sites that were observed. Accessed from GOOGLE scribble maps.

Before the findings are presented following the above themes, it is important to understand the geographical context of the field observations. Figure 1 above is a map of Gaborone city showing highlighted areas that were observed during the study fieldwork. Areas highlighted in yellow represent residential places, while those highlighted in blue are shopping malls. As already indicated, a total of fifteen (15) cameras were observed from residential places with five (5)

cameras observed in Block 6, five (5) in Old Naledi, and five (5) in Phase 2. From a total of eleven (11) CCTV cameras observed at the shopping malls, five (5) were in Main Mall, five (5) in Station Mall, and one (1) in Riverwalk Mall. The map further shows the routes that were selected for the study. These routes are represented by the red dotted line. At the beginning of the line, there is a green triangle which represents the first camera that was observed and at the end of the line, there is a red triangle which represents the last observed camera. A total of fifteen (15) cameras were observed along these routes.

Types of CCTV Systems

As mentioned earlier, CCTV systems can differ quite markedly. This was complemented by the results obtained from the field observations. All the observed cameras were fixed cameras. This is to say that the cameras were constant and permanently installed in one place. As far as the installation of CCTV cameras in Gaborone city is concerned, 98 percent were pan-tilt-zoom (PTZ) cameras while the other two percent were static cameras which focus on a single view.

To illustrate the abovementioned statement, Images 1 and 2 below show the different types of cameras. Cameras in Image 1 are fixed and static. Each of the cameras in Image 1 is clearly focused on a single view. Cameras in Image 2 are fixed and static with a PTZ camera installed. Each of the cameras in Image 2 can have special intelligence systems such as number plate or facial recognition installed on them (Gill & Spriggs, 2005).

Image 1. Cameras are fixed and static (Station Mall). Photo: S. Molepo.

Image 2. Cameras are fixed, static, and can pan tilt and zoom (Main Mall). Photo: S. Molepo.

Warning Labels Attached to the CCTV Systems

Section 5 of the Electronic Records (Evidence) Act of 2014 of Botswana stipulates that the rules of evidence shall not be applied in such a way as to deny the evidence of electronic records. This Act allows for the admissibility and authentication of electronic evidence, such as CCTV footage in legal proceedings in the courts of law of Botswana. The public therefore needs to be informed of CCTV operations in public places. In other words, clear and visible warning signs should be put in place (Department of Justice, 2011).

This study found that 53 percent of the cameras installed at residential places did not have warning labels while the remaining 47 percent had the warning sign. It was also found that 73 percent of the installed cameras at the shopping malls did not have warning labels while 27 percent had the warning labels attached on them. Furthermore, 87 percent of CCTV cameras along the roads did not have the warning labels while 13 percent had the warning labels. These figures suggest that on average, 71 percent of cameras did not have warning labels. Image 3 shows a CCTV camera that had a warning label attached to it whereas Image 5 shows a CCTV camera without any warning label. As depicted in Image 4, the warning label attached to the cameras observed during the study fieldwork was generally written in Setswana, the national language of Botswana. The warning sign reads: "*TLHAGISO! Re Ntse Re Go Lebile*" which can be translated to "WARNING! We Are Watching You" in English. While Setswana is spoken by over 78 percent of the Botswana population, there were also some CCTV cameras that had warning signs written only in the English version. However, the absence of both Setswana and English versions on a single CCTV structure may raise questions as to whether the installed cameras are aiming at the Setswana speaking audience only.

Image 3. CCTV that had a warning label attached in Block-6. Photo: S. Molepo.

Image 4. Zoomed-in version of CCTV sign in Image 3 (Block-6). Photo: S. Molepo.

Image 5. CCTV without warning label (Station Mall). Photo: S. Molepo.

Adequacy of Lighting

Adequacy of lighting is central to the operational and intended function of CCTV cameras. Since CCTV cameras play a role in surveying an area, adequate lighting generally guarantees reasonable motion detection including intruder deterrence. The present study revealed that 93 percent of the cameras that were observed at residential places had enough lighting. The remaining seven percent did not have enough lighting. Observation at the shopping malls revealed similar findings as 91 percent of observed cameras had adequate lighting, whereas nine percent did not have adequate lighting. Cameras observed along the roads had impressive results because all of them had adequate lighting. On average, 95 percent of the cameras from all the selected sites had adequate lighting. Nevertheless, it is important to note that most of the CCTV cameras were in fact using streetlights as their source of lighting whereas those that did not have adequate lighting had no streets lights next to them. The dependency of CCTV cameras on the streetlights certainly raises questions on their functionalities whenever streetlight fault occurs. The adequacy of lighting provided by streetlights and how this affects the functionality of CCTV cameras therefore requires further study.

Location of Cameras

As far as installation is concerned, the placement of CCTV cameras requires a proper assessment of location. In general, breach points are normally used as a guide in determining the location and placement of a CCTV camera. Assessment of the location of cameras was guided by

questions pertaining to the extent to which cameras were installed in places where they will be able to eliminate breach points. The Oxford Dictionary of Current English (1974) defines a breach as a gap or a breakthrough. In the context of this paper, breach points were interpreted as areas where crime is most likely to occur. Data displayed in Figure 2 demonstrates that in residential places, 53 percent of the cameras were not aimed at the weakest breach points, while 60 percent were not installed in the best or optimal position. By not being installed at an optimal location we mean that the cameras were not aimed at zones with shrubs, passages, and blind corners. Furthermore, the cameras were not placed in areas where victims are most likely to be attacked. The data further shows that 55 percent of cameras found at the shopping malls were not aimed at the car parks and passages. With regards to their location at the shopping malls, 64 percent of cameras were not installed at the optimal location. The findings also illustrate that 73 percent of cameras observed at the roads were aimed at the weakest breach points. Breach points on the roads are the bus or taxi stops, the intersections, and at the traffic lights where people are most likely to break the traffic laws.

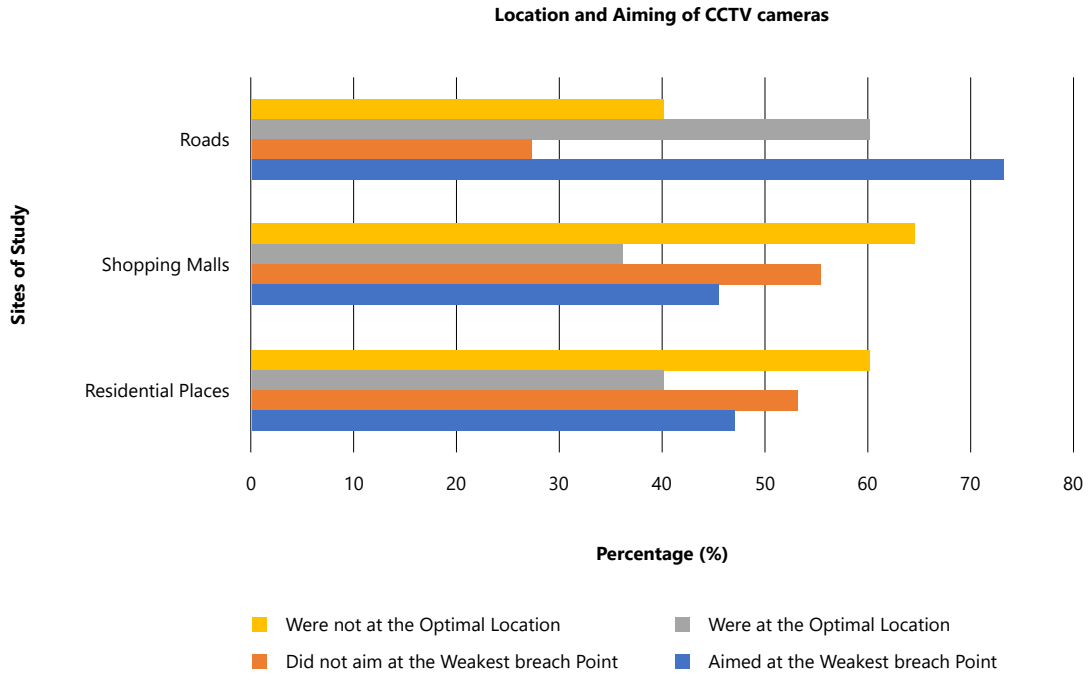

Figure 2. Location and Aiming of CCTV cameras.

Vulnerability of Cameras

Vandalism of public facilities has been a common concern of many countries. This even includes vandalism of the CCTV cameras themselves. In response to this concern, the placement structure of CCTV cameras is of high importance. With relation to vulnerability of the cameras to vandalism, the data shows that on average, 68 percent of cameras from all the sites of study were not predisposed to vandalism. This can be attributed to the fact that they were mounted on poles of about the height of 3 – 4 meters. The study also found that 91 percent of cameras in shopping

malls had PTZ cameras which rotate in a 360° angle and can zoom further up to 200 meters at night. The PTZ cameras can also be used to guard the CCTV structure itself. It should be noted, however, that box cameras, which were also available, were prone to being vandalized because they cannot rotate in 360°. In instances where there is no PTZ camera attached, there were some CCTV cameras on one side overlooking from the other side. The study findings show that 80 percent of cameras on the roads were being overlooked by other cameras. At the residential places and shopping malls, 40 percent and 45 percent of the cameras were overlooked by other cameras, respectively. Notable also is the fact that in all study sites, cameras located in areas with inadequate lighting are vulnerable to being vandalized.

The Balance between Public Safety and Privacy

The right to safety and security of persons and the right to privacy are both widely recognized basic and fundamental human rights. The problem has always been about applying the rights and balancing the issues of safety and privacy. Among the CCTV cameras observed in three residential places, 60 percent of the cameras were not facing neighborhoods or private properties. A majority of observed cameras were facing towards government property like sub-power stations and buildings. While this finding documents the state of affairs of CCTV camera installation in residential places in the city of Gaborone, particularly in 2019, the extent to which public safety and issue of privacy have informed the placement of CCTV cameras remains an open question for further investigation.

DISCUSSION

This study aimed at assessing and evaluating the CCTV camera installation and placement in Gaborone city, in light of the principles of the Situational Crime Prevention (SCP) theory. As already highlighted, SCP theory navigates the notion of crime prevention through the following basic principles: (a) increasing the risks; (b) increasing the efforts; and (c) removing the excuses (Clarke, 1997). In this discussion section, the information presented in the literature review section is utilized to deepen our understanding of the study findings. As noted earlier, there is a wide body of literature which assesses whether or not CCTV systems prevent crime. However, it is important to note the exclusivity of this study, as it focused on evaluating the CCTV camera installation in the city of Gaborone, rather than assessing the effectiveness of the CCTV cameras in preventing crime in this city.

As already pointed out, increasing the risks that an offender must encounter before carrying out the crime is a principle of SCP theory. This can be translated to creating various ways to minimize or eliminate opportunities for crime. The results of this study revealed that the majority of cameras were not installed in optimal places where the cameras would be able to eliminate breach points or the opportunity for committing a crime. Results from the shopping malls, for example, showed that CCTV cameras were not aimed at the weakest breach points that have the potential of providing opportunities to commit the crime. It was found that grey areas like passages and car parks were not covered by the cameras. This means that although the CCTV cameras were installed, opportunities for criminal activities like car jacking remain available. As such, the presence of CCTV cameras in the city does not seem to have a direct link to eliminating or at least minimizing such

opportunities. Consequently, the risk that an offender encounters before committing the crime decreases.

How do we make sense of what the study has revealed? Scholars like Anderson & Pease (1997) emphasized that situational crime prevention seeks to predict criminal behavior by focusing on the causes of crime in the situation or surroundings where it occurred. In other words, in order to prevent crime from reoccurring in the same place, the focus should be on altering the identified environment so that it becomes difficult for the potential offender to commit the crime in the future. In relation to the use of CCTV cameras in preventing crime, Phillips (1999) suggests that CCTV systems have a deterrent effect as the systems publicize and pose high risks to the potential offenders. Additionally, a review of the effectiviness of CCTV cameras in crime prevention provided by Gill & Springs (2005, p. 5) demonstrates that "those who had been caught on camera were significantly more likely to view CCTV as a threat." This means that installing CCTV cameras without calculating their crime deterrent effect would translate to the minimization of the proper function of CCTV systems.

Increasing the risks for potential offenders through the installation of CCTV cameras is also about managing the fear of crime. Wilson, Brown, & Schuster (2009) contend that fear of crime in residential areas is higher in areas that offer good opportunities for potential offenders like zones with shrubs, passages, and blind corners. In addition, the same level of fear of crime exists in areas that offer little opportunity for victims of crime to escape when they are attacked. In the context of shopping malls and/or related public spaces, previous studies suggested that CCTV cameras are generally more effective against property crimes such as theft from and of vehicles (Gill & Spriggs, 2005; Skinns, 1998). This means that the optimal placement of CCTV cameras should be guided by its intended purpose of minimizing the possibilities of and opportunities for crime to occur. While installation of CCTV cameras in the city of Gaborone might still be in an early stage, what is required is a thorough assessment of the placement of cameras and the practicality of the installed cameras in eliminating or at least protecting members of the public in various breach points and grey areas.

Apart from the issue of camera placements, provision of adequate lighting is necessary for the operational functioning of CCTV cameras. The study results revealed that the CCTV cameras in the city of Gaborone mostly rely on street lighting. The role of street lighting in crime prevention has been a topic of research among scholars. In a systematic review of the effects of improved street lighting on crime, Farrington & Welsch (2002) concluded that improved street lighting led to decreases in crime. In addition, their systematic review found that "the financial savings from reduced crimes greatly exceeded the financial costs of the improved street lighting" (Farrington & Welsh, 2002, p. 313). Other scholars such as Schneider & Kitchen (2007) provide similar suggestions. However, they add another element as they argue that improved street lighting does not only reduce the fear of crime but also makes other crime prevention initiatives, including the use of CCTV cameras, more effective. As already stated, 95 percent of the CCTV cameras observed at all the selected sites had adequate lighting as they rely on street lighting. Although improved street lighting may make the use of CCTV cameras in preventing crime more effective, regular or occasional power cuts would affect the primary function of CCTV cameras. Given that the installed cameras do not have backup lighting attached to them, further investigation on whether or not the

cameras function in the same way at night time as they do during the day would provide insights toward the necessity of having self-lighting for the installed cameras.

Increasing the efforts that an offender must take before executing the crime is another principle of SCP theory. This includes limiting the space of an offender to execute the crime. As the study revealed, CCTV cameras were mounted on high poles which ensures that they capture a wide area of surveillance. The majority of CCTV systems had PTZ cameras attached to them. The systems had at least two (2) box cameras (static) and one (1) PTZ camera. PTZ cameras rotate 360°; thus they can be used to guard the CCTV structure and also to cover blind spots of other cameras. This implies that there was compliance with increasing efforts to cover most of the existing blind spots that could create opportunities for the occurrence of crime. The importance of technological advancement in the CCTV cameras has been noted by scholars. According to Gill & Spriggs (2005), CCTV systems employ emerging technological innovation that would contribute to their effectiveness in crime prevention. As such, making use of technological innovation towards crime prevention becomes a necessity. The use of PTZ cameras in the CCTV systems installed in Gaborone city is an example of how an effort to limit the negotiation space of an offender is approached through the use of technological innovation provided through PTZ cameras.

It is a common concern that in the context of crime, offenders generally justify their actions by providing excuses. Through the use of excuses, offenders display both sociological inadequacy and psychological vulnerability in response to the crime they are involved in (Aborisade, Adeleke & Shontan, 2018). Previous studies suggest that the use of CCTV cameras is an effective way in preventing crime as the cameras expose the criminals on the one hand and deter the potential criminals through the possibility of getting detected and being caught on the other (Welsh & Farrington, 2009). In response to the effectiveness of CCTV camera use in crime prevention, invasion of privacy is normally used by criminals as an excuse to justify their actions. Removing potential excuses employed by offenders to justify their actions is a key principle of SCP theory. Provision of warning labels on the installed CCTV cameras is a way of removing such potential excuses as well as making sure that the privacy of members of the public is observed. This study revealed that 71 percent of cameras did not have warning labels attached to them. The warning labels attached to the remaining cameras were mostly written in the Setswana language. Installation of the cameras in itself is of course not a tangible way of removing potential excuses. As such, Goold (2004) proposes that it is important for the public to be informed about the operation of CCTV cameras by providing visually clear CCTV signs installed close or attached to the CCTV cameras in operation. In this context, public awareness is raised through the installation of signs that in turn, remove any possible excuses insofar as committing a crime is concerned. In view of this, Schneider & Kitchen (2007) argue that removing excuses of the offenders in justifying their actions involve setting out clear rules on how actions in public places are securely monitored. This includes posting instructions and alerting the individuals that their acts are being closely monitored through the use of public CCTV cameras. What Schneider & Kitchen (2007) suggest implies that warning signs function as a tool for information dissemination pertaining to the use of cameras to monitor public safety and security. Therefore, a warning that a CCTV camera is in use becomes an immediate first step in discouraging potential criminal acts and activities. Consequently, the warning signs discourage criminals from making excuses that they were not aware or did not know about the CCTV operation.

In addition, with CCTV signs installed, the public is also assured that they are protected from crime, thus reducing the levels of fear of crime.

CONCLUSION

The aim of this paper was to evaluate the use of public surveillance cameras in Gaborone and its surrounding areas and assess their geographic placement in light of the principles of Situational Crime Prevention (SCP) theory. In particular, the study evaluated the placement of cameras and their operational functions in reducing and/or eliminating criminal opportunities. While the installation of CCTV cameras in Gaborone city is a welcome achievement, generally the installation of the cameras does not seem to observe or at least consider the basic principles of situational crime prevention as this study found that only a few cameras were installed in or covered grey zones such as car parks, bus stops, passages or blind corners. As such, in most cases, the presence of the cameras may not increase efforts and risks that an offender or criminal must encounter before engaging in or executing criminal activities. In addition, the results showed that most cameras either did not have warning labels or had the majority of the labels in the Setswana language. This increases the possibility of using the issue of privacy as an excuse by offenders or criminals to justify their actions. The study, however, found that there was enough lighting around the installed cameras, which in turn strengthens the effectiveness of most crime prevention techniques.

Although this study is limited to evaluating the installation and placement of CCTV cameras in Gaborone city, its methodological approach can be employed for similar studies in other cities or areas. In view of the study findings from the field observations and interviews with experts, we argue that rigorous review and assessment of the current installation and placement of CCTV cameras in Gaborone city is required to ensure that the operational function of the cameras is achieved and their utility maximized. Additionally, we suggest a further scholarly study to measure and evaluate the effectiveness of CCTV camera use for crime prevention in Gaborone city on the one hand, and to lay out a monitoring system that guarantees public safety and security on the other.

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POSTAVLJANJE NADZORNIH KAMERA U GABARONEU, BOCVANA: KRITIČKI OSVRT IZ PERSPEKTIVE TEORIJE SITUACIJSKE PREVENCIJE KRIMINALITETA

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SAŽETAK

Smatra se da tehnologija nadzora javnih površina postavljanjem nadzornih kamera predstavlja alat za praćenje kretanja stanovništva i prevenciju kriminaliteta. Zahvaljujući njihovoj ulozi u tehnološkom smislu, u brojnim gradovima diljem svijeta sve se više postavljaju kamere za videonadzor. U Gabaroneu u Bocvani i okolnim mjestima prve nadzorne kamere postavljene su 2018. u cilju otkrivanja kriminalnih aktivnosti i sprječavanja kriminaliteta. Uloga nadzornih kamera u prevenciji kriminaliteta i njihovo korištenje kao istražni alat predmet je istraživanja u znanstvenoj zajednici. U tom smislu, naglasak znanstvenog interesa bio je na djelotvornosti nadzornih kamera u sprječavanju kriminaliteta i njihovoj vrijednosti za korištenje u istrazi. Budući da su kamere u Gabaroneu postavljene tek nedavno, prerano je ocijeniti koliko su djelotvorne u prevenciji kriminaliteta u gradu. Svrha ovog rada je dokumentirati korištenje kamera za videonadzor javnih gradskih površina u Gabaroneu i okolnom području te ocijeniti njihovu lokaciju u skladu s načelima teorije situacijske prevencije kriminaliteta. Upotrebom podataka koji su prikupljeni nadzorom površina i razgovora sa stručnjacima koji su pružili glavne informacije, zagovaramo detaljnu analizu i ocjenu postavljanja i smještanja nadzornih kamera u Gabaroneu te daljnja istraživanja kojima bi se mjerila i ocijenila djelotvornost nadzornih kamera za prevenciju kriminaliteta u ovom gradu.

Ključne riječi: nadzorna kamera; situacijska prevencija kriminaliteta; nadzor javnih površina; Gabarone, Bocvana