An Analysis of Crime Prevention Through Environmental Design (CPTED) initiatives in Gauteng Province

ZOLA INNOCENTIA MANTENTA & LESEDI DLAMINI
Gauteng Department of Community Safety
Address: 25 Pixley Seme Street Johannesburg, 2001
Corresponding Author: Zola Innocentia Mantenta

ABSTRACT: *The 2016 revised White Paper on Safety and Security (WPSS) highlights a need to implement multifaceted approaches in fighting crime (CSP, 2016). This paper aims to present the implementation of Crime Prevention Through Environmental Design (CPTED) initiatives in Gauteng province, South Africa. Drawing on international and local scholarly works, the research examines the alignment of crime prevention efforts with safety needs outlined in policy documents such as the 1996 National Crime Prevention Strategy (NCPS) and the National Development Plan 2030 (NDP). The study was conducted by the Gauteng Department of Community Safety. Through a qualitative explanatory case study approach, data was collected via 19 semi-structured interviews and 5 focus group discussions with key stakeholders including law enforcement, local government officials and community members. Thematic analysis was employed to explore the current approaches municipalities are implementing to reduce crime through spatial design, assess the influence of planning and design on crime, and determine the role of local government in crime prevention. Findings indicate the significance of environmental design interventions in reducing crime opportunities and enhancing safety perceptions. Moreover, the paper underscores the importance of government's involvement, particularly at local level, in coordinating and implementing crime prevention strategies aligned with CPTED principles. Recommendations are provided to enhance CPTED initiatives in Gauteng, emphasising the need for tailored strategies, community engagement and multi-agency collaboration.*
KEYWORDS: *Crime Prevention Through Environmental Design (CPTED), Crime Prevention, Local government, Environmental and Spatial Design, Gauteng, South Africa*

I. INTRODUCTION

The imperative of combating crime through multifaceted approaches has been underscored by the 2016 revised WPSS, emphasising the need for crime prevention initiatives to align with contemporary safety needs (CSP, 2016). This strategic direction is substantiated by international and local scholarly works advocating for comprehensive crime prevention strategies (Rauch, 2002; Newham, 2007; GDCS, 2006). The 1996 NCPS accentuates the necessity of addressing various forms of crime distinctly, emphasising tailored approaches for each, such as robbery, murder, and carjacking (Kruger and Landman, 2008). Similarly, the NDP underscores the mobilisation of societal mechanisms to enhance citizen safety as a fundamental aspect of crime reduction efforts (NPC, 2003).

Central to effective crime prevention is the utilisation of CPTED, recognised for its ability to minimise crime and fear thereof by manipulating the physical environment to reduce criminal opportunity and foster positive social interactions (Lens, 2013). Research supports the significant impact of the physical environment on crime rates, with studies highlighting the correlation between design features and crime occurrence (Brown, Perkins, and Brown, 2004). Moreover, environmental criminologists have identified the role of the built environment in shaping crime patterns, emphasising the importance of factors such as offender profiles, victim characteristics, and location settings (Brantingham and Brantingham, 1991).

Recognising the pivotal role of designing out crime, also known as CPTED in crime prevention, the study focused on analysis of CPTED initiatives in Gauteng province, South Africa. The significance of such initiatives is evident in their aim to prevent crime through effective planning and design interventions (Cordner, 2010), echoing successful implementations observed in other regions such as the United States and Europe (CSIR and ISS, 1997; Kruger and Landman, 2003).

Despite these efforts, crime continues to pose a serious threat in Gauteng, prompting a critical examination of existing crime prevention strategies (Kruger and Landman, 2008). The significance of local government in coordinating integrated crime prevention efforts is underscored by policy documents such as the 1996 NCPS, 2030 NDP, 2016 WPSS, and 2022 Integrated Crime and Violence Prevention Strategy (ICVPS)

(Republic of South Africa, 1996; National Planning Commission, 2012; Department of Police, 2016; Department of Cooperative Governance, 2022). However, there remains a notable scarcity of local literature assessing the implementation of CPTED interventions in Gauteng, necessitating an in-depth analysis of such initiatives within the province.

It is against this backdrop, that the paper aims to assess the current approaches implemented by municipalities in Gauteng to reduce crime through spatial design, considering the influence of planning and design on crime occurrence.

1.1 The aim of the article

The aim of this article is to analyse the implementation of CPTED initiatives in Gauteng province.

1.2 Research objectives

This article sought to achieve the following objectives:

• Determine the current approaches that municipalities in Gauteng are employing to reduce crime through spatial design.

• Assess the influence of planning and design in fighting crime.

• Determine the relationship between lack of CPTED orientated planning and prevalence of crime hotspots.

• Determine the role of local government in crime prevention.

• To make recommendations to improve CPTED initiatives in Gauteng.

II. LITERATURE REVIEW

A literature review justifies the research, showcases the researcher's knowledge, and provides context (Denney and Tewksbury, 2013). It also aligns with the field's discussion and identifies opportunities to contribute new knowledge (Marshall and Rossman, 1999; Cooper, Booth and Garside (2018). Therefore, the literature for this study involved a systematic analysis of secondary data such as books, journals and internet articles.

2.1 Crime Prevention through Environmental Design (CPTED)

Crime Prevention through Environmental Design (CPTED) represents a multifaceted approach aimed at reducing crime, criminal opportunities, and the fear of crime by implementing well-designed and managed built environments (Zambuko and Edwards, 2007).

2.2 Five principles of CPTED

Research conducted by the Council for Scientific and Industrial Research (CSIR) identified five key principles of CPTED relevant to the South African context (Kruger et al., 2001):

2.2.1 Surveillance and Visibility

Surveillance, whether passive or active, plays a crucial role in deterring crime by enhancing visibility and accessibility (Kruger & Landman, 2003). Technologies like closed-circuit television (CCTV) contribute to active surveillance, dissuading potential offenders through increased awareness of monitoring (Kruger, 2005a). However, visibility hinges on adequate lighting and appropriate building design (Oakland Police CPTED Security Handbook, n.d.).

2.2.2 Territoriality and Defensible Space

This principle fosters a sense of ownership, belonging, community cohesion and discourages unauthorised entry within specific areas (Geason and Wilson, 1989). Physical barriers such as hedgerows, fences, and other mechanisms delineate private spaces, signalling protection and deter potential intruders (Ratcliffe, 2003).

2.2.3 Image and Aesthetics

The aesthetics and image (appearance) of a space influences its perception and use, with neglected areas often breeding crime and feelings of insecurity as well as vulnerability (Kruger, 2005a). Therefore, targeted urban development/planning initiatives, such as CPTED which include the creation of recreational spaces, parks and green areas can mitigate these issues (Geason and Wilson, 1989).

2.2.4 Target Hardening

This principle involves physical barriers like fences, burglar bars, gates and walls for protection as well as to reduce vulnerability (Kruger and Landman, 2006 as cited in Aboo, 2013). However, over-reliance on this method can be counterproductive as it can lead to social and physical isolation, potentially increasing rather than reducing vulnerability and fostering fear (Kruger and Landman, 2006).

2.2.5 Access and Escape Routes

Certain areas are vulnerable to crime due to readily accessible escape routes exploited by offenders, particularly contact crimes (Kruger and Landman, 2006; Aboo, 2013). Unused pockets of land, especially those resulting from inappropriate zoning, further exacerbate the problem as they become overgrown and offer easy access and escape (Kruger et al., 2006). Routine maintenance and appropriate zoning are crucial in mitigating these risks (Kruger et al., 2006).

The five principles outlined above serve as tools aimed at reducing crime vulnerability and enhance safety (Kruger & Landman, 2003). They emphasize the importance of well-maintained and managed environments fostering both quality living and safety (Aboo, 2013).

2.3 The role of government in the application of CPTED in South Africa

Local government plays an integral role in implementing CPTED, given its primary responsibility for crime prevention in South Africa (White Paper on Safety and Security, 1998). Through forums such as Community Safety Forums (CSF), local authorities collaborate with stakeholders to tailor CPTED projects according to community needs (Whitzman, 2008). These efforts are guided by local, provincial and national policies, emphasising the importance of local-level implementation in addressing unique crime challenges (Landman and Kruger, 2009).

III. METHODOLOGY

This paper adopted a qualitative explanatory case study research design. This means that it focuses on a specific case (or cases) to understand why things happen. The explanatory case study design allowed the researchers to deeply explore various perspectives and aspects of CPTED initiatives, building a holistic understanding of how and why they work (Flick, 2015). This approach also enables an in-depth analysis of complex issues surrounding these initiatives.

In this paper, a total of nineteen (19) semi-structured one-on-one interviews and five (5) focus group discussions were conducted and purposive sampling was used to select the following participants:

- Five (5) District Vispol Commanders (Tshwane, Johannesburg, Ekurhuleni, West Rand, and Sedibeng) from the South African Police Service; Five (5) focus group discussions with community members from the five (5) corridors; Eight (8) public safety officials from the three (3) metropolitan councils (Tshwane, Johannesburg, and Ekurhuleni) and two (2) district municipalities (Sedibeng and West Rand) as well as three (3) CoGTA officials, two (2) Gauteng Department of Human Settlements officials, and a CSIR academic expert.

3.2 Data collection

The study employed qualitative techniques such as semi-structured interviews and focus groups discussions. A set of questions that assisted the researchers to gather adequate and relevant information in order to draw a precise conclusion was utilised (Flick, 2015). A semi-structured interview is a qualitative method of inquiry that combines a predetermined set of questions to explore themes or participants' responses (Flick, 2015). On the other hand, focus group sessions refer to discussions aimed at collecting a deeper and richer range of data (Harrell and Bradley, 2009). Focus groups were conducted to assess whether the community understands how planning and design influence crime.

3.3 Data analysis

Thematic analysis was used to examine data. The data was initially transcribed and subsequently coded (Sarantakos, 1998). The codes were then utilised to identify themes within the data (Caulfield, 2019). These themes were then applied to the research topics. Thematic analysis is a versatile and effective technique for analysing qualitative data (Caulfield, 2019). It is ideal for study topics including people's feelings and perspectives (Caulfield, 2019).

IV. FINDINGS AND DISCUSSION

This section delves into a detailed analysis of data collected during the CPTED study initiatives within Gauteng province. Given that CPTED emphasises the importance of planning and design on crime prevention, data collected specifically targeted the role of local government in implementing these initiatives.

4.1   The influence of planning and design on crime

Austin, Furr, and Spine (2002) suggest that crime hotspots tend to concentrate around specific land uses and population characteristics such as areas with social disorder, deterioration and rundown commercial buildings. These characteristics are strikingly similar to those observed within Gauteng communities.

Community members highlighted poorly maintained recreational parks and passageways between houses as planning and design flaws contributing to crime. They specifically mentioned crimes against women and children, such as getting mugged, raped and killed, occurring frequently in open spaces with low foot traffic, long grass and poor lighting. Therefore, implementing CPTED principles in these areas could effectively reduce the prevalence of Gender-Based Violence and Femicide (GBVF) as well as crime.

However, concerns were raised regarding high walls surrounding residential properties. While these may deter some crimes, community members mentioned that the increase in vulnerability to muggings while walking and house break-ins happen due to limited visibility from outside. This exemplifies the concept put

forth by Loukaitou-Sideris et al. (2000) that crime and physical factors can induce fear. Similarly, Austin et al. (2002) argues that adolescents living in neighbourhoods characterised by poor conditions exhibit greater behavioural problems. Therefore, the physical design of the built environment plays an integral role in crime reduction and behaviour management (Newman, 1996).

According to Newburn (2009), subtle adjustments to neighbourhood designs can align with CPTED principles. These changes can enhance surveillance capabilities and consequently reduce fear of crime within communities. He highlights the negative impact of features such as low traffic and limited visibility, arguing that such environments create a sense of vulnerability due to the perception of delayed and limited emergency response. Furthermore, the absence of strong social cohesion and community support exacerbates these fears (Newburn, 2009).

Community members highlighted open spaces, long grass, distant taxi ranks and schools, lack of streetlights and informal settlements as environments that perpetuate crime and feelings of vulnerability. Loadshedding (planned power outages) was also indicated as a contributing factor, revealing that most burglaries and home invasions happen during loadshedding. Overall et al. (2008) supports this notion, suggesting that seemingly unpopulated areas such as vacant lots or open spaces become susceptible to crime. In such cases, crime incidents are diffused, potentially leading to a hinderance in effective crime prevention efforts or service delivery within that affected area (Overall et al, 2008)

Additionally, community members have raised concerns about abandoned buildings, such as firms, houses and commercial buildings which have become havens for substance users and hiding places for criminals and undocumented immigrants. They have also highlighted the case of a stadium in Bekkersdal that has been vandalised by unknown individuals and become a magnet for criminal activity. These observations align with the core tenets of CPTED, particularly surveillance, territoriality as well as access control and escape routes. Kruger and Landman (2003) emphasise the importance of physical design in crime prevention strategies. Abandoned buildings and illegal mine sites represent lack of territorial control and are often characterised by long grass, inadequate lighting and lack of access control rendering them attractive to criminal activities (Clarke, 1983 and Newman, 1972).

4.2   Assessing the practicality and feasibility of CPTED
The study indicates that inadequate planning and design can contribute to higher crime rates, suggesting that CPTED offers a promising strategy for improving the physical and built environment to increase safety. The effectiveness of CPTED is dependent on community engagement and acceptance. CPTED's objectives include reducing crime through environmental planning and design improvements, alongside fostering social inclusivity and individual responsibility in maintaining their surroundings.

Community members alluded that parks are being misused as areas for smoking and drug dealing hotspots due to lack of recreational fencing and proper maintenance. Furthermore, abandoned houses turning into drug dens were identified. Concerns were also raised about shops owned by Pakistani nationals, operating beyond regular business hours, enabling drug trade, the sale of expired or counterfeit goods, and heightening the risk of community members being targeted and robbed by criminals. The potential for fences and burglar bars to be stolen and sold to local scrap yards was also mentioned, underlying the necessity for community involvement in CPTED initiatives.

The utilisation of CPTED principles to reduce crime received strong support from the community, driven by the perception that these principles align with traditional crime prevention strategies, such as visible policing, neighbourhood watch groups, patrollers and Community Policing Forum (CPFs). This approach is believed to not only reduce crime but also improve the quality of life by transforming the physical environment.

Despite the overall positive reception towards CPTED, residents remained sceptical about the effectiveness of surveillance measures, such as cameras, due to concerns over theft and the need for effective monitoring to prevent corruption from undermining their utility.

Local government officials and experts expressed confidence in the potential of designing out crime, emphasising the importance of active community involvement. A municipal official articulated a belief in the efficacy of CPTED, conditioned on active community engagement. Stating, *"yes, I do believe that CPTED can aid in crime reduction, but the community needs to be involved"*. The sentiment was echoed by another official, who pointed to the necessity of a shift in community attitudes towards ownership and involvement in CPTED-based initiatives. While the experts also acknowledged the importance of external support in managing and monitoring spaces and facilities.

The readiness of the community to participate in CPTED-driven crime prevention efforts was affirmed by officials and experts, who emphasised the importance of active community involvement. It was suggested that community-identified problems and solutions should be collaboratively implemented, with government support ensuring proper execution and fostering a sense of community ownership over the projects.

It is evident that officials and experts view CPTED as feasible in its practicality. While many community members may not be familiar with CPTED as a concept, they recognise its principles as valuable

crime prevention initiatives. Most importantly, they emphasised the indispensable role of community participation, noting that without it CPTED initiatives may go unnoticed and consequently have a limited impact. The community's active involvement in all initiatives cannot be overstated.

4.3   The role and responsibilities of the stakeholders

Effective crime prevention requires collaboration among various stakeholders, such as government agencies, Non-Governmental Organisations (NGO), community members, and Law Enforcement Agencies (Newham, 2005). Each stakeholder contributes unique expertise and resources, collectively working towards creating a safer environment for all.

In this context, local government officials have identified a network of critical stakeholders, encompassing Non-Governmental Organisations (NGOs), Victim Empowerment Centres (VECs), Gauteng Traffic Wardens (GTWs), Community Development Workers (CDWs), Disaster Management Volunteers, Faith-Based Organisations (FBOs), South African Police Services (SAPS), Traffic, Security personnel, and Community Policing Fora (CPF). These stakeholders play diverse roles, as explained below.

Local government officials have further elaborated on the diverse roles played by the stakeholders, emphasising their unique contributions to community safety and well-being. VECs, operating within both NGOs and SAPS, actively promote awareness of Gender-Based Violence (GBV) in schools and communities. Security personnel manage access control during major events, ensuring public safety, while Disaster Management Volunteers prepare for and respond to disaster situations, including those resulting from criminal activities. FBOs promote moral values through spiritual guidance provided by pastors.

Furthermore, participants highlighted that, depending on the issue at hand, collaboration is essential. *"We work together with Gauteng Department of Community Safety (GDCS), Department of Social Development (DSD) and internal stakeholders such as Department of Infrastructure Development, Environmental health practitioners, Department of Recreation and Parks and many others"*. This underscores the critical importance of synergy among various stakeholders.

Local government officials also articulated the role of stakeholders in responding to specific challenges. For instance, they highlighted a recent situation where individuals were found using substances like dagga in the vicinity of the Leeuhof Correctional Services within the Sedibeng municipality. In response, a variety of intervention measures were developed, involving various stakeholders contributing their expertise to address the situation. For example, the Department of Recreation and Parks undertook the responsibility of identifying areas with tall grass that needed to be cut. This action was crucial in eliminating potential hiding spots for criminals who were using these areas for criminal activities such as mugging people. The SAPS, on the other hand, focused on the apprehension of the perpetrators.

An official from the City of Tshwane expanded on this collaborative approach, indicating close cooperation with the departments of Economic Development and Spatial Planning, as well as the Integrated Development Plan (IDP) office. This collaboration aims to integrate safety and GBV into their plans. The official further emphasised their daily interactions with all departments, stating, "*we also work with all departments on a daily basis. For example, our crime prevention through redesign unit responds to complaints about tall grass, people being mugged or other environmental hazards that could create opportunities for crime*". Additionally, it was noted that this unit performs site inspections and compiles reports that are forwarded to the relevant departments such as parks or environmental management, for further action.

The SAPS acknowledged the critical role played by various stakeholders in crime prevention efforts, including the cities of Tshwane and Johannesburg, along with their respective councillors. Key stakeholders identified by SAPS encompassed a wide range of entities such as the Tshwane Metropolitan Police Department (TMPD), Johannesburg Metropolitan Police Department (JMPD), Gauteng Traffic Police (GTP) (with whom they plan joint operations), Department of Home Affairs, Department of Correctional Services, Department of Labour (ensuring the compliance and environmental standards of businesses), Department of Education, Department of Social Development, Department of Housing, Department of Disaster Management, and the NGOs.

According to SAPS, these stakeholders play a vital role in addressing challenges related to environmental design within their constituencies, discussing them according to the IDP processes. SAPS has highlighted that visible policing remains a significant challenge in certain areas, However, engagement with these stakeholders has yielded progress in some regions, though areas lacking such engagement have seen no improvement. SAPS emphasised that these stakeholders should be encouraged to proactively address issues without awaiting police intervention.

Stakeholders have different roles and responsibilities in their involvement in crime prevention initiatives when considering CPTED principles. The primary responsibility of the stakeholders mentioned is to implement and support crime prevention initiatives. All the stakeholders have specific functions or roles to perform. However, their performance is dependent on their commitment.

4.4   The role of local government in crime prevention (CPTED)

In the fight against crime, the South African government, particularly local authorities, play a critical role in implementing crime prevention initiatives, including the CPTED model (Aboo, 2013). This responsibility arises from their direct engagement with communities, involvement in coordinating and planning crime prevention strategies, and oversight of crime prevention initiatives.

Local government officials have indicated active involvement in crime prevention efforts, occasionally incorporating CPTED principles into their processes. They also cited their role in coordinating and planning integrated crime prevention approaches in collaboration with other stakeholders. Additionally, they sometimes oversee crime prevention initiatives and serve as a support structure due to budget constraints.

Moreover, they have facilitated crime prevention initiatives, such as Safer Cities conducting ward safety profiles, which bring together key stakeholders and community members to identify areas with planning and design issues contributing to crime. Local government offices operate in three divisions: Municipal Service Delivery, Planning and Development, and Public Safety. These divisions handle a variety of activities, including infrastructure development, service delivery and crime prevention. Local government officials emphasised their role in ensuring that all relevant stakeholders work together and are committed to combating crime. However, they acknowledged shortcomings in fully addressing crime planning and design in line with governing policies.

They also highlighted the challenges of implementing CPTED due to lack of understanding among the populace. Many perceive CPTED as belonging to other departments, such as the Public Safety Division, leading to a diffusion of responsibility and hindering effective implementation. Furthermore, local government officials noted their limited involvement in the inception phase of building projects, which hampers proactive incorporation of CPTED principles into the design phase.

Despite limitations and criticisms of the CPTED model, local government officials expressed commitment to its implementation in their municipalities. Their roles revolve around implementing, coordinating, and facilitating CPTED initiatives. However, it is evident that there is a gap in understanding the concept of CPTED within local government, posing challenges to its effective implementation.

It is crucial to raise awareness of the importance of designing out crime within local government and ensure that officials understand the model and its implications to formulate and implement strategies effectively. Notably, participants suggested that the CPTED model can complement other Social Crime Prevention Programmes and enhance community quality of life by reducing and preventing crime.

In essence, local government serves as the primary link between the state and communities, necessitating empowerment with capacities and resources to play a more proactive role in implementing integrated, long-term localised safety responses. Given that most crime and violence occurs within local communities and municipal spaces, national and provincial government assistance is vital in establishing appropriate fiscal, personnel, and organisational systems within local government to fulfil their responsibilities in line with CPTED (CSP, 2016).

4.5   The role of the Department of Human Settlements in CPTED

The National Spatial Development Perspective (NSDP) and the Draft National Urban Strategy (DNUS) emphasise the transition *"beyond the provision of basic shelter towards achieving the broader vision of sustainable human settlement and more efficient cities, towns, and regions"* as noted by the planners.

Town planners noted the evolution from the 'Department of Housing' to the 'Department of Human Settlements', highlighting a shift towards not only building houses but also establishing sustainable human settlements. They attributed the challenges in the current urban landscapes to apartheid-era planning, which led to racially segregated areas with inadequate infrastructure for the poor, resulting in long commutes to and from work and limited access to essential services. Consequently, the focus has shifted towards holistic development, ensuring that it includes necessary amenities such as shops, formal schools, clinics, police stations, etc are within proximity. This is exemplified by projects such as Cosmo City and Fleurhof, which are aligned with the NSDP and DNUS objectives, providing diverse opportunities and mixed land use.

The town planners also asserted that the Department of Human Settlements is transitioning from merely providing basic shelters to offering financially sustainable housing solutions for all and are financially sustainable for the government. Currently, the department is implementing a Rapid Land Release program, which empowers beneficiaries by granting them serviced stands to build their own homes. However, concerns have been raised by local government about the safety implications of expecting beneficiaries to build their own perimeter walls and houses. Asserting that this approach could leave communities vulnerable to crime and falls short of effective crime prevention measures.

Furthermore, town planners acknowledge the lack of CPTED principles in their planning and design processes. While they consider environmental safety aspects, such as assessing land conditions and terrain, CPTED principles are not integrated due to a lack of understanding. Moreover, they advocated for educational seminars or forums on CPTED principles and their application in urban planning to bridge this gap and enhance

their ability to create safer communities through planning and design. *"The Department of Community Safety should provide forums for exchanging information on CPTED projects".*

Based on the views of the town planners, the Department of Human Settlements actively supports the national drive for sustainable human settlements and efficient urban development by integrating CPTED principles. However, there is a lack of awareness regarding the extent of CPTED integration in national and provincial policies and guidelines. By enhancing spatial planning and strategically locating housing projects near social amenities, urban inclusivity is promoted, addressing social and economic challenges and reducing crime opportunities. This approach also mitigates fear and vulnerability associated with long commutes to work or schools, enhancing community safety and well-being.

4.6   The extent to which policy or legislation is engaged

This section will delve into the understanding of the policy and legislative framework that underpins the legal basis for local government's promotion of community safety and crime prevention.

Officials from CoGTA highlighted that the Gauteng Spatial Development Framework (GSDF) aligns with the Sustainable Development Goals (SDGs), particularly SDG 11, and responds to Chapter 8 of the National Development Plan (NDP), alongside principles of spatial justice and the Spatial Planning and Land Use Management Act (SPLUMA), which aligns with the NDP. The GSDF serves as a guiding document for spatial development at the provincial level, while the implementation of policies such as the Integrated Development Plan (IDP) and NDP falls within the scope of municipalities. Therefore, it becomes the responsibility of local government to ensure the implementation of these policies. Additionally, officials mentioned the establishment of the CSF as a legislative mandate of municipalities.

Moreover, officials from CoGTA believe that various policies and strategies outline local government's responsibility for implementing models like CPTED. However, most officials noted that while there is progress in understanding and practical applications of CPTED within government departments, its implementation remains limited. Professionals such as engineers, town planners, and architects were cited as sometimes being overly technical and failing to integrate social aspects into their work.

Furthermore, an official from the City of Tshwane highlighted the role of the Urban Safety Reference Group (USRG), a collaborative effort convened by the South African Cities Network and supported by the German Development Cooperation (GIZ), which comprise of representatives from various municipalities in the country. Currently, the USRG is focusing on GBV and safety audits. Discussions within the USRG have emphasised the need to adapt international CPTED principles to the South African context, considering factors such as informal settlements and the importance of community participation. Additionally, the USRG has indicated the importance of including vulnerable groups and gender mainstreaming into CPTED initiatives. An official gave an example of designing a public transport facility, stating that it is important to consider the needs of people with disabilities, men, women and children. However, some officials expressed uncertainty regarding existing policies addressing CPTED principles, leading to inconsistent implementation based on their knowledge and experience.

In contrast, SAPS implied that they actively engage with policy and legislation, particularly as part of the Community Safety Forum, *"that's where we plan and implement policies".* They highlighted the ICVPS, 2022 as a guiding framework. Moreover, they collaborate with other sister departments, *"we work with DBE in implementing the School Safety Strategy".* Additionally, SAPS mentioned integration of the ICVPS and WPSS into their approaches when addressing CPTED initiatives. They further acknowledged the challenge of ensuring consistent commitment from all stakeholders.

Furthermore, SAPS indicated their engagement with the 1996 NCPS on matters pertaining to CPTED. They highlighted lack of communication and collaboration among stakeholders in the planning and design of the built environment, which hinders learning, understanding and implementation of the model. SAPS further added that departments are working in silos, leading to a lack of coordination and information sharing.

Overall, understanding of CPTED policies is still evolving among participants, with some mentioning policies that address crime in general, rather than CPTED specifically. Interestingly, some participants believe that local government lacks policy or legislation specifically addressing CPTED. However, when they elaborate on their work, it becomes apparent that CPTED principles are being implemented, but without conscious awareness of doing so.

Moreover, most participants view CPTED as the responsibility of town planners given their roles as builders and designers. However, challenges such as lack of collaboration between stakeholders and limited awareness of existing policies contributes to the incomplete implementation of CPTED in some Gauteng municipalities.

4.7   The Department of Human Settlements approach to spatial design and CPTED

According to the town planners, the department integrates municipal bylaws into its development and housing establishment processes by considering factors such as access points, perimeter walls, and recreational spaces within that area. As an example, they mentioned a township design where limited access points, typically

two or three, are implemented to restrict criminals' escape routes after committing crimes. "*For example, a 500-unit development would have as few main entrances as possible. You would want to have few main entrances as possible with the aim of restricting criminals from escaping after committing crimes (robberies or housebreakings), especially for freestanding houses*". Similarly, developments like walk-up apartment buildings or townhouse complexes are designed with at least two exit guard gates for projects comprising 700 units or more, adhering to current design and specifications. It is important to note that these guidelines do not necessarily specify the minimum number of units in a particular development. Additionally, these neighbourhoods are typically enclosed by perimeter fences, restricting access to residents only.

Conversely, the town planners noted that the Department of Human Settlements is responsible for developing house plans that must include secure doors to ensure beneficiary safety. Despite these measures, they do not view them as part of the CPTED model. The department, according to the town planners, does not specifically incorporate CPTED principles into house plans but does consider factors such as exit points, streetlights, and houses being built a distance from highways or railways, in alignment with municipal bylaws. They emphasised that they adhere to municipality bylaws as a guiding framework for their design approach and spatial planning, including aspects of child safety and community security.

From the town planners' perspective, it is evident that the Department of Human Settlements lacks full awareness of the CPTED model. Therefore, it is essential for government to educate officials about the CPTED model to ensure its effective implementation.

4.8 The current approaches that municipalities in Gauteng are employing to reduce crime through spatial design

The local government officials indicated that the built environment significantly influences crime. Therefore, addressing only the social aspects of crime would overlook the role of the physical environment. For instance, an official stated that "*parks serve as a form of social infrastructure that the community uses, it can also be a place where drug addicts hangout ... so, one needs to look at the design of parks to inhibit this behaviour*". Additionally, the official mentioned local government's efforts to maintain parks and open spaces, including grass-cutting initiatives aimed at enhancing aesthetics and reducing opportunities for criminal activity.

Moreover, the officials highlighted that local government has undertaken regeneration projects in partnership with architects and town planners to uplift previously neglected areas. For example, they have revitalised parks and sports grounds using CPTED principles to enhance safety and aesthetics. However, despite their positive impact, sustaining these projects long-term has proven challenging shifting responsibility to other departments such as Parks and Recreation. This is to ensure the continual upkeep and maintenance of the area and necessitating routine law enforcement patrols to prevent crime and vandalism.

Furthermore, officials from the City of Tshwane also mentioned that Safer Cities was tasked with conducting ward safety profiles. They further added that they are currently running a project with the National Treasury called Hammanskraal Urban Development, which is included in the Department of Trade and Industry's (DTI) Industrial Park revitalisation programme where CPTED is being emphasised. Moreover, they indicated that they run two operations in efforts to close unregistered pop-up schools found in the CBDs, working alongside Mokgolo, Marathon and Randfontein response services, security companies as well as CPFs to bolster resources for visibility drives and patrols, especially during peak periods such as weekends and holidays.

Similarly, the officials from City of Johannesburg highlighted initiatives such as 'Arrive Alive' campaign which aims to promote road safety and reduce the risk of accidents, especially during the festive season. Moreover, they noted that the City of Johannesburg has appointed a town planner within the safety and security unit, marking a positive development. One official commented, "*this is a positive development as there is a significant overlap between what town planners do and how we can influence crime and safety in space*".

Furthermore, local government officials mentioned past projects where CCTV cameras were installed as a crime prevention initiative, capable of tracking individuals walking down the road. Although successful at the time, it was discontinued in 2018 due to funding constraints.

While municipalities are implementing various approaches to curb crime through environmental design, financial constraints pose challenges to implementing CPTED principles fully. However, it is crucial to recognise that CPTED often intertwines with other social crime prevention programmes, even if officials are not explicitly aware of it.

4.9 The extent to which CPTED could run alongside other crime prevention initiatives

Local government officials and experts asserted the compatibility of CPTED with other crime prevention initiatives, emphasising the importance of collaboration among government departments and the community, alongside the SAPS, to combat crime effectively. They also suggested addressing firearm issues through community-SAPS partnerships and tackling drug addiction with the establishment of nearby

rehabilitation centres. Additionally, enhanced border control was advocated by SAPS to curb the influx of illegal firearms and drugs, underscoring the potential of inter-departmental collaboration to weaken crime.

A consensus among study participants highlights the critical role of community participation. Officials from the City of Tshwane and Johannesburg proposed integrating community involvement with safety audits and Social Crime Prevention Initiatives. For instance, revitalising neglected parks through community engagement and organising recreational activities can contribute significantly to improving safety. They highlighted that successful crime prevention through environmental design necessitates community involvement and active participation.

Local government and the officials from the City of Tshwane stressed the importance of establishing a clear understanding and outline of crime prevention initiatives before applying CPTED principles. An official from Johannesburg supported this by emphasising that considerations such as surveillance, access routes, and aesthetics at the municipal level, where most crime prevention efforts are implemented should be in alignment with CPTED principles. Furthermore, they pinpointed the need for a provincial-level focus to ensure that sector departments align with CPTED principles in infrastructure development, human settlements, and other areas.

Officials from CoGTA highlighted the importance of mainstreaming CPTED within municipalities as they are responsible for enforcing bylaws as well as educating sector departments on its principles. They suggested integrating CPTED into township establishment processes, where the GDCS should review new proposals and ensure compliance with CPTED principles. However, they noted challenges in obtaining feedback from departments such as the GDCS as well as the SAPS, on township establishment applications. Additionally, experts echoed the view that CPTED is most effective when combined with other initiatives as part of a holistic approach to community development. They emphasised integrating CPTED with improved policing, community development, recreation facilities, public transportation, and service delivery initiatives. Maintenance of CPTED initiatives was underscored as essential to prevent wastage of resources and maintain conditions conducive to crime prevention.

V.   RECOMMENDATIONS

Gauteng province grapples with complex crime challenges. Crime Prevention through Environmental Design (CPTED) principles offer a promising approach to deter crime and enhance safety within communities. However, the effectiveness of implemented CPTED initiatives remains understudied. This study delves into the implementation of CPTED initiatives across Gauteng and recommends the following:

4.1 Practicality of CPTED

It is important to consider the specific needs and contexts of each community when implementing CPTED as it is not a one size fits all intervention. Resources like the CSIR manual *"Designing Safer Places: A manual for Crime Prevention through Planning and Design"* should be consulted for guidance. This manual outlines the process of developing a local crime prevention strategy and incorporates crime prevention principles into the planning and design of communities, effectively designing out crime.

4.2 Education on CPTED model

Local governments should educate communities and stakeholders about CPTED and its benefits in order to strengthen crime prevention efforts. Seminars and workshops are examples of educational endeavours. Furthermore, CPTED should be included in the curriculum for municipal planners and architects at tertiary institutions.

4.3 Collaboration on CPTED

Establish joint task teams with representatives from government, urban planning, and communities (Cozens et al., 2005). Create communication channels such as regular meetings, shared online platforms or joint workshops, between town/urban planners and local government officials to share information and ideas (Cozens et al., 2005). Actively involve residents in planning and decision-making through public consultation community surveys or focus groups, to gather inputs on local crime concerns and identify CPTED solutions tailored to community needs (Aboo, 2013). Furthermore, invitations should be honoured by the GDCS, especially when sister departments seek inputs on CPTED matters.

4.4 CPTED through service delivery

Address service delivery issues such as lighting, infrastructure, and community amenities as well as integrate CPTED principles into service delivery initiatives. For instance, a particular intersection may be the scene of repeated mugging for commuters due to poor lighting which provides easy cover for perpetrators. In such a case, the process of maintaining and installing streetlights as part of service delivery can reduce the risk of crime.

4.5 Proper implementation of the IDP

Ensure proper implementation of Integrated Development Plan (IDP). Explicitly integrate CPTED principles into new and existing designs as well as developments.

4.6 CPTED model around transport facilities and transportation

Apply CPTED principles into the design of transportation facilities like bus stops, train stations and airports. Focus on creating safe and secure environments for all users, especially women, children and other vulnerable groups. For instance, when using public transportation, commuters should feel safe and confident that the bus or train they are boarding is safe. Additionally, the routes they commute along should be well lit, populated and equipped with adequate surveillance to minimise opportunities for crime, as the study indicates that less busy areas increase feelings of vulnerability. Moreover, ensuring that streetlights and traffic lights function reliably, even during adverse weather conditions, contributes to a sense of safety and security for commuters.

VI.   CONCLUSION

This study discovered the efforts made by local government to implement various measures to address crime; however, it has also revealed that there is a lack of knowledge and understanding regarding the implementation of spatial initiatives aimed at reducing crime. Additionally, it was found that local government is not familiar with the concept of CPTED; however, to some extent, they incorporate CPTED principles into their initiatives, often alongside other social crime prevention programs.

As the CPTED model incorporates an environmental management approach that supports green sustainability, it can be utilised to address a range of socio-developmental issues beyond crime prevention. Originally conceived to enhance or reduce crime through environmental design, the model has evolved to adapt to the changing nature of society. Its application in urban renewal and regeneration projects, which focus on broader service delivery indirectly incorporating crime prevention, represents a more holistic and integrative approach to implementing the model.

The findings of this study underscore the reciprocal relationship between crime prevention and planning and design. While certain aspects of CPTED have the potential to reduce and prevent crime and vulnerability (Armitage, 2016), practitioners must ensure a thorough evaluation of criminality and the environment before applying the model (Aboo, 2013). Furthermore, consistent community involvement in crime prevention efforts is essential (Aboo, 2013).

Effective crime prevention initiatives by local government should address existing criminal elements and other socio-economic issues to achieve long-term success (Aboo, 2013). This necessitates innovative and sustainable prevention strategies that encourage participation and partnership among all stakeholders, particularly involving local government and communities (White Paper on Safety and Security, 1998; White Paper on Local Government, 1998; NCPS, 1996).

The positive response from Gauteng residents towards alternative crime prevention approaches indicates that CPTED is a viable option for the province. However, it's essential to recognise that not all CPTED principles may be feasible for application in every context. The successful implementation of CPTED in Gauteng requires consideration of the dynamics of an area, creative and innovative approaches as well as active community participation and consultation.

References

[1].   Aboo, R.K. (2013). Environmental design, crime and vulnerability: A case study of Wentworth (Master's thesis). University of KwaZulu -Natal. Durban.
[2].   Armitage, R. (2016). 12 Crime Prevention through Environmental Design. Environmental criminology and crime analysis, 259.
[3].   Austin, D.A., Furr, A.L., and Spine, M. (2002). The effects of neighbourhood conditions on perceptions of safety. Journal of Criminal Justice, 30: 417-427.
[4].   Brantingham, P.L. and Brantingham, P.J., 1991. Environmental criminology. Waveland Press.
[5].   Brown, B.B., Perkins, D.D. and Brown, G. (2004). Crime, new housing, and housing incivilities in a first-ring suburb: Multilevel relationships across time. Housing Policy Debate, 15(2), pp.301-345.
[6].   Caulfield, J., 2019. How to Do Thematic Analysis | Step-by-Step Guide & Examples. [Online]   Available at: https://www.scribbr.com/methodology/thematic-analysis/ [Accessed 12 June 2023].
[7].   Civilian Secretariat for Police Service. (2016). White Paper on Safety and Security.
[8].   Clarke, R. V. G. (1983). CPTED: A review of the literature. Security and Crime Prevention Institute, School of Criminal Justice, Rutgers University, New Jersey.
[9].   Cooper, C., Booth, A., and Garside, R. 2018. Defining the process to literature searching in systematic reviews: A literature review of guidance and supporting studies. Journal of BMC Medical Research Methodology, 18(85)1-14.
[10].   Cordner, G.W. (2010). Reducing fear of crime: Strategies for police. Washington, DC: US Department of Justice, Office of Community Oriented Policing Services, pp. 45-52.
[11].   Cozens, P., D'Adderio, L., & Townsley, M. (2005). Crime prevention through environmental design (CPTED): A review of the literature and research agenda. European Journal of Criminology, 2(3), 319-350.
[12].   Cozens, P.M., Saville, G. and Hillier, D. (2005). Crime Prevention Through Environmental Design (CPTED): A Review and Modern Bibliography. Journal of Property Management, 23(5), pp.328-356.

[13]. CSIR and ISS. (1997). Safer by Design: Toward effective crime prevention through environmental design in South Africa, Pretoria: CSIR Publication.
[14]. Denney, A. and Tewksbury, K. 2013. How to write a Literature review? Journal of Criminal Justice Education, 24(24), 1-7.
[15]. Department of Cooperative Governance, 2022. Integrated Crime and Violence Prevention Strategy. Pretoria: Government Printer.
[16]. Department of Police, 2016. White Paper on Safety and Security. Pretoria: Government Printer.
[17]. Flick, U. (2015). Introducing research methodology: A beginner's guide to doing a research project. Sage.
[18]. Geason, S., and Wilson, P. R. (1989). Designing out crime: Crime prevention through environmental design, 3, Canberra: Australian Institute of Criminology.
[19]. Harrell, M.C. and Bradley, M.A. (2009). Data collection methods. Semi-structured interviews and focus groups, Rand National Defense Research Inst Santa Monica California.
[20]. Kabir, S.M.S. (2016). Basic guidelines for research: An introductory approach for all disciplines, 4(2), pp.168-180.
[21]. Kruger, T. (2005a). Building safer communities – reducing crime through environmental planning and design, CSIR Built Environment Unit - Sustainable Human Settlements Pretoria, South Africa.
[22]. Kruger, T. and Landman, K. (2003). Living in an Enclave Society: Practical Implications of Environmental Design, Governance, 30: 31.
[23]. Kruger, T. and Landman, K. (2008). Crime and the physical environment in South Africa: Contextualizing international crime prevention experiences. Built environment, 34(1), pp.75-87.
[24]. Kruger, T., Landman, K. and Liebermann, S. (2006). Crime prevention through environmental design strategy for the North West Province, The Department of Transport, Roads and Community Safety, CSIR Built Environment.
[25]. Kruger, T., Landman, K., Liebermann, S. and Nel, P. (2001) A manual for crime prevention through planning and design. Pretoria: CSIR Building and Construction Technology, for the South African Police Service, Division Crime Prevention (Social Crime Prevention).
[26]. Lens, M.C. (2013). Subsidized housing and crime: Theory, mechanisms, and evidence. Journal of Planning Literature, 28(4), pp.352-363.
[27]. Loukaitou-Sideris, A., Liggett, R. S., Iseki, H. and Thurlow, W. (2000). Measuring the effects of built environment on bus stop crime, University of California Transportation Center, University of California.
[28]. Marshall, C. and Rossman, G.B., 1999. Designing qualitative research. 3rd ed. Thousand Oaks, CA: Sage Publications.
[29]. National Planning Commission, 2012. National Development Plan 2030: Our Future - Make it Work. Pretoria: The Presidency.
[30]. NCPC. (2003). Crime prevention through environmental design guidebook, Singapore.
[31]. Newburn, T. (2009). Key Readings in Criminology. Willan Publishing, Devon.
[32]. Newham, G. (2005). A decade of crime prevention in South Africa: From a national strategy to a local challenge. Centre for the Study of Violence and Reconciliation (CSVR).[Online] available: http://www. csvr. org. za/docs/crime/decadeofcrime. pdf (March 21, 2011).
[33]. Newman, O. (1972). Defensible space: Crime prevention through urban design. Macmillan Publishers.
[34]. Newman, O. (1996) Creating Defensible Space. U.S. Department of Housing and Urban Development Office of Policy Development and Research.
[35]. Oakland Police CPTED Security Handbook. (n.d).
[36]. Ratcliffe, J. (2003). Suburb boundaries and residential burglary, 1-6. Australian Institute of Criminology.
[37]. Rauch, J. (2002). Thinking big: the national urban renewal programme and crime prevention in South Africa's metropolitan cities. Johannesburg: Centre for the Study of Violence and Reconciliation.
[38]. Report On the National Area-Based Management Conference. (2006). eThekwini Municipality, South Africa.
[39]. Republic of South Africa, 1996. National Crime Prevention Strategy. Pretoria: Government Printer.
[40]. Sarantakos, S., 1998. Social research. 2nd ed. Basingstoke: Macmillan Press.
[41]. Saville, G. and Mihinjac, M. (2022). Third Generation CPTED—Integrating Crime Prevention and Neighbourhood Liveability. 10.1007/978-3-031-15108-8_2.
[42]. Whitzman, C. (2008). The Handbook of Community Safety Gender and Violence Prevention: Practical Planning Tools, Earthscan.
[43]. Zambuko, O. and Edwards, C. (2007). Effective strategies of crime prevention: The case of Durban, South Africa. Unpublished case study prepared for Global Report on Human Settlements.