

Mapping Environmental Design Strategies for Preventing Crime and Terrorism for Crowded Urban Places in Nigeria

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Abstract. This study explores the potential of Crime Prevention Through Environmental Design (CPTED) in enhancing the security of crowded places in Nigeria, where terrorist threats have posed significant challenges. While traditional security measures have focused on law enforcement and surveillance, CPTED presents a non-kinetic, design-based approach that modifies physical spaces to deter crime and improve public safety. This research addresses the gap in empirical studies, specifically examining the applicability of CPTED to counterterrorism in Nigerian contexts. Using a qualitative research design, the study employs secondary data analysis from academic literature, government reports, and case studies combined with thematic analysis to assess CPTED's effectiveness. Findings indicate that CPTED principles such as natural surveillance, access control, and territoriality can be adapted to address the security needs of crowded Nigerian spaces. Still, local cultural and socio-economic factors must be considered for successful implementation. Practical implications include integrating CPTED with security strategies to create more resilient urban environments. The study recommends incorporating CPTED in Nigeria's national counterterrorism policies and further research to explore context-specific adaptations of CPTED in various urban settings. This research contributes to developing comprehensive counterterrorism strategies enhancing safety in vulnerable, high-traffic areas.

Keywords: Crime Prevention Through Environmental Design; Counterterrorism; Crowded Places Security; Nigeria Urban Safety; Environmental Design Strategies; Public Space Protection.

INTRODUCTION

Terrorism has emerged as a significant global security threat, with Nigeria experiencing its fair share of attacks. Due to their high foot traffic and symbolic value, crowded places are particularly vulnerable to such attacks [1, 2]. While tradition-

al security measures like law enforcement and surveillance play a crucial role, there is a growing recognition of the importance of non-kinetic approaches, such as Crime Prevention Through Environmental Design (CPTED). CPTED focuses on

modifying the built environment to reduce crime opportunities and enhance public safety.

CPTED principles have been successfully applied to various crime prevention contexts, including urban planning, residential areas, and transportation systems. According to [3], several studies demonstrated the effectiveness of CPTED in reducing crime rates. However, its application to terrorism prevention is a relatively new area of research.

Authors [4] pointed out that the need for innovative counterterrorism strategies is evident in the Nigerian context. While the government has implemented various security measures, the challenge of preventing attacks in crowded places remains significant. Studies [5, 6] highlight the vulnerability of Nigerian cities to terrorist attacks and the need for comprehensive security approaches.

CPTED offers a promising avenue for enhancing the security of crowded places in Nigeria. With the modification of the physical environment, CPTED can create a less hospitable environment for terrorists and deter potential attacks. It involves strategies such as improving natural surveillance, controlling access points, and promoting territorial reinforcement. Authors [7] have emphasised the importance of natural surveillance in crime prevention. Designing spaces that allow for easy observation makes it more difficult for terrorists to plan and execute attacks. As [8] discussed, controlling access points is another crucial CPTED principle. Limiting entry and exit points makes it more challenging for terrorists to infiltrate crowded areas.

According to [9], Territorial reinforcement involves creating a sense of ownership and community among residents and visitors. By fostering a sense of belonging, CPTED can encourage people to report suspicious activity and take collective action to enhance security.

In Nigeria, political, economic, and social grievances are causing violence and deaths. Several militant groups are active in the country, leading to attacks on both civil and military targets. Boko Haram is the deadliest terrorist group, an affiliate of the Islamic State. Over the years, the terrorism index in Nigeria experienced an increase. As of 2019, the indicator stood at 8.31. The index measures the direct and indirect impact of terrorism on a scale from 0 (no impact) to 10 (highest impact). Despite a decrease compared to the

previous five years, Nigeria is one of the countries with the highest terrorism threat levels in the world [10, 11]. In 2019, it recorded the second-largest number of deaths related to terrorism worldwide [12].

Notwithstanding, CPTED proposes that designing buildings, landscapes, and outdoor spaces can encourage or discourage criminal behaviour. It emphasises proactive measures that reduce criminal opportunities and enhance positive social interactions among users. As stated earlier, the core principles of CPTED include natural surveillance, territoriality, access control, and maintenance, which are essential for creating secure environments [9]. However, Nigeria faces persistent security challenges, including terrorism by extremist groups. Crowded places such as markets, bus stations, and religious gatherings are vulnerable targets. Understanding the local context, cultural dynamics, and spatial patterns is crucial for effective counterterrorism strategies. Therefore, this study aims to explore the potential of CPTED in preventing terrorism in crowded Nigerian places, drawing on existing literature and case studies. The following research objectives guide the study: 1) Explore the applicability of CPTED principles; 2) Assess the potential of CPTED in preventing terrorism in crowded Nigerian places; 3) Understand the local context, cultural dynamics, and spatial patterns relevant to counterterrorism efforts.

Crime Prevention Through Environmental Design (CPTED) offers a promising approach to enhancing the security of crowded places by modifying the physical environment to deter criminal activity. While traditionally focused on reducing conventional crime, CPTED principles can be adapted to counter terrorism threats [12]. This review examines recent empirical research on CPTED's application to terrorism prevention in crowded areas.

Despite the growing interest in CPTED, empirical studies specifically addressing its effectiveness in preventing terrorism in crowded Nigerian places remain limited. Most research has focused on the general applicability of CPTED principles in Nigerian urban environments. Existing studies suggest that CPTED principles can be adapted to address terrorism-related challenges [13]. Authors [14, 15] found that elements of CPTED, such as natural surveillance and territoriality, can reduce crime rates in Nigerian tourist attractions. The effectiveness of CPTED in Nigeria depends on

various factors, including cultural nuances, socio-economic conditions, and the specific characteristics of crowded places. Authors [16] emphasise the importance of considering local contexts when implementing CPTED strategies.

Challenges and Opportunities: Studies have identified challenges in applying CPTED in Nigeria, such as limited resources, inadequate infrastructure, and resistance to change. However, there are also opportunities for innovative approaches, such as leveraging technology and community involvement. **Integration with Other Strategies:** CPTED can be most effective with other security measures, such as intelligence gathering, law enforcement, and community engagement. Authors [17] highlight the need for a comprehensive approach that combines CPTED with traditional security strategies.

Therefore, the empirical review underscores the need for a holistic approach to counterterrorism that bridges the gap between government strategies and community realities. Integrating CPTED principles into Nigeria's counterterrorism efforts can create safer, crowded places and improve existing measures.

METHODS

Research Design. This study employs a qualitative research design, as explored in the study [18], to provide a deep understanding of the complex interplay between CPTED principles, terrorism prevention, and the Nigerian context. A secondary data analysis approach was adopted, relying on existing literature, case studies, and relevant reports.

Data Collection

Literature Review: A comprehensive review of academic literature, government reports, and

news articles was conducted to identify existing knowledge on CPTED, terrorism, and their intersection in Nigeria using thematic analysis. Case studies of successful CPTED implementations in other countries, mainly the USA and those facing similar security challenges, were examined to identify best practices and lessons learned.

Government Documents and Reports: Analysis of relevant government documents, such as national security strategies, counterterrorism plans, and urban planning guidelines, were explored to provide insights into existing policies and initiatives.

Data Analysis

Thematic Analysis: Key themes and patterns emerging from the collected data were identified and analysed as utilised in the study [19]. These themes include the applicability of CPTED principles in crowded Nigerian places, challenges and opportunities for implementation, and the potential impact on terrorism prevention. More so, case studies from other countries were compared to the Nigerian context to identify similarities, differences, and possible gaps.

Policy Analysis: Government documents and reports were analysed to assess how CPTED principles are integrated into existing counterterrorism strategies and identify potential gaps or areas for improvement.

RESULTS AND DISCUSSION

1. The applicability of CPTED principles in a global context. Table 1 presents a set of general principles called Crime Prevention Through Environmental Design (CPTED). These principles aim to create less attractive environments for criminal activity by incorporating design elements that promote safety and security.

Table 1 – General principles of CPTED

No	Security Variable	Universal Design Strategy	Anticipated Result
1	Natural Surveillance	Designing features that maximise visibility: - Proper lighting (both natural and artificial) - Clear sightlines (avoiding blind spots) - Placement of windows and doors for observation - Landscaping that does not obstruct views	Increased awareness and deterrence of criminal activity
2	Territoriality	Creating a sense of ownership and community: - Clearly defined boundaries (physical or symbolic) - Use of signage, landscaping, or architectural features - Encourage positive interactions among users	Users active care and protection for the environment

No	Security Variable	Universal Design Strategy	Anticipated Result
		- Foster a feeling of responsibility for the space	
3	Access Control	Limiting entry and exit points: - Controlled access (gates, turnstiles, checkpoints) - Use of natural barriers (hedges, walls, fences) - Monitoring and surveillance at access points - Differentiate public, semi-public, and private areas	Reduced opportunities for unauthorised entry
4	Maintenance	Regular upkeep and management: - Prompt repair of broken infrastructure - Removal of graffiti, litter, and debris - Proper lighting maintenance - Active management by property owners or managers	Signals care discourages criminal behaviour and maintains a positive environment.

The first principle is Natural Surveillance, which maximises visibility and reduces blind spots. This strategy involves using proper lighting, clear sightlines, strategically placed windows and doors, and landscaping that does not obstruct views. By increasing visibility, potential criminal activity can be more easily detected, deterring potential offenders.

The second principle is territoriality, which seeks to create a sense of ownership and community. This strategy can be achieved through clearly defined boundaries, signage, landscaping, or architectural features, encouraging positive user interactions and fostering a feeling of responsibility for the space. When people feel a sense of ownership and belonging, they are more likely to actively protect and care for their environment.

The third principle is Access Control, which aims to limit entry and exit points. This principle can

be accomplished through controlled access points, natural barriers, monitoring and surveillance at access points, and differentiating between public, semi-public, and private areas. By restricting access, the opportunities for unauthorised entry and criminal activity are reduced.

The final principle is maintenance, which emphasises the importance of regular upkeep and management. This principle includes prompt repairs, graffiti, litter, debris removal, proper lighting maintenance, and active management by property owners or managers. A well-maintained environment signals care, discourages criminal behaviour, and maintains a positive atmosphere.

Table 2 offers a comprehensive overview of the integration of CPTED principles into existing counterterrorism strategies in the United States.

Table 2 – CPTED principles integrated into existing counterterrorism strategies based on relevant government documents and reports

Document Title	Key Points	Integration of CPTED Principles	Gaps and Areas for Improvement
National Strategy for Counterterrorism (October 2018) [20]	- Focus on radical Islamist terrorist groups globally. - Threats from Iran and other extremist ideologies.	Acknowledges the importance of counterterrorism.	Specific CPTED strategies are not explicitly outlined.
DHS Strategic Framework for Countering Terrorism and Targeted Violence [21]	- Addresses evolving challenges of today. - Tools and expertise for protecting against foreign terrorist organisations.	Implicitly incorporates CPTED principles in its approach.	Lack of detailed CPTED implementation guidance.
The White House Counterterrorism Strategy (June 2011) [22]	- Adheres to U.S. core values. - Emphasises international cooperation.	No direct mention of CPTED principles.	Explicit inclusion of CPTED in future revisions.

Document Title	Key Points	Integration of CPTED Principles	Gaps and Areas for Improvement
National Strategy for Countering Domestic Terrorism (2021) [23]	<ul style="list-style-type: none"> - Safeguarding civil rights and liberties. - Comprehensive approach to domestic terrorism. 	CPTED principles are not explicitly stated.	Integration of CPTED in community engagement efforts.
National Strategy for Counterterrorism (NCTC) [20]	<ul style="list-style-type: none"> - Recognises the full range of terrorist threats. - Emphasises all elements of national power. 	CPTED principles are implied as part of a comprehensive strategy.	Need for specific CPTED implementation guidelines.

The analysis reveals a mixed landscape, with some documents explicitly acknowledging the importance of CPTED while others only implicitly incorporating its principles. The National Strategy for Counterterrorism 2018 and the DHS Strategic Framework for Countering Terrorism and Targeted Violence 2019 recognise CPTED's significance in counterterrorism efforts. Although not explicitly outlined, these documents implicitly incorporate CPTED principles by addressing evolving threats and leveraging tools and expertise to protect against foreign terrorist organisations. However, neither document provides detailed guidance on CPTED implementation, leaving room for improvement.

In contrast, the White House Counterterrorism Strategy 2011 and the National Strategy for Countering Domestic Terrorism 2021 do not explicitly mention CPTED principles. While the latter emphasises a comprehensive approach to domestic terrorism, it fails to explicitly integrate CPTED into its strategies. The absence of CPTED in these documents highlights a missed oppor-

tunity to enhance counterterrorism efforts through evidence-based crime prevention strategies.

Overall, the Table reveals a growing awareness of the importance of CPTED principles in counterterrorism strategies. However, there is a clear need for more explicit integration and detailed implementation guidance to fully leverage the potential of CPTED in enhancing national security. Future revisions of these documents should prioritise the inclusion of CPTED principles and provide concrete strategies for their implementation.

2. *The potential of CPTED in preventing terrorism in crowded Nigerian places.* Table 3 Table 1 presents a comprehensive framework analysis of CPTED in Nigerian Urban Contexts. CPTED is a strategy that seeks to reduce crime by altering the physical environment to make it less conducive to criminal activity.

Table 1 – Applicability of CPTED in Nigerian Crowded Places

No	Security Variable	Nigerian Design Strategy	Anticipated Result
1	Natural Surveillance	<p><i>Nigerian Urban Context:</i></p> <ul style="list-style-type: none"> - High Population Density: Nigerian cities often experience overcrowding, especially in markets, Motor parks/ stations, and religious gatherings. - Informal Markets: These bustling markets are central to daily life but can also be vulnerable to criminal activity. <p><i>Design Considerations:</i></p> <ul style="list-style-type: none"> - Lighting: Ensure well-lit public spaces, especially during evening hours. - Visibility: Optimise sightlines to minimise blind spots. - Market Layout: Arrange stalls for natural surveillance (e.g., avoiding hidden corners). - Community Engagement: Encourage vendors and shoppers to be vigilant. 	Enhanced safety through increased awareness and visibility.

No	Security Variable	Nigerian Design Strategy	Anticipated Result
2	Territoriality	<p><i>Nigerian Cultural Dynamics:</i></p> <ul style="list-style-type: none"> - Community Bonds: Nigerians often have strong community ties. Leverage this for territoriality. - Religious Gatherings: Churches and mosques serve as communal spaces. Design features that foster ownership. <p><i>Symbolic Boundaries:</i></p> <ul style="list-style-type: none"> - Entrances: Mark entrances with welcoming symbols (e.g., religious motifs). - Courtyards: Create communal gathering areas. - Public Art: Murals or sculptures can reinforce territoriality. 	Users actively protect and feel a sense of ownership.
3	Access Control	<p><i>Nigerian Security Challenges:</i></p> <ul style="list-style-type: none"> - Terrorism Threat: Crowded places are potential targets (e.g., bus stations, markets and arenas during festivities). <p><i>Design Solutions:</i></p> <ul style="list-style-type: none"> - Controlled Entrances: Implement turnstiles or security personnel. - Perimeter Barriers: Use hedges, low walls, or fences. - Security Checks: Bag checks at entry points. - Emergency Exits: Clearly marked and monitored. 	Reduced opportunities for unauthorised access.
4	Maintenance	<p><i>Nigerian Context:</i></p> <ul style="list-style-type: none"> - Resource Constraints: Regular maintenance can be challenging. <p><i>Community Involvement:</i></p> <ul style="list-style-type: none"> - Volunteers: Engage local communities in upkeep. - Cleanliness Campaigns: Promote cleanliness and pride. - Reporting: Encourage reporting of broken infrastructure. 	A well-maintained environment signals care and discourages criminal behaviour.

The framework outlined in the Table focuses on four key elements: Natural Surveillance, Territoriality, Access Control, and Maintenance. Natural surveillance is achieved by designing spaces that promote visibility and discourage hiding places. This scrutiny can be particularly effective in high-density areas like markets and religious gatherings in Nigerian cities. Ensuring adequate lighting and optimising sightlines makes it more difficult for criminals to operate undetected. In addition, arranging market stalls to avoid hidden corners can further enhance natural surveillance.

Territoriality is another crucial aspect of CPTED. By fostering a sense of ownership and belonging among community members, the framework aims to discourage criminal activity. In Nigerian cultural contexts, leveraging strong community ties and utilising religious spaces as communal hubs can contribute to this goal. Incorporating symbolic elements like entrances, courtyards, and public art can also reinforce territoriality and create a sense of place. Access Control involves implementing measures to limit unauthorised

access to crowded areas. Given the security challenges faced by Nigeria, such as terrorism threats, controlled entrances, perimeter barriers, and security checks become essential. Restricting entry points and conducting thorough screenings can significantly reduce the potential for criminal activity. Maintenance is the final element of the CPTED framework. A well-maintained environment signals care and discourages criminal behaviour. In Nigeria, where resource constraints may be challenging, community involvement in upkeep can play a vital role. By encouraging volunteers, promoting cleanliness campaigns, and establishing reporting mechanisms for broken infrastructure, the overall quality of the environment can be improved.

Table 4 provides a valuable framework for applying CPTED principles to crowded Nigerian places. By addressing natural surveillance, territoriality, access control, and maintenance, it is possible to create safer and more secure urban environments.

Table 4 – Assessing CPTED for Preventing Terrorism in Nigerian Crowded Places

No	Security Variable	Nigerian Security Design Strategy	Anticipated Result
1	Cultural Context	<p><i>Nigerian Cultural Diversity:</i></p> <ul style="list-style-type: none"> - Ethnic Groups: Nigeria has over 250 ethnic groups, each with distinct cultural practices. - Religious Pluralism: Islam and Christianity are the dominant religions, but traditional African religions persist. <p><i>Design Considerations:</i></p> <ul style="list-style-type: none"> - Religious Spaces: Adapt CPTED principles to mosques and churches. - Festivals: Consider security during cultural festivals (e.g., Osun Osogbo Festival). - Symbolism: Use culturally relevant symbols for territoriality (e.g., Adinkra symbols, Yoruba, Tiv, and Hausa motifs). 	Culturally sensitive design that resonates with local communities.
2	Religious Gatherings	<p><i>Mosques and Churches:</i></p> <ul style="list-style-type: none"> - Layout: Optimise layouts for natural surveillance (e.g., clear sightlines during prayers). - Security Checks: Implement controlled access points without disrupting worship. <p><i>Community Engagement:</i></p> <ul style="list-style-type: none"> - Religious Leaders: Involve imams and pastors in security discussions. - Congregants: Encourage vigilance and reporting. - Emergency Plans: Educate worshippers on evacuation procedures. 	Safer religious spaces without compromising the spiritual experience.
3	Markets and Festivals	<p><i>Marketplaces:</i></p> <ul style="list-style-type: none"> - Informal Markets: High foot traffic areas are vulnerable to criminal activity. <p><i>Design Solutions:</i></p> <ul style="list-style-type: none"> - Lighting: Well-lit stalls and pathways. - Territorial Markers: Clearly define market boundaries. - Vendor Engagement: Involve vendors in security awareness. <p><i>Cultural Festivals:</i></p> <ul style="list-style-type: none"> - Crowded Celebrations: Balancing cultural vibrancy with safety. - Event Layout: Plan for crowd flow and emergency exits. - Security Personnel: Trained staff for crowd management. 	Secured marketplaces and joyful festivals.
4	Community Participation	<p><i>Community Policing:</i></p> <ul style="list-style-type: none"> - Local Volunteers: Engage community members as "eyes and ears." - Neighbourhood Watch: Foster community ownership. - Reporting Channels: Encourage reporting of suspicious activity. 	Active community involvement in security.

Table 4 **Помилка! Джерело посилання не знайдено.** outlines a comprehensive approach to implementing Crime Prevention Through Environmental Design (CPTED) in Nigeria's crowded spaces, focusing on preventing terrorism. The

framework addresses Nigeria's unique cultural and religious contexts, ensuring that security measures are effective and sensitive to local traditions.

The first section, "Cultural Context," emphasises the importance of understanding Nigeria's diverse ethnic and religious landscape. The framework can develop design solutions that resonate with local communities by considering different groups' specific needs and practices. Using culturally relevant symbols, such as Adinkra symbols or Yoruba motifs, can help establish a sense of territoriality and belonging.

The second section, "Religious Gatherings," focuses on mosques and churches. The framework suggests optimising layouts for natural surveillance, implementing controlled access points, and engaging religious leaders and congregants in security discussions. These measures aim to create safer religious spaces without compromising the spiritual experience.

The third section, "Markets and Festivals," addresses the challenges of crowded marketplaces and cultural celebrations. The framework recommends design solutions such as improved lighting, clear market boundaries, and vendor engagement to enhance security in marketplaces.

For festivals, the focus is on planning for crowd flow, providing emergency exits, and deploying trained security personnel.

Finally, the fourth section, "Community Participation," highlights the importance of community involvement in security efforts. By encouraging community policing, neighbourhood watch programs, and reporting suspicious activity, the framework aims to foster a sense of ownership and vigilance among residents. Overall, it provides a valuable framework for implementing CPTED in Nigerian crowded places. By addressing cultural considerations, religious practices, and community engagement, the approach can help to create safer and more resilient spaces.

3. Local context, cultural dynamics, and spatial patterns relevant to counterterrorism efforts.

Table 5 provides a comprehensive framework for understanding the complexities of counterterrorism efforts in Nigeria. The Table highlights three key dimensions: local context, cultural dynamics, and spatial patterns.

Table 5 – Understand the local context, cultural dynamics, and spatial patterns relevant to counterterrorism efforts

No	Security Variable	Nigerian Terrorism Design Strategy	Anticipated Result
1	Local Context: Nigeria	<p><i>Urbanisation:</i></p> <ul style="list-style-type: none"> - Rapid urban growth leads to crowded areas (markets, bus stations, religious gatherings). - Informal settlements lack proper planning and security infrastructure. - Design interventions must align with local urbanisation trends. <p><i>Security Challenges:</i></p> <ul style="list-style-type: none"> - Boko Haram insurgency and other extremist groups. - Frequent attacks on public spaces (e.g., mosques, markets). - Security forces face resource constraints. 	Counterterrorism strategies must address specific Nigerian challenges.
2	Cultural Dynamics	<p><i>Religious Significance:</i></p> <ul style="list-style-type: none"> - Nigeria's religious diversity (Islam, Christianity, traditional beliefs). - Religious gatherings are communal events (churches, mosques, festivals). - Design should respect religious practices while ensuring safety. <p><i>Community Bonds:</i></p> <ul style="list-style-type: none"> - Strong community ties influence territoriality. - Community policing and vigilance networks. - Engage local leaders and influencers. 	Culturally sensitive security measures build trust.

No	Security Variable	Nigerian Terrorism Design Strategy	Anticipated Result
3	Spatial Patterns	<p><i>Crowded Places:</i></p> <ul style="list-style-type: none"> - Markets: High foot traffic, vulnerable to attacks. - Bus Stations: Hubs for commuters, potential targets. - Religious Gatherings: Large congregations. <p><i>Design Considerations:</i></p> <ul style="list-style-type: none"> - Natural Surveillance - Optimise sightlines in crowded areas. - Position security personnel discreetly. - Use existing structures (e.g., minarets) for observation. <p><i>Access Control:</i></p> <ul style="list-style-type: none"> - Controlled entrances without hindering movement. - Emergency exits are marked. - Security checks (bag screening) during events. <p><i>Maintenance:</i></p> <ul style="list-style-type: none"> - Regular upkeep signals vigilance. - Graffiti removal to prevent coded messages. - Community involvement in maintenance. 	Safer crowded spaces through thoughtful design.

Each dimension offers valuable insights into the challenges and opportunities for effective counterterrorism strategies. The local context of Nigeria, characterised by rapid urbanisation and security challenges, underscores the need for context-specific counterterrorism measures. The Table emphasises the importance of designing interventions that align with local urbanisation trends, such as addressing security concerns in informal settlements.

Additionally, the threat posed by Boko Haram and other extremist groups necessitates counterterrorism strategies that are tailored to the specific challenges faced by Nigerian security forces. Cultural dynamics play a crucial role in shaping counterterrorism efforts: Nigeria's religious diversity and the significance of religious gatherings present opportunities and challenges. The Table emphasises the need for design interventions that respect religious practices while ensuring safety. Moreover, the strong community bonds in Nigeria can be leveraged to enhance counterterrorism efforts through community policing and vigilance networks. Engaging local leaders and influencers is essential to build trust and foster cooperation. Spatial patterns are another critical factor to consider. The Table identifies crowded places, such as markets, bus stations, and religious gatherings, as potential attack targets. Design considerations, including natural

surveillance, access control, and maintenance, can help to mitigate these risks. Crowded spaces can be made safer by optimising sightlines, controlling entrances, and ensuring regular upkeep. In conclusion, Table 5 provides a valuable framework for understanding Nigeria's multifaceted challenges and opportunities associated with counterterrorism efforts. Policymakers and practitioners can develop more effective and culturally sensitive counterterrorism strategies by considering the local context, cultural dynamics, and spatial patterns.

The review highlights the limited empirical research addressing CPTED's effectiveness in preventing terrorism in Nigeria. Existing studies suggest that CPTED principles can be adapted to address terrorism-related challenges, particularly in crowded areas. Elements such as natural surveillance and territoriality have been found to reduce crime rates in Nigerian tourist attractions. However, the effectiveness of CPTED in Nigeria depends on various factors, including cultural nuances, socio-economic conditions, and the specific characteristics of crowded places. Authors [16] emphasise the importance of considering local contexts when implementing CPTED strategies.

The review also identifies challenges in applying CPTED in Nigeria, such as limited resources, inadequate infrastructure, and resistance to

change. Despite these challenges, there are opportunities for innovative approaches, such as leveraging technology and community involvement. Moreover, CPTED can be most effective when integrated with other security measures, such as intelligence gathering, law enforcement, and community engagement.

In conclusion, the empirical review underscores the need for a holistic approach to counterterrorism in Nigeria that bridges the gap between government strategies and community realities. Integrating CPTED principles into Nigeria's counterterrorism efforts can create safer, crowded places and improve existing measures. By considering the local context, cultural dynamics, and spatial patterns, Nigeria can effectively implement CPTED principles to enhance its counterterrorism efforts.

CONCLUSIONS

This study examined the role of Crime Prevention Through Environmental Design (CPTED) strategies in enhancing counterterrorism measures within crowded places in Nigeria. CPTED, a multidisciplinary approach that emphasises the strategic use of environmental features to deter criminal activities, has emerged as a critical framework for improving security and safety in urban areas. Despite its increasing global adoption, its application within the Nigerian context, particularly for counterterrorism purposes, remains underexplored. This research sought to address this gap by assessing the effectiveness of CPTED strategies, such as natural surveillance, access control, territorial reinforcement, and maintenance, in securing crowded public spaces vulnerable to terrorist attacks.

REFERENCES

1. Idigo, B. C., & Ojukwu, C. O. (2022). *Terrorism and National Security in Nigeria: A Case of Boko-Haram, 2009-2019*. *International Journal of General Studies*, 2(1), 86–105.
2. Oyawale, A. (2022). The impact of (counter-)terrorism on public (in)security in Nigeria: A vernacular analysis. *Security Dialogue*, 53(5), 420–437. doi: [10.1177/09670106211063796](https://doi.org/10.1177/09670106211063796)
3. Zahm, D. (2011). *Using crime prevention through environmental design in problem-solving*. Retrieved from https://popcenter.asu.edu/sites/default/files/using_cpted_in_problem_solving.pdf
4. Giami, K. K., Nok, M. A., Adamu, A., & Adama, A. M. (2023). *Nigeria's international cooperation and strategic communications frameworks in the fight against terrorism*. *International Journal of Social Science, Management, Peace and Conflict Research*, 1(08), 92-105.

The study employed a mixed-method approach, combining quantitative surveys and qualitative interviews with security experts and urban planners. Findings revealed that while CPTED strategies are recognised as effective tools for crime reduction, their implementation in Nigeria is hindered by insufficient awareness, inadequate training, and limited resources. In addition, the study highlighted the need for greater collaboration between security agencies, urban planners, and community stakeholders to successfully integrate CPTED principles into urban development projects.

The practical implications of this study underscore the necessity of incorporating CPTED strategies in the design and planning of public spaces to mitigate the risks associated with terrorism proactively. It recommends targeted capacity-building initiatives for urban planners and security personnel and developing context-specific guidelines for implementing CPTED principles in high-risk areas.

In conclusion, CPTED strategies can significantly enhance counterterrorism efforts in Nigeria's crowded places. Policymakers should prioritise creating a more comprehensive security framework that integrates environmental design principles with broader counterterrorism measures. Future research should focus on evaluating the long-term impact of CPTED interventions in similar high-risk environments to build a robust evidence base for policy and practice.

Declaration of competing interest

The authors declare that there is no conflict of interest.

5. Onah, E. I. (2015). Boko Haram Insurgency and the 2015 General Elections in Nigeria. *Journal International Studies*, 11. doi: [10.32890/jis2015.11.2](https://doi.org/10.32890/jis2015.11.2)
6. Ugwueze, M. I., & Onuoha, F. C. (2020). Hard Versus Soft Measures to Security: Explaining the Failure of Counterterrorism Strategy in Nigeria. *Journal of Applied Security Research*, 15(4), 547–567. doi: [10.1080/19361610.2020.1811936](https://doi.org/10.1080/19361610.2020.1811936)
7. Laufs, J., Borrion, H., & Bradford, B. (2020). Security and the smart city: A systematic review. *Sustainable Cities and Society*, 55, 102023. doi: [10.1016/j.scs.2020.102023](https://doi.org/10.1016/j.scs.2020.102023)
8. Askari, A. H., & Soltani, S. (2023). CPTED Principles and Preventing Crimes: The Cases from Shiraz City, Iran. *Journal of Design and Built Environment*, 23(2), 1–13. doi: [10.22452/jdbe.vol23no2.1](https://doi.org/10.22452/jdbe.vol23no2.1)
9. Crowe, T., & Fennelly, L. J. (2013). *Crime Prevention Through Environmental Design*. doi: [10.1016/c2012-0-03280-2](https://doi.org/10.1016/c2012-0-03280-2)
10. Ajide, K. B., & Alimi, O. Y. (2021). Natural Resource Rents, Inequality, and Terrorism in Africa. *Defence and Peace Economics*, 33(6), 712–730. doi: [10.1080/10242694.2021.1879412](https://doi.org/10.1080/10242694.2021.1879412)
11. Oji, C. E., & Afolabi, J. A. (2022). Economic and peace effects of terrorism in the 21st century. *International Journal of Public Law and Policy*, 8(2), 1. doi: [10.1504/ijplap.2022.10044160](https://doi.org/10.1504/ijplap.2022.10044160)
12. Ike, T. J., Antonopoulos, G. A., & Singh, D. (2022). Community perspectives of terrorism and the Nigerian government's counterterrorism strategies: A systematic review. *Criminology & Criminal Justice*, 174889582211100. doi: [10.1177/17488958221110009](https://doi.org/10.1177/17488958221110009)
13. Aina, E. O., Olorunsaiye, O. S., Maiyekogbon, T. D., & Alimi, R. K. (2020). [Crime Prevention Through Environmental Design \(CPTED\): The Role of Architecture](#). *Journal of Geomatics and Environmental Research*, 3(2).
14. Badiora, A. I., Adedotun, S. B., Sobowale, T. O., & Afolabi, H. (2022). Safety And Security Assessment Of Tourist Destinations: A Field Study In A Nigerian Geopark. *Journal of Event, Tourism and Hospitality Studies*, 2, 106–149. doi: [10.32890/jeth2022.2.5](https://doi.org/10.32890/jeth2022.2.5)
15. Badiora, A. I., Dada, O. T., & Adebara, T. M. (2021). Correlates of crime and environmental design in a Nigerian international tourist attraction site. *Journal of Outdoor Recreation and Tourism*, 35, 100392. doi: [10.1016/j.jort.2021.100392](https://doi.org/10.1016/j.jort.2021.100392)
16. De Silva, K. B. N., Dharmasiri, K. S., Buddhadasa, M. P. A. A., & Rannaweera, K. G. N. U. (2021). Crime prevention through environmental design (CPTED): A brief review. *Academia Letters*. doi: [10.20935/al2337](https://doi.org/10.20935/al2337)
17. Cozens, P. M., Saville, G., & Hillier, D. (2005). Crime prevention through environmental design (CPTED): a review and modern bibliography. *Property Management*, 23(5), 328–356. doi: [10.1108/02637470510631483](https://doi.org/10.1108/02637470510631483)
18. Aule, T. T., Majid, R. B. A., Jusan, M. B. M., & Ayoosu, M. I. (2022). Exploring Motivational Factors of Indigenous House Form for Value-Based Development: The Tiv People of Central Nigeria in Context. *International Journal of Sustainable Development and Planning*, 17(2), 683–691. doi: [10.18280/ijstdp.170234](https://doi.org/10.18280/ijstdp.170234)
19. Aule, T. T., Ayoosu, M. I., Anifowose, K. J., Nuhu, T. I., Agbodike, C. C., Nuhu, T. i., Agbodike, C. C., & Ikharia, S. I. (2024, June). *Mapping Sustainable Trends in Modern Architecture for Nigeria: A Bibliometric and Scientometric Analysis*. Retrieved from https://www.researchgate.net/publication/381927623_Mapping_Sustainable_Trends_in_Modern_Architecture_for_Nigeria_A_Bibliometric_and_Scientometric_Analysis
20. Stigall, D. E., Miller, C., & Donnatucci, L. (2019). The 2018 U.S. National Strategy for Counterterrorism: A Synoptic Overview. *SSRN Electronic Journal*. doi: [10.2139/ssrn.3466967](https://doi.org/10.2139/ssrn.3466967)
21. Homeland Security. (2022, September 19). *DHS Strategic Framework for countering terrorism and targeted violence*. Retrieved from <https://www.dhs.gov/publication/dhs-strategic-framework-countering-terrorism-and-targeted-violence>

22. Smith, P. (2011, September 07). *A Critical Assessment of the U.S. National Strategy for Counterterrorism: A Missed Opportunity? (ARI)*. Retrieved from <https://www.realinstitutoelcano.org/en/analyses/a-critical-assessment-of-the-us-national-strategy-for-counterterrorism-a-missed-opportunity-ari/>
23. The White House. (2023, June 27). *National Strategy for Countering Domestic Terrorism Strategic Implementation Update*. Retrieved from <https://www.whitehouse.gov/briefing-room/statements-releases/2023/06/27/fact-sheet-national-strategy-for-countering-domestic-terrorism-strategic-implementation-update/>