Remand Behind the Green-Wall: A Sustainable Design Model for Correctional Centres in South-East Nigeria

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***Abstract*—Nigerian Correctional Centre's face an imbalance between design capacity and inmate population. These centre's collectively incarcerate 86,486 inmates against an installed capacity of 68,486 as at October 2026. Utilizing the National Bureau of Statistics data for Q2 2025, documentary case studies of Enugu, Abakaliki and Owerri Correctional Centre's, indicates that the five South-East States hold 9,987 inmates in space designed for 6,115 (163% occupancy) and 81.4% of them were Awaiting Trial Persons (ATP). Individually, Enugu operated at 279% and Ebonyi at 216% of its design capacity, compared with 65.8% obtained nationally. These cases reveal linked failures of colonial-era buildings, perimeters fences that failed under armed attack and lost security buffer zones. In response to these, the paper proposes a Green-Wall Model which is a climate responsive and rehabilitation centered design framework for correctional centre's in South-East Nigeria. It also combines secure spatial zoning with passive ventilation, natural day lighting, solar integration, rainwater harvesting, soft landscaping elements, vocational training and clear staff oversight.**

***Index Terms*—Climate-Responsive Design, Correctional Centre, Environmental Sustainability, Overcrowding, South-East Nigeria.**

I. INTRODUCTION

Nigeria's correctional system is operating well beyond its physical limits. The World Prison Brief recorded 86,486 inmates against an official capacity of 68,486 in October 2026, an occupancy level of 126.3%, with 53,428 persons (65.2%) held as pre-trial detainees or remand prisoners (World Prison Brief, 2026). The Nigerian Correctional Service (NCoS) has itself linked this congestion to weaker rehabilitation, citing the same 86,486 against 68,486 figures (News Agency of Nigeria [NAN], 2026). Earlier official statistics show the same pattern: as of 9 February 2026, 51,955 of 80,812 inmates (64%) were awaiting trial (Eboesomi, 2026), and the National Bureau of Statistics (NBS) reported that, as of Q2 2025, 65.8% of inmates had not been sentenced by any court (National Bureau of Statistics [NBS], 2026; Ojelu, 2026).

The title of this paper, Remand behind the green-wall, reflects two arguments. First, the people most affected by Nigeria's congested and decaying custodial buildings are mostly legally innocent people awaiting trial. Second, the perimeter, the element that defines a prison, has repeatedly failed in Nigeria under armed attack, rainstorms and floods. Redesigning that perimeter as a layered, planted and hydrologically engineered "green wall", with a dedicated remand zone just inside it, is proposed here as the organising idea for a sustainable correctional model suited to the South-East's hot-humid, high-rainfall and erosion-prone environment.

The Nigerian Correctional Service Act 2019 provides the legal basis for this shift. It reorients the service towards correction and creates a Non-Custodial Service responsible for community service, probation, parole and restorative justice measures (Federal Republic of Nigeria, 2019, s. 37). The objectives of the study are to (i) Profile congestion and remand in the five South-East states using official data; (ii) Analyze verifiable facility case studies; (iii) Synthesize design evidence on nature contact and climate-responsive custodial architecture and (iv) Propose a design model with measurable performance indicators.

II. LITERATURE REVIEW

A. Architecture, Dignity and the Healthy Correctional Centre

International standards treat the Correctional Centre as part of humane treatment, not neutral background. The

Nelson Mandela Rules require Awaiting Trial Persons to be kept separate from convicted inmates (Rule 11), accommodation that meets health requirements with due regard to climate, floor space, lighting and ventilation (Rule 13), windows large enough to admit fresh air and natural light (Rule 14), and at least one hour of outdoor exercise daily (Rule 23) (United Nations General Assembly, 2015). United Nations Office for Project Services (UNOPS) turned these rules into spatial and service guidance for prison planning, covering master planning, overcrowding, accommodation and support infrastructure (UNOPS, 2016). Jewkes (2018) argues that the architecture and aesthetics of Correctional Centres shape the psychological and physiological wellbeing of those who live and work in them, and that correctional officers can learn from therapeutic healthcare design.

B. Nature Contact as a Design Variable

In custody, Moran and Turner (2019) found in comparative UK and Nordic research that access to nature produced health-enabling effects similar to those recognized in healthcare facilities. In a year-long study in a maximum-security unit, Nadkarni et al. (2017) reported that inmates shown nature videos committed 26% fewer violent infractions than those who were not. Söderlund and Newman (2017) set out biophilic principles for prisons but warn that climbable green walls must not be placed near perimeter walls and that small pot plants can become weapons. That warning shapes the security logic of the model proposed in Section 5.

C. An International Exemplar and the Nigerian Design Gap

Halden Prison in Norway is an ideal case study. Trees screen its 6 meter perimeter wall, some were kept for shade, as well as an orchard and kitchen garden managed by the inmates. The building materials were bricks and larch rather than concrete (Office of the Victorian Government Architect [OVGA], 2019). In Nigeria, Ufoagbala and Maduka (2026) found that juvenile reformatories that benefit from East-West orientation, deep overhangs, courtyards and cross-ventilation are still compromised by heavy wall envelopes and uninsulated metal roofs, and they recommend compressed stabilized earth blocks (CSEB) and courtyard stack ventilation for South-Eastern facilities. The regional climate makes these choices critical. Mean annual rainfall ranges from about 1,860 mm at Enugu to 2,380 mm at Owerri (Okonkwo & Mbajiorgu, 2010). In Anambra, night-time humidity is around 80%, temperatures range from 25 to 32 °C (Chinweze, 2017). No integrated model was found that links remand reduction, perimeter resilience and sustainable design for South-East correctional centres. This paper addresses that gap.

III. METHODOLOGY

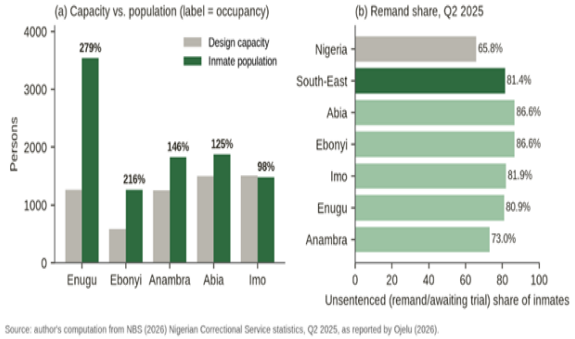
The study uses a qualitative, multi-source design research approach. Firstly, a secondary analysis of the NBS Nigerian Correctional Service statistics (2017 to Q2 2025) was carried out for Abia, Anambra, Ebonyi, Enugu and Imo, using the state-level values reported by Ojelu (2026). Occupancy was computed as inmate population divided by design capacity, and the remand share as Awaiting Trial Persons divided by inmate population. Secondly, a documentary multiple-case study was conducted on three purposively selected South-East Correctional Centre: Enugu Custodial (the most congested state), Abakaliki Custodial (the most severe facility-level density on record) and Owerri Custodial (the largest perimeter security failure). Case evidence was taken only from official statements, peer-reviewed studies and established news organizations. Figures were cross checked where more than one source existed. Lastly, relevant literature was synthesized through research-by-design into the GREEN-WALL model. The study has limitations. It did not include field measurement, several facility figures come from press reports of official statements.

IV. FINDINGS: DATA AND CASE STUDIES

A. The South-East Remand Profile

In Q2 2025, the five South-East states had a combined design capacity of 6,115 and an inmate population of 9,987, an occupancy of 163% compared with 125.6% nationally (NBS, 2026; Ojelu, 2026). Of these inmates, 8,130 (81.4%) were Awaiting Trial, approximately 16% above the national figure of 65.8%. Enugu held 3,536 inmates in a space designed for 1,266 (279%) and Ebonyi 1,266 in space designed for 587 (216%) (Figure 1a). Imo was the only state at or below capacity (98%), yet 81.9% of its inmates were still Awaiting Trial (Figure 1b). In the South-East, congestion is mainly a remand problem: even

where beds are available, most occupants have not been convicted.



Source: author's computation from NBS (2026) Nigerian Correctional Service statistics, Q2 2025, as reported by Ojelu (2026).

Figure 1. Congestion and Remand in South-East Correctional Centres, Q2 2025 (NBS, 2026, via Ojelu, 2026).

B. Correctional Centre Case Studies

Case A: Enugu Custodial Centre (Enugu State) Built in 1915 for 638 inmates, the Centre has been reported to hold more than 1,800 (Amadi & Onu, 2025). A survey of 112 of its inmates found overall unmet needs of 44.6%, including food (77.7%) and psychological distress (67.0%) (Amadi & Onu, 2025). The Centre sits in Enugu Government Reserved Area, and the Federal Government has approved its relocation, with the state government reporting that it had surveyed a proposed new site (Vanguard, 2025). The Minister of Interior has also noted that urban encroachment has removed the mandatory 100-metre security buffer zones around the Enugu and Abakaliki facilities (Abeku, 2026).

Case B: Abakaliki Custodial Centre (Ebonyi State) Built in 1949 for 387 inmates, it held 1,323 in February 2025, about 342% of design capacity. The State Controller warned that the overcrowding risked riots or a jailbreak, and a new 1,212-capacity Centre had been under construction by the Ebonyi State Government since 2017 (Egwu-Agha, 2025). After decongestion efforts, 892 of the 1,051 inmates (84.9%) are still awaiting trial as at November 29, 2025 (Human Rights and Conflicts Resolution Centre [HRCRC], 2025).

Case C: Owerri Custodial Centre (Imo State) On 5 April 2021, attackers used explosives to blast through the administrative block and freed 1,844 inmates, one of the largest jailbreaks in Nigeria's history (Reuters, 2021). The case shows that a single hard perimeter fence with the administrative block was the weakest point and a structural vulnerability. It supports layered, defense-in-depth planning with stand-off distance, which a green buffer can provide

Comparative Cases: Climate as a Security Threat. On 24 April 2024, a heavy downpour destroyed part of the perimeter fence of the Suleja Medium Security Custodial Centre and 119 inmates escaped (Channels Television, 2024). In September 2024, floods brought down the walls of the Maiduguri Medium Security Custodial Centre and 281 inmates escaped (Reuters, 2024). Because the South-East receives more rain than both cited locations and faces widespread gully erosion, perimeter walls in the region have to be designed as hydrological structures as well as security barriers (Figure 2).

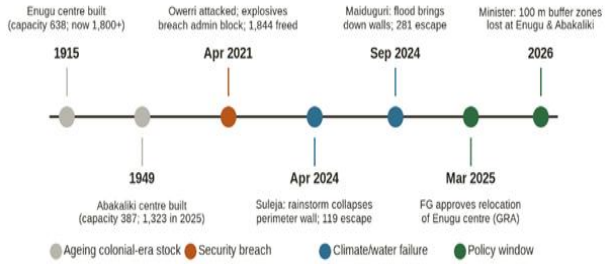


Figure 2. Timeline of ageing stock, perimeter failures and policy windows

Table 1. Case Study Matrix: Verified Indicators and Design Implications

Case	Verified Indicators	Failure type	Design Implication
Enugu (1915)	Capacity 638; 1,800+ held; unmet needs 44.6%; food unmet 77.7% (Amadi & Onu, 2025)	Ageing, overcrowding, buffer zone lost	Relocation as a pilot of the full GREEN-WALL model; food production on site
Abakaliki (1949)	387 capacity, 1,323 held (Egwu-Agha, 2025); 84.9% awaiting trial (HRCRC, 2025)	Extreme density; remand-driven	Gate-side remand pavilion; finish new 1,212-capacity centre to a green brief
Owerri (Imo)	1,844 freed after explosives breached administrative block (Reuters, 2021)	Single-line perimeter breached	Layered perimeter with stand-off distance; hardened gate complex
Suleja / Maiduguri	119 and 281 escapes after rain and flood collapses (Channels Television, 2024; Reuters, 2024)	Hydrological failure of walls	Engineered drainage, erosion control and flood-resilient foundations

V. THE GREEN-WALL DESIGN MODEL

The GREEN-WALL model arranges 9 components in concentric rings (Figure 3). The outer ring is a planted buffer of at least 100 m that restores the lost statutory buffer zone, provides stand-off distance and manages storm water. The middle ring is the secure line: an anti-climb fence and wall with a sterile clear zone and no planting within climbing reach, following Söderlund and Newman's (2017) caution. The inner campus

contains courtyard housing, farms, water systems and a therapeutic core, with the remand pavilion placed at the gate next to court and legal-aid facilities. Table 2 sets out the provisions and indicators for each component.

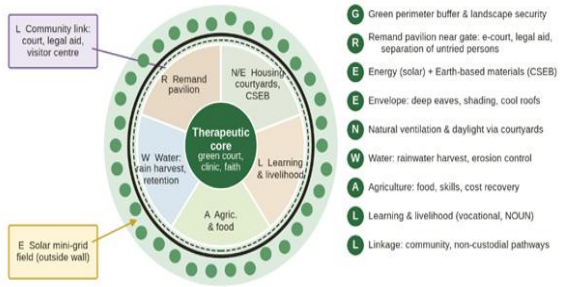


Figure 3. The GREEN-WALL Concentric Site Model

Table 2. GREEN-WALL components, design provisions and performance indicators

Component	Key Design Provisions	Problem Addressed (evidence)	Indicator
G: Green buffer	≥100 m planted buffer; agro-forestry and bioswales; trees set back from the wall	Lost buffer zones (Abeku, 2026); Owerri breach	Buffer intact; clear zone kept
R: Remand pavilion	Separate gate-side block for untried persons; virtual courtroom; legal-aid and family rooms	81.4% Awaiting Trial in the South-East; Mandela Rule 11	Median remand days; % untried housed separately
E: Energy	Rooftop and ground-mounted solar PV with battery storage; LED lighting	NCoS–REA	% of load from renewables
E: Envelope	CSEB walls; insulated roofs; deep eaves; light-coloured roofs	Heavy envelopes, hot metal roofs (Ufoagbala & Maduka, 2026)	Indoor overheating hours
N: Natural ventilation	Courtyard blocks with cross-ventilation and stack effect; daylight to every cell (Rule 14)	Hot-humid climate; Rules 13–14	Air changes per hour; daylight factor
W: Water	Rainwater harvesting; retention ponds; perimeter drainage and erosion-proof foundations	1,860–2,380 mm rainfall; Suleja and Maiduguri collapses	% of water demand from rain; zero wall failures
A: Agriculture	Kitchen gardens, fish ponds and orchards inside; agro-forestry in buffer	₦10.75bn food liabilities (Eboesomi, 2026)	% of food produced on site
L: Learning	Workshops, classrooms and digital study centres	Rehabilitation hindered by congestion (NAN, 2026)	Certifications per year
L: Linkage	Visitor centre; community-service and probation office (Act s. 37)	Non-custodial mandate unused	Non-custodial orders; recidivism

Figure 4. Remand Pathway Built into the GREEN-WALL Model



Figure 4 Shows the operational logic of the remand pavilion. Admission leads to classification, Awaiting Trial Persons are housed separately at the gate, and virtual hearings and on-site legal aid move cases towards bail, discharge or non-custodial orders. Only convicted persons move into the inner campus. This design responds to Enugu State's reported automation of court processes (Vanguard, 2025) and uses architecture to reduce time spent on remand.

VI. DISCUSSION

The findings suggest that sustainability in South-East correctional design is a security and justice issue, not an optional extra. The Suleja and Maiduguri collapses show that rainfall can breach a custodial perimeter as completely as an armed attack. Abakaliki and Enugu show that congestion and remand are long-term structural conditions, not short-term spikes. Combining these problems in one model has three advantages. First, the green buffer does several jobs: it provides stand-off distance, intercepts storm water and erosion, produces food and timber, and gives the public a less hostile edge, as at Halden Prison, Norway (OVGA, 2019). Secondly, solar energy and on-site food reduce the operating burden shown by NCoS's feeding liabilities. Thirdly, the remand pavilion turns a legal principle, the separation and presumed innocence of Awaiting Trial Persons into a physical layout that supports faster case processing. Lastly, there are trade-offs. Moran and Turner (2019) caution that nature access in prisons can become a privilege that is earned or taken away, so in this model green space is treated as a baseline entitlement, as the Mandela Rules treat outdoor exercise. Planting must also stay subordinate to sightlines and the clear zone. Design alone cannot clear the remand backlog, which depends on policing, prosecution and the courts. The model should therefore be seen as infrastructure that supports justice-sector reform.

VII. RECOMMENDATIONS

The study concludes by recommending the following;

1. NCoS and the Enugu State Government adopt the GREEN-WALL brief for the proposed relocation of Enugu Custodial Centre as a regional pilot.
2. Ebonyi State complete its new custodial centre with a gate-side remand pavilion, rainwater harvesting and a solar mini-grid under the NCoS–REA framework.
3. Existing centres at Abakaliki and Owerri be retrofitted with engineered perimeter drainage, insulated roofs and reclaimed buffer planting wherever land allows.

4. A national custodial design standard set minimum daylight, ventilation, buffer and remand-separation requirements based on the Mandela Rules and UNOPS (2016) guidance.
5. Future research measure indoor thermal conditions, lifecycle costs and behavioral outcomes in pilot facilities to validate the model.

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