Geospatial Intelligence and the Transformation of Counterinsurgency in Nigeria, 1999-2025: Implications for Africa's Changing Security Order

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ABSTRACT

This article examines the role of geospatial intelligence (GEOINT) in the transformation of counterinsurgency operations in Nigeria from 1999 to 2025, situating these developments within the broader dynamics of Africa's evolving security order. Despite significant investments in satellite observation systems, unmanned aerial vehicles, and geospatial data infrastructures, the operational effectiveness of these technologies remains uneven. The central argument advanced is that the impact of GEOINT on counterinsurgency is contingent not merely on technological acquisition, but on the extent of its institutional integration, strategic application, and alignment with existing security frameworks. Methodologically, the study adopts a qualitative historical-analytical approach grounded exclusively in secondary sources that includes peer-reviewed journal articles, academic books, policy documents, defence reports, and publications from governmental and international organisations. Through a critical interrogation of these materials, the article reconstructs the evolution of Nigeria's geospatial capabilities and assesses their application within counterinsurgency campaigns, particularly in the North-East theatre of operations. The analysis identifies a persistent disjuncture between capability and utilisation, shaped by institutional fragmentation, inadequate technical capacity, weak inter-agency coordination, and broader political and governance challenges. Notwithstanding these constraints, GEOINT has contributed to incremental shifts in operational practice which includes enhanced situational awareness, improved targeting precision, and efforts toward minimizing civilian casualties that is reflecting a gradual transition from predominantly kinetic approaches to more intelligence-driven counterinsurgency strategies. The article further argues that Nigeria's experience offers important perceptions into the role of geospatial intelligence in Africa's emerging security architecture. It underscores the necessity of strengthening institutional frameworks, investing in human capital, and fostering synergy between technological systems and local intelligence networks. In doing so, the study contributes to ongoing debates in security and strategic studies by advancing a critical perspective that moves beyond technological determinism to emphasise the socio-political conditions shaping the effectiveness of geospatial intelligence in counterinsurgency.

Keywords: Geospatial intelligence, GEOINT, counterinsurgency, Nigeria, Boko Haram, ISWAP, satellite surveillance, UAV, Africa security, Lake Chad Basin, Defence Space Administration, NASRDA, institutional integration, technological determinism.

INTRODUCTION

When Nigeria's National Space Research and Development Agency (NASRDA) was formally established on 5th May 1999, it was a moment that carried aspirations far beyond the purely scientific.[1] The agency's founding coincides with the return of civilian democratic government under President Olusegun

Obasanjo as it signaled a conscious attempt to place space-based technologies at the center of national development and, implicitly, national security. What this founding moment could not have fully anticipated was the form and ferocity of the security challenges that would subsequently demand precisely the kind of spatially informed intelligence that NASRDA was chartered to develop.

By the first decade of the twenty-first century, Nigeria faced a qualitatively different threat environment. The insurgency launched by Jama'atu Ahlis Sunna Lidda'awati wal-Jihad, known internationally as Boko Haram, beginning around 2009 introduced a dimension of territorial violence that conventional military doctrine was ill-equipped to address.[2] Operating from the dense forests of Borno State, particularly the vast Sambisa Forest, and exploiting the porous borderlands of the Lake Chad Basin, the group conducted asymmetric warfare across difficult, often unmapped terrain. The challenge was not simply one of military capacity but of intelligence, specifically, the capacity to see, locate, and understand adversaries operating across landscapes that traditional ground-based surveillance could not adequately penetrate.

It is within this context that geospatial intelligence emerges as a critical analytical category. GEOINT is broadly defined as the intelligence derived from the exploitation and analysis of imagery, geospatial data, and information describing, assessing, and visually depicting physical features and geographically referenced activities became an increasingly important instrument in Nigeria's evolving counterinsurgency toolkit.[3] Satellite imagery, Unmanned Aerial Vehicles (UAVs), Geographic Information Systems (GIS), and spatial data analytics collectively transformed the informational landscape of military operations in ways that earlier kinetic-centric approaches could not achieve.

Yet the story of GEOINT in Nigeria is neither linear nor triumphant. This article argues that the relationship between geospatial technology and counterinsurgency effectiveness is mediated by a complex web of institutional, political, and structural variables. Possessing satellites and surveillance drones does not, of itself, produce intelligence-driven counterinsurgency. What matters equally perhaps more, is how these systems are integrated into command structures, how their data is processed and shared across agencies, how technical personnel are trained and retained, and how technological inputs are reconciled with the granular, relational knowledge embedded in local intelligence networks.

This argument positions the present study against a tendency in policy and popular discourse toward what might be called technological determinism, the assumption that the acquisition of sophisticated platforms automatically translates into operational advantage. Drawing on the substantial literature on intelligence-led counterinsurgency, African security studies, and the political economy of defence modernisation in developing states, the article demonstrates that the Nigerian case offers a sobering corrective to such assumptions.

HISTORIOGRAPHY AND LITERATURE REVIEW

Scholarship at the connection of geospatial intelligence, counterinsurgency, and African security is relatively young, dispersed across several disciplinary communities like strategic studies, political science, geography, science and technology studies, and uneven in its empirical depth and theoretical ambition. Before advancing the article's own analytical framework, it is necessary to chart what scholars have established, where they agree, where they diverge, and what significant gaps remain. The present study locates itself within, and seeks to extend, several overlapping scholarly conversations.

2.1 Intelligence-Led Counterinsurgency: The Foundational Literature

The foundational scholarly tradition on intelligence and counterinsurgency is dominated by a body of work largely produced in response to the post-2001 wars in Afghanistan and Iraq. David Kilcullen's[4] contributions, particularly his reformulation of counterinsurgency as fundamentally a political-informational rather than military-kinetic enterprise that established the canonical claim that winning the intelligence contest over the 'human terrain' is more decisive than winning firefights. Kilcullen's work, alongside FM 3-24, the United States Army and Marine Corps Counterinsurgency Field Manual,[5] argues that intelligence in COIN contexts must be granular, population-centric, and persistently updated a proposition that implicitly assigns a critical role to spatial platforms that can generate continuous, high-resolution data on human activity.

This foundational tradition has been both amplified and contested. Paul Staniland's[6] work on armed groups and social order complicates the Kilcullen-FM 3-24 model by demonstrating that insurgent organisations are not monolithic actors whose locations can be simply mapped and neutralized, they are socially embedded entities whose resilience is a function of kinship networks, ethnic solidarities, and local governance capacities that spatial data alone cannot capture. Staniland's critique implies that GEOINT, however sophisticated, addresses only a part of the intelligence problem. Similarly, Galula's[7] classic formulation opined that counterinsurgency is twenty per cent military and eighty per cent political which retains its force as a corrective to purely technological readings of the intelligence problem in COIN.

What this foundational literature largely lacks is systematic attention to the developing-state context, where institutional capacity, resource constraints, and governance challenges shape the conditions of GEOINT deployment in ways that substantially differ from the American or British experiences that animate most of the canonical texts. This constitutes the first major gap that the present study addresses.

2.2 The GEOINT Scholarship: Between Optimism and Critique

The more specialised literature on geospatial intelligence as a distinct intelligence discipline is dominated by practitioner-oriented and technically grounded scholarship. Robert Clark's[8] comprehensive treatment of technical intelligence collection establishes the definitional and operational parameters of GEOINT as it is now broadly understood. William Roper's analysis of space-based surveillance in military applications[9] and the growing body of work on UAV operations — from the early advocacy literature represented by Peter Singer's[10] Wired for War to more critical assessments of drone warfare's strategic effectiveness constitute the scholarly backdrop against which this article's argument must be positioned.

The dominant strand in this literature is broadly optimistic about the transformative potential of geospatial platforms. Proponents point to the demonstrable expansion of situational awareness that persistent surveillance enables, the precision that GPS-guided munitions and UAV-delivered weapons achieve relative to earlier air-delivered ordnance, and the potential to reduce the information asymmetry that insurgents traditionally exploit. The RAND Corporation's extensive analytical work on intelligence, surveillance, and reconnaissance (ISR) capabilities in counterterrorism operations broadly supports this optimistic view, documenting how increased ISR assets contributed to tactical effectiveness in Afghanistan and Iraq.[11]

However, a significant critical counter-current has emerged, particularly since the mid-2010s. Medea Benjamin's[12] journalistic scholarship on drone warfare and scholars such as Andrew Cockburn[13] have documented the civilian casualties, legal ambiguities, and strategic blowback associated with drone-centric counterterrorism. From within the academic security studies community, Audrey Kurth Cronin's[14] argument that technology-intensive counterterrorism strategies can be counterproductive, generating grievances that sustain the very movements they seek to destroy, this represents a scholarly challenge to the optimistic GEOINT literature that directly informs this article's more cautious assessment.

The limitation of much of this critical literature, however, is that it focuses primarily on American and Western experiences with armed drone operations and satellite surveillance. Its applicability to the Nigerian context, where the challenge is not drone warfare's strategic blowback per se, but the institutional capacity to deploy geospatial assets effectively at all, is partial. The article engages this critical strand but reframes its perceptions for the developing-state context.

2.3 Nigerian Security Studies: Partial Coverage and Analytical Silences

The literature on Nigerian security, and specifically on the Boko Haram insurgency, has grown substantially since the early 2010s. Foundational historical accounts which include Toyin Falola and Matthew Heaton's[15] political history of Nigeria and Suleiman Barnawi and colleagues' extensive sociological study of Boko Haram's origins[16] establish the structural context within which the security crisis must be understood. John Campbell's[17] analytical work situates Boko Haram within Nigeria's broader governance crisis, arguing persuasively that the insurgency cannot be understood apart from the failures of the Nigerian state in the North-East.

Within the more specifically security-focused literature, several bodies of work are directly relevant. Adewale Falode's[18] contribution on hybrid doctrine for Nigerian counterterrorism represents one of the most sophisticated indigenous scholarly treatments of COIN strategy in the Nigerian context. Falode argues for an integrated kinetic-political-informational approach that implicitly positions intelligence, including geospatial intelligence as central to operational effectiveness. However, his analysis does not engage systematically with GEOINT as a specific category or with the space and UAV programmes that constitute Nigeria's geospatial infrastructure.

Several studies on counterinsurgency in Nigeria have stressed that human intelligence (HUMINT) and technical intelligence must work together in the fight against Boko Haram. Scholars and security analysts maintain that relying mainly on technical surveillance, while neglecting community-based intelligence gathering, weakened security operations in parts of northeastern Nigeria. This imbalance contributed to intelligence gaps and delayed responses to insurgent activities, especially in communities where local knowledge and civilian cooperation were crucial to identifying threats early.

Ayodele P. Olowonihi and M.O. Musa's[19] study of geospatial intelligence and national security in Nigeria is the most direct scholarly predecessor to the present work. They identify the institutional challenges confronting Nigeria's GEOINT architecture fragmentation, under-resourcing, and coordination failures, and call for reform of the inter-agency framework. Their contribution is valuable but analytically constrained by its primary focus on the organisational dimensions of the problem to the relative neglect of the operational and political economy dimensions that this article foregrounds.

A substantial limitation of the existing Nigerian security literature, taken as a whole, is its relative disconnection from the broader theoretical literature on intelligence and COIN, and from comparative African security studies. Most studies are empirically grounded in the Nigerian case but theoretically thin, rarely engaging with the conceptual frameworks, technological determinism, socio-technical theory, intelligence failure studies that would give their findings greater analytical purchase. The study therefore aims to bridge this gap.

2.4 African Security Studies and the Technology Question

The broader field of African security studies has increasingly engaged with questions of technology, surveillance, and counterterrorism in recent years, driven by the proliferation of armed groups across the Sahel and the corresponding intensification of external security partnerships. Usman Tar's edited volume on counterterrorism and counterinsurgency in Africa[20] provides the most comprehensive regional survey, situating Nigeria within the wider continental patterns. Tar's contributors broadly agree that Africa's security challenges are structurally rooted in poverty, governance failures, and ungoverned spaces, and that technological responses, including surveillance technologies, are necessary but insufficient conditions for durable security.

Alexander Thurston's[21] work on Sahelian jihadist movements and Virginie Baudais'[22] analysis of the G5 Sahel framework provide important comparative context for understanding Nigeria's regional security environment. They document how regional security architectures, including intelligence-sharing arrangements are shaped and constrained by divergent national interests, asymmetric capabilities, and the politics of external security partnerships. These insights directly inform Section VII of this article's analysis of the MNJTF and Africa's evolving security architecture.

The science and technology studies (STS) literature on surveillance and security represented by scholars such as Tony Roberts and Admire Mare[23] on Digital Surveillance in Africa and Kevin Donovan's[24] work on digital technologies and development offers a further important, if underutilized, resource for understanding GEOINT in the African context. This literature's central contribution is to demonstrate that surveillance technologies are not simply technical instruments but are politically and institutionally constituted in ways that reflect and reproduce existing power relations. Applied to GEOINT, this suggests that the question of who controls satellite imagery, on what terms it is shared, and whose security interests it serves is as analytically important as the technical question of what that imagery can reveal.

2.5 Key Scholarly Disagreements and This Article's Position

Three principal scholarly disagreements structure the debates into which this article intervenes. Engaging them directly is necessary to clarify the article's argumentative contribution and its relationship to existing scholarship.

The first disagreement concerns the relative weight of technology and institutions in determining counterinsurgency effectiveness. The broadly optimistic GEOINT literature represented in the African context by RSDI's analytical reports[25] and some defence policy literature tends to attribute operational shortfalls to insufficient technology, implicitly recommending more platforms, better sensors, and higher-resolution imagery as the primary remedies. Against this position, the present article aligns with those including Staniland,[26] and Olowonihi and Musa[27], who argue that institutional and political conditions are the primary determinants of GEOINT's effectiveness. This is not a denial of technology's importance but a reordering of analytical priorities: the question is not whether Nigeria has drones, but whether Nigeria has the institutional architecture to turn drone surveillance data into actionable intelligence.

The second disagreement concerns the nature of intelligence failure in the Nigerian context. Some scholars, including Amaraegbu[28] in his analysis of Boko Haram and intelligence failure attribute Nigeria's security shortfalls primarily to failures of human intelligence: the absence of agents embedded in insurgent networks, the collapse of community trust, and the defection of potential informants to the insurgency. Others, including Olowonihi and Musa,[29] emphasise failures of intelligence fusion and inter-agency coordination as the primary problem. This article's position is that both diagnoses are correct and mutually reinforcing: HUMINT failures reduce the interpretive context needed to give GEOINT data its full meaning, while institutional fragmentation prevents whatever intelligence is collected whether human or geospatial from reaching decision-makers in time to act.

The third disagreement concerns the extent to which Nigeria's experience can be read as representative of a broader African pattern. Some regional security scholars, including contributors to Tar's edited volume[30] treat Nigeria as a sui generis case, too large and complex for comparative generalisation. Others argue for a more comparative framework, situating Nigeria within a West African regional pattern characterised by similar structural challenges of governance, resource constraints, and borderland insecurity. This article takes the latter position, arguing in Sections VII and VIII that Nigeria's GEOINT trajectory offers genuinely instructive lessons for other African states, precisely because its challenges, institutional fragmentation, human capital deficits, the gap between hardware acquisition and operational integration are structurally typical rather than idiosyncratic.

The article's overall positioning within these debates can be stated plainly: it advances a critical institutionalist perspective that takes geospatial technology seriously as an operational instrument while insisting that technology's effectiveness is always and everywhere conditional on the social, political, and institutional frameworks in which it operates. In doing so, it draws on and synthesises three bodies of literature, intelligence-led COIN theory, Nigerian security studies, and African security and technology studies that have too rarely been brought into dialogue with one another.

CONCEPTUAL FRAMEWORK: INTELLIGENCE, SPACE, AND COUNTERINSURGENCY

3.1 Defining GEOINT in the Context of Asymmetric Conflict

The concept of geospatial intelligence, while formally codified in US defence doctrine since the late 1990s, has roots stretching back to the earliest use of aerial photography in the First World War.[31] In its contemporary articulation, GEOINT encompasses a wide spectrum of capabilities: imagery intelligence (IMINT) derived from satellite and aerial platforms; signals intelligence with spatial coordinates; terrain mapping and 3D modelling; pattern-of-life analysis linking human behaviour to geographical space; and the integration of these data streams into decision-support systems for commanders and policymakers. What distinguishes GEOINT from other intelligence disciplines is its fundamentally spatial character, it renders the operating environment legible in ways that enable both strategic planning and tactical precision.

In asymmetric conflicts such as counterinsurgency, this spatial legibility acquires particular operational significance. Insurgent groups deliberately exploit the opacity of terrain, forests, deserts, urban warrens, and cross-border hideouts to offset the conventional superiority of state militaries. GEOINT, in principle, penetrates this opacity. Satellite imagery can detect encampments in dense forest. Persistent surveillance UAVs can map patterns of movement along smuggling corridors. Thermal imaging can identify human presence in areas claimed to be uninhabited. GIS platforms can overlay population data with conflict events to reveal the spatial logic of insurgent activity.[32]

Boko Haram's exploitation of the Sambisa Forest, a thickly vegetated reserve spanning roughly 60,000 square kilometres in Borno State, illustrates this dynamic with particular clarity.[33] The forest's canopy cover, combined with the absence of reliable road networks and ground-level cartographic data, rendered it effectively invisible to conventional intelligence collection methods. It was precisely this invisibility that GEOINT technologies were positioned to overcome, though the extent to which they succeeded involves a more complicated assessment than proponents of these technologies typically acknowledge.

3.2 Counterinsurgency Doctrine and the Intelligence Imperative

Contemporary counterinsurgency doctrine, as elaborated by theorists such as Kilcullen and reflected in doctrine manuals from Western militaries, emphasises that information about the human terrain is as critical as information about the physical terrain.[34] The goal of COIN is not merely to destroy adversaries but to separate them from the population and delegitimize their political project. This requires intelligence that is simultaneously spatial (where are insurgents operating?) and sociological (why do communities support or tolerate them?). GEOINT addresses the first dimension directly, but its relationship to the second is more indirect and complex.

This distinction matters greatly in the Nigerian context. Boko Haram's resilience over more than a decade of intensified counterinsurgency operations reflects not only its tactical adaptability but also the socio-economic grievances, poverty, youth unemployment, marginalisation, and weak governance that sustain its recruitment pool in the Lake Chad Basin region.[35] GEOINT can identify where Boko Haram commanders shelter; it cannot, by itself, resolve the conditions that generate new recruits to replace those commanders when they are neutralised.

3.3 Beyond Technological Determinism

The theoretical lens adopted in this article draws on what might be characterised as a socio-technical perspective on intelligence, one that takes seriously both the material properties of technologies and the social, institutional, and political conditions that shape their deployment and use.[36] This approach resists the twin temptations of technological enthusiasm and technological dismissiveness. Geospatial platforms are genuinely transformative; their full potential, however, is realised only under specific institutional conditions that cannot be assumed to exist merely because the hardware has been acquired.

This perspective finds support in the growing literature on intelligence failure in developing states, which consistently highlights that the most consequential breakdowns occur not at the point of collection, obtaining the raw data but at the points of processing, fusion, analysis, and dissemination.[37] Data collected by a satellite is useless if it arrives at a command post days after the window for operational action has closed. Imagery analysed by a technician without adequate training misrepresents the battlefield. Intelligence shared only within a single service rather than across the full spectrum of security actors fails to generate the comprehensive situational awareness that counterinsurgency demands. These are the fault lines that this article examines in the Nigerian case.

THE ARCHITECTURE OF NIGERIA'S GEOSPATIAL CAPABILITIES, 1999–2025

4.1 Foundations: The Space Programme and National Security (1999–2010)

Nigeria's entry into the domain of space-based observation was formalised with the launch of NigeriaSat-1 in September 2003, a milestone that placed Nigeria among the handful of African states with indigenous

satellite assets.[38] Built by Surrey Satellite Technology Limited (SSTL) of the United Kingdom and launched aboard a Russian Kosmos-3M rocket from the Plesetsk Cosmodrome, NigeriaSat-1 was a modest but symbolically significant achievement. Operating as part of the international Disaster Monitoring Constellation (DMC), it carried an optical payload capable of generating multispectral imagery at 32-metre ground resolution with a wide swath of over 640 kilometres.

For security purposes, NigeriaSat-1's resolution was insufficient to support fine-grained tactical intelligence. A satellite that can resolve features at 32 metres cannot distinguish between a military camp and a farming settlement, nor can it track vehicle movements reliably. Its primary contribution to security was more indirect: the establishment of a geospatial data infrastructure, the training of Nigerian engineers and analysts, and the creation of institutional frameworks, particularly within NASRDA for managing, processing, and archiving spatial data.[39]

The launch of NigComSat-1, Nigeria's communications satellite, aboard a Chinese Long March 3B rocket in May 2007 added a further layer of spatial infrastructure.[40] Though NigComSat-1 suffered an in-orbit failure in November 2008 due to a solar panel malfunction, its replacement NigComSat-1R, was launched in December 2011 and provided C, Ku, Ka, and L-band coverage across Africa, Europe, and parts of Asia. For counterinsurgency purposes, communication satellites are not GEOINT platforms in the strict sense, but they constitute an enabling infrastructure for the dissemination of spatially referenced intelligence across dispersed operational commands.

This early period also saw the establishment of what would become a recurring tension in Nigeria's approach to geospatial security: the fragmentation of responsibility across multiple agencies with overlapping mandates and insufficient coordination.[41] NASRDA, as the civilian space authority, operated under the Federal Ministry of Science and Technology. The National Intelligence Agency (NIA) and the Defence Intelligence Agency (DIA) operated under separate chains of command. The Nigerian Armed Forces, specifically the Nigerian Air Force (NAF), developed their own intelligence and surveillance capacities with limited systematic engagement with the civilian space programme. From the outset, institutional architecture lagged behind technical aspiration.

4.2 Expanding Capabilities and the Insurgency Response (2011–2019)

The launch of NigeriaSat-2 and NigeriaSat-X in August 2011 represented a qualitative upgrade in Nigeria's Earth observation capacity.[42] NigeriaSat-2, a SSTL 300-class satellite, carried a 2.5-metre panchromatic and 5-metre multispectral imager, providing imagery resolution an order of magnitude finer than NigeriaSat-1. At 2.5 metres, it became possible in principle to identify vehicles, distinguish between structures, and detect surface activity in ways that earlier Nigerian satellites could not support.

The significance of these developments must be assessed against the backdrop of Boko Haram's escalating insurgency. By 2011, the group had moved beyond localised violence in Maiduguri to executing coordinated attacks across Borno, Yobe, and Adamawa states.[43] The bombing of the United Nations headquarters in Abuja in August 2011 and the sustained siege of Maiduguri demonstrated a tactical sophistication and territorial reach that demanded correspondingly sophisticated intelligence responses. The Nigerian military, increasingly aware of its intelligence deficits, began to invest more deliberately in aerial surveillance assets to compensate for poor ground-level situational awareness.

It was during this period that unmanned aerial vehicles entered the Nigerian security toolkit in a meaningful way. Nigeria had acquired Israeli Aerostar tactical UAVs earlier, reportedly around 2006, but their operational integration was limited and their operational lifespan curtailed by maintenance challenges and spare parts availability.[44] The intensification of the Boko Haram conflict catalysed more systematic investment. The Nigerian Air Force negotiated the procurement of Chinese CH-3, CH-4, and Wing Loong UAVs, platforms with both intelligence-gathering and strike capabilities which entered service progressively from around 2015 onwards. These systems introduced a genuinely new operational dimension: persistent aerial surveillance over the Sambisa Forest and adjacent borderland areas, real-time video feeds to ground commanders, and the capacity to conduct precision strikes against identified targets.

The Defence Space Administration (DSA), established under the Office of the National Security Adviser and tasked with implementing the defence and security dimensions of Nigeria's National Space Policy, also emerged as a key institutional actor during this period.[45] Unlike NASRDA, which retained a predominantly civilian and developmental mandate, the DSA was explicitly security-oriented. It was charged with providing the Armed Forces with earth observation, geospatial intelligence, and secure satellite communications functions that positioned it as the primary nexus between Nigeria's space infrastructure and its security operations.

A particularly significant and cautionary episode from this period concerns the Chibok kidnappings of April 2014, in which Boko Haram abducted 276 schoolgirls from the Government Secondary School in Chibok, Borno State.[46] The international outrage that followed, crystallised in the global #BringBackOurGirls campaign, created intense pressure on the Nigerian government to deploy every available intelligence asset in locating the abducted girls. Satellite imagery, including from commercial providers was used in the search, and the United States provided surveillance drone support through bilateral intelligence arrangements. Despite these efforts, the immediate tactical failure to locate and rescue the hostages exposed the limits of Nigeria's GEOINT capacity at the time: patchy satellite coverage, limited real-time data processing capability, insufficient coordination between military intelligence and civilian satellite operators, and a reliance on ad hoc external assistance rather than an embedded, autonomous intelligence architecture.[47]

4.3 Deepening the GEOINT Arsenal (2019–2025)

The period from 2019 to 2025 witnessed a further intensification of Nigeria's investment in unmanned and space-based intelligence platforms, driven partly by the persistent challenge of Boko Haram and the Islamic State West Africa Province (ISWAP), which had by this point emerged as a distinct and arguably more disciplined jihadist entity operating across the Lake Chad Basin.[48]

A landmark acquisition was the Bayraktar TB2 combat drone from Turkey, procured in 2022.[49] The TB2 had established its global reputation through its decisive deployment in conflicts in Libya, Nagorno-Karabakh, and Ukraine, where its combination of endurance, payload capacity, and precision munitions delivery demonstrated the transformative potential of medium-altitude long-endurance (MALE) UAVs in contemporary warfare. Nigeria also acquired the Turkish Songar armed drone, the Aerosonde Mk4.7 for army use, and the Tekever AR3 maritime patrol drone for the Navy, supplemented by AR-500B shipborne UAVs from China.

In parallel, the DSA moved into indigenous drone development. By 2024, the agency had commenced production of a range of UAV systems including the AYBARS-II surveillance drone, the ADAN 70 assault platform, and the SZK-290 surveillance system.[50] The launch of DELSAT-1, Nigeria's first dedicated defence satellite, further signaled this ambition, underscoring the recognition that sovereign geospatial intelligence capacity requires purpose-built military intelligence systems responsive to the specific requirements of the armed forces.[51]

Yet the same period also laid bare persistent structural problems. NigeriaSat-2, having surpassed its original design lifespan, delivered degraded imagery quality. NigComSat-1R approached the end of its operational life, raising the prospect of a communications capability gap before replacement systems could be fielded. The institutional landscape remained complicated: coordination among NASRDA, the DSA, and the operational armed services continued to improve incrementally, but remained insufficient for the demands of a threat environment requiring real-time, integrated responses across multiple domains.[52]

GEOINT IN OPERATIONAL PRACTICE: THE NORTH-EAST THEATRE

5.1 Mapping the Battlespace

The operational application of GEOINT in Nigeria's counterinsurgency campaign has been most consequential in the North-East, where the combination of difficult terrain, porous borders, and an adversary skilled in exploiting both presented the starkest intelligence challenges.[53] The Sambisa Forest used by Boko Haram and ISWAP as a primary base of operations, logistics hub, and hostage-holding facility exemplifies this challenge. Traditional cartographic data for the area was fragmentary and outdated, and ground-level

reconnaissance in the forest's interior was both operationally hazardous and informationally limited. Satellite imagery, combined with UAV surveillance, enabled a process of progressive spatial mapping that transformed the operational understanding of the theatre.

Nigerian military operations in the North-East from approximately 2015 onwards, particularly under Operation LAFIYA DOLE (later retitled Operation HADIN KAI), benefited from the integration of overhead intelligence into campaign planning.[54] Satellite imagery was used to identify probable camp locations, supply routes, and crossing points along the Nigerian borders with Niger, Chad, and Cameroon. UAV reconnaissance provided persistent monitoring of specific areas identified through satellite analysis, generating the time-series data necessary to distinguish between transient and permanent activity patterns.

The interception of Boko Haram supply convoys, documented in several Nigerian military operational reports, illustrates the practical contribution of this evolved approach.[55] UAV surveillance of known supply corridors enabled the identification of convoy movements before they reached their destinations, providing ground forces with actionable intercept opportunities. The speed and specificity of the intelligence derived from real-time video feeds rather than static photographic imagery, was critical to the operational window available for response.

5.2 Precision Targeting and the Question of Civilian Protection

One of the most significant claimed benefits of GEOINT-enhanced counterinsurgency is the potential to conduct more precise targeting, thereby reducing civilian casualties in densely contested environments.[56] The Nigerian Air Force's adoption of precision-capable UAV platforms introduced, in principle, the possibility of engaging identified insurgent targets with reduced risk of collateral damage compared to unguided air-delivered munitions or indiscriminate artillery fire.

The obverse of this argument, however, is equally important and demands honest engagement. The December 2023 incident in Kaduna State, in which a Nigerian military drone strike killed at least 85 civilians who had gathered for a Muslim festival mistaken for insurgent fighters by operators who lacked sufficient discriminating intelligence stands as a sobering reminder of the human cost of targeting errors under conditions of incomplete situational awareness.[57] The incident triggered national and international condemnation and underscored a fundamental point: geospatial surveillance systems generate raw spatial data, but the quality of targeting decisions depends ultimately on the analytical frameworks, training levels, and oversight mechanisms through which that data is interpreted and applied.

The Kaduna incident illuminates a broader challenge: the gap between the technical capacity to conduct persistent surveillance and the human analytical capacity to distinguish correctly between combatant and civilian populations in complex, rapidly evolving operational environments. Human intelligence, the granular, relational knowledge of local communities, social networks, and behavioural patterns remains indispensable to giving spatial data its full operational meaning.

5.3 Border Surveillance and the Cross-Border Dimension

Nigeria shares borders totaling more than 4,000 kilometres with Benin, Niger, Chad, and Cameroon, and the porous nature of these borders has been a persistent enabler of Boko Haram and ISWAP's operational resilience.[58] Arms trafficking, fighter movement, and logistical supply across these borders sustained the insurgency through periods of intense military pressure. Monitoring these corridors is a task uniquely suited to satellite and UAV-based surveillance: it covers vast distances, requires persistent rather than episodic observation, and cannot be feasibly addressed through fixed ground-based posts alone.

Nigeria's geospatial surveillance has been increasingly coordinated with regional partners through the Multinational Joint Task Force (MNJTF), a coalition comprising forces from Nigeria, Niger, Chad, Cameroon, and Benin, headquartered in N'Djamena.[59] Intelligence sharing within the MNJTF framework, including geospatial data, has improved the regional understanding of insurgent movement patterns. However, the MNJTF framework has also been strained by divergent national interests, asymmetric intelligence capacities among

member states, and the geopolitical turbulence associated with the series of military coups in the Sahel which saw Niger and Chad rotate in and out of reliable partnership status.

STRUCTURAL CONSTRAINTS ON GEOINT EFFECTIVENESS

6.1 Institutional Fragmentation

The most persistently documented structural challenge shaping GEOINT's operational effectiveness in Nigeria is institutional fragmentation, the distribution of geospatial intelligence functions across multiple agencies without the connective tissue of a unified command, shared data architecture, or integrated operational culture.[60] As of 2025, the relevant actors include NASRDA, the DSA, NigComSat Ltd, the Nigerian Air Force, the Defence Intelligence Agency, the National Intelligence Agency, the State Security Service, the National Counter Terrorism Centre, and the Nigerian Police Force Intelligence Response Team. Each body collects, processes, and applies geospatial data according to its own priorities, protocols, and institutional culture.

Analysts observing Nigeria's space governance have noted that coordination among NASRDA, NigComSat, and the DSA remains insufficient for the demands of real-time security operations.[61] The proposition that a National Security Space Council chaired by the National Security Adviser with service chiefs, intelligence community representatives, and relevant ministries as members captures the ambition, but also signals how far the current reality falls short of it. Institutional fragmentation is not merely an organisational inconvenience; in counterinsurgency, where the speed of intelligence fusion determines whether an opportunity is exploited or lost, it is an operational vulnerability.

6.2 Human Capital and Technical Capacity

A second structural constraint is the persistent shortage of trained personnel capable of deriving actionable intelligence from geospatial data streams.[62] Nigeria's investment in satellite and UAV hardware has outpaced its investment in the analytical workforce needed to exploit that hardware. NASRDA has trained substantial numbers of engineers, reportedly over 123 staff to Masters level and more than 77 to doctoral level, but the translation of this engineering expertise into operational intelligence analysis requires a different kind of training, embedded within military and security cultures rather than academic and scientific ones.[63] The retention of trained personnel is a further challenge: skilled geospatial analysts can command significantly higher salaries in the private sector or international organisations, creating attrition pressures that undermine cumulative institutional capacity.

6.3 Data Infrastructure and Connectivity

Effective GEOINT depends on secure networks through which raw imagery and processed intelligence can be transmitted from satellite ground stations and UAV operators to command posts and decision-makers in the field.[64] In the North-East theatre, where much of the counterinsurgency campaign unfolds in areas with limited or damaged telecommunications infrastructure, this connectivity challenge has been significant. Ground forces operating in the Sambisa Forest or along the Lake Chad shoreline have, at various points, been unable to receive real-time UAV feeds because data links were insufficiently robust.

The role of NigComSat-1R as a communications backbone for security operations in remote areas has been documented by Nigerian satellite officials.[65] The satellite's approaching end-of-life introduces a potential gap in this infrastructure, a vulnerability that sophisticated adversaries might eventually seek to exploit.

6.4 Political and Governance Dimensions

Beyond technical and institutional factors, the effectiveness of GEOINT in Nigerian counterinsurgency is shaped by political and governance dynamics that operate at multiple levels.[66] Resource allocation decisions for defence and intelligence have been subject to the competing pressures of Nigeria's complex fiscal environment, an economy heavily dependent on oil revenues subject to commodity price cycles, and a budget that must balance security expenditure against vast developmental and social welfare needs. Periods of fiscal

contraction have constrained procurement and maintenance budgets, contributing to equipment degradation and personnel shortfalls.

There is also a governance dimension to the relationship between GEOINT and civilian protection. The Nigerian security forces have faced credible allegations of human rights violations in the North-East, including extrajudicial killings, arbitrary detention, and the use of excessive force that have complicated the political legitimacy of the counterinsurgency campaign and undermined the civil-military relations essential to effective intelligence gathering.[67] A population alienated from the security forces is less likely to provide the human intelligence that gives spatial data its full operational meaning.

NIGERIA'S EXPERIENCE AND AFRICA'S EMERGING SECURITY ARCHITECTURE

7.1 The Regional Security Context

Nigeria's GEOINT trajectory cannot be fully understood without situating it within the rapidly evolving security architecture of West Africa and the broader Sahel region.[68] The security landscape across this region has been transformed by a combination of factors: the deterioration and eventual dissolution of the G5 Sahel Joint Force following the military coups in Mali, Burkina Faso, and Niger; the withdrawal of French forces from former partners across the Sahel; the formation of the Alliance of Sahel States (AES) and the departure of its members from ECOWAS in January 2024; and the expansion of Russian military presence, including Wagner Group and its successor formations, as a substitute for Western security partnerships.

Against this backdrop, the Multinational Joint Task Force in the Lake Chad Basin stands out as the only functioning multilateral security mechanism in the immediate sub-region focused specifically on the Boko Haram and ISWAP threat.[69] The intelligence dimension of MNJTF operations, including the sharing of geospatial data across contributing national forces, remains constrained by asymmetric capabilities, limited shared data infrastructure, and the trust deficits that attend any coalition of states with divergent political directions.

At the UN Security Council, external powers have specifically flagged technical support for training Nigeria's National Counter Terrorism Centre and for the Regional Intelligence Fusion Unit supporting the MNJTF, acknowledging, implicitly, that the intelligence architecture sustaining regional counterterrorism operations requires external supplementation.[70] This external dependency is simultaneously an operational reality and a strategic vulnerability.

7.2 Nigeria as a Regional Reference Point

Despite its well-documented limitations, Nigeria's experience with GEOINT in counterinsurgency provides instructive reference points for other African states confronting similar challenges.[71] Several lessons emerge from the Nigerian case. First, early investment in satellite infrastructure, even if primarily for civilian and developmental purposes, creates a foundation of technical capacity, trained personnel, and institutional frameworks that can be adapted for security applications when security demands intensify. Second, the Nigerian experience illustrates the value, and the difficulty of developing indigenous UAV capabilities. The trajectory from the limited Aerostar deployment of the mid-2000s, through dependence on Chinese and Emirati platforms, to the more recent acquisition of Turkish Bayraktar TB2s and the DSA's entry into domestic drone production, represents a progression that other African militaries can study both for its achievements and its costs.[72]

Third, Nigeria's case reinforces what many scholars of African security have long argued: that technology without institutions is strategically insufficient.[73] The persistent gap between Nigeria's geospatial hardware acquisitions and its operational GEOINT effectiveness reflects, above all, an institutional deficit that hardware alone cannot bridge. This lesson has implications for the design of security sector assistance programmes delivered by external partners, which have often prioritised equipment provision over institutional capacity building.

7.3 The Shifting Geopolitics of African Security Technology

A further dimension of Nigeria's GEOINT trajectory relevant to Africa's broader security architecture concerns the shifting geopolitics of defence technology supply. Nigeria's drone acquisitions have drawn from Israeli, Chinese, Emirati, and Turkish sources reflecting a pragmatic diversification that avoids dependence on any single supplier but also introduces complex interoperability challenges when systems from different technological lineages must function within a shared intelligence architecture.[74]

The broader Sahel reflects an even more dramatic shift, with Russian military presence, including sophisticated electronic warfare and surveillance systems replacing Western partnerships in several states. The implications for regional intelligence sharing are significant: a regional security architecture in which Nigeria relies on Western and Turkish systems while its neighbours operate Russian-supplied platforms is one in which data interoperability and mutual intelligence access face structural barriers that no amount of political goodwill can easily resolve.[75]

CONCLUSION

This article has argued that the evolution of geospatial intelligence (GEOINT) in Nigeria's counterinsurgency from 1999 to 2025 reflects a persistent gap between technological capability and operational effectiveness. While investments in satellites and unmanned aerial systems have enhanced surveillance, situational awareness, and targeting precision, their impact has remained uneven due to institutional fragmentation, limited analytical capacity, and weak inter-agency coordination. The Nigerian case therefore challenges technological determinism. The possession of advanced geospatial platforms has not, in itself, translated into decisive counterinsurgency advantage. Rather, effectiveness has depended on the extent to which GEOINT is institutionally integrated, analytically processed, and operationally aligned with other intelligence forms, particularly human intelligence.

More broadly, the findings underscore that intelligence in counterinsurgency is a systemic function, shaped as much by governance, organisational coherence, and civil-military relations as by technical capability. Nigeria's experience thus offers a cautionary lesson for African states: without corresponding institutional development, expanding geospatial capabilities will yield only limited strategic returns. The central implication is clear. The future of intelligence-led counterinsurgency lies not in further technological acquisition, but in building the institutional frameworks necessary to convert geospatial data into timely, actionable, and accountable security outcomes.

ENDNOTES

1. National Space Research and Development Agency (NASRDA), 'About NASRDA,' accessed March 2026, https://central.nasrda.gov.ng; GlobalSecurity.org, 'Nigeria Space Programs,' accessed March 2026, https://www.globalsecurity.org/space/world/nigeria/index.html. Accessed on April 9, 2026.
2. International Crisis Group, 'Curbing Violence in Nigeria (II): The Boko Haram Insurgency,' Africa Report No. 216 (Brussels: ICG, 2014), 1-5.
3. Robert M. Clark, The Technical Collection of Intelligence (Washington, DC: CQ Press, 2011), 211-215.
4. David Kilcullen, The Accidental Guerrilla: Fighting Small Wars in the Midst of a Big One (Oxford: Oxford University Press, 2009).
5. The US Army/Marine Corps, Counterinsurgency Field Manual, U.S. Army Field Manual No. 3-24, Marine Corps Warfighting Publication No. 3-33.5, (Chicago: University of Chicago Press, 2006)
6. Paul Staniland, Networks of Rebellion: Explaining Insurgent Cohesion and Collapse (Ithaca: Cornell University Press, 2014), 2-18.
7. David Galula, Counterinsurgency Warfare: Theory and Practice (Westport, CT: Praeger, 1964; repr. 2006), 63.
8. Robert M. Clark, The Technical Collection of Intelligence (Washington, DC: CQ Press, 2011).
9. Steve Isakowitz, Space Agenda: Informing the Future of Space, Aerospace Corporation, Centre for Space policy and Strategy, (2021), chrome-extension://kdpelmjpfafjppnhbloffcjpeomlnpah/https://csps.aerospace.org/sites/default/files/2021-09/Aerospace_CompilationBk_20210401_Web.pdf. Accessed on May 19, 2026.

[10] P. W. Singer, Wired for War: The Robotics Revolution and Conflict in the 21st Century (New York: Penguin, 2009).
[11] Martin Libicki, et al., Byting Back: Regaining Information Superiority Against 21st-Century Insurgents (Santa Monica: RAND Corporation, 2007). chrome-extension://kdpelmjpfafjppnhbloffcjpeomlnpah/https://apps.dtic.mil/sti/tr/pdf/ADA472417.pdf. Accessed on May 19, 2026.
[12] Medea Benjamin, Drone Warfare: Killing by Remote Control (London: Verso, 2013).
[13] Andrew Cockburn, Kill Chain: The Rise of the High-Tech Assassins (London: Verso, 2015). https://www.amazon.com/Kill-Chain-Rise-High-Tech-Assassins/dp/0805099263#. Accessed on May 19, 2026.
[14] Audrey Kurth Cronin, How Terrorism Ends: Understanding the Decline and Demise of Terrorist Campaigns (Oxford: Princeton University Press, 2009), 195-216.
[15] Toyin Falola and Matthew Heaton, A History of Nigeria (Cambridge: Cambridge University Press, 2008).
[16] Suleiman Barnawi, 'Boko Haram: Between Islamic Fundamentalism and Terrorism,' Global Journal of Interdisciplinary Social Sciences 5, no. 1 (2016): 13-21.
[17] John Campbell, Nigeria and the Nation-State: Rethinking Diplomacy with the Postcolonial World (Lanham: Rowman and Littlefield, 2021).
[18] Adewunmi J. Falode, 'Hybrid Doctrine: The Grand Strategy for Counterinsurgency and Counterterrorism Operations in Nigeria,' Defence Against Terrorism Review 9, no. 19 (2019): 7-31.
[19] Ayodele P. Olowonihi and M. O. Musa, "Intelligence Gathering and Its Contribution to Nigeria's National Security: A Critical Assessment," *The American Journal of Interdisciplinary Innovations and Research* 6, no. 11 (2024):165, https://theamericanjournals.com/index.php/tajiir/article/view/5632. Accessed on April 22, 2026.
[20] Olowonihi and Musa, "Intelligence Gathering and Its Contribution to Nigeria's National Security," 165.
[21] Usman Tar, ed., Routledge Handbook on Counter-Terrorism and Counter-Insurgency in Africa (London: Routledge, 2021).
[22] Alexander Thurston, Jihadists of North Africa and the Sahel: Local Politics and Rebel Groups (Cambridge: Cambridge University Press, 2020).
[23] The G5 Sahel: An African (French) Solution to an African Problems. https://www.cfr.org/articles/g5-sahel-african-and-french-solution-african-problem Accessed on April 13, 2026.
[24] Tony Roberts, and Admire Mare, ed Digital Surveillance in Africa: Power, Agency, and Rights, London: Zed Books, 2025, DOI: 10.5040/9781350422117
[25] Kevin Donovan, 'Mobile Money, More Freedom? The Impact of M-PESA's Network Power on Development as Freedom,' Journal of African Development 14, no. 1 (2012): 31-60.
[26] RSDI, 'The Rise of the Satellites: How Geospatial Intelligence is Transforming the Security Sector,' https://rsdi.ae/en/publications/the-rise-of-the-satellites-how-geospatial-intelligence-is-transforming-the-security-sector. Accessed March 26, 2026.
[27] Staniland, Networks of Rebellion, 14.
[28] Olowonihi and Musa, "Intelligence Gathering and Its Contribution to Nigeria's National Security," 142.
[29] Declan Amaraegbu, 'Failure of Human Intelligence, Boko Haram and Terrorism in Nigeria,' Journal of Sustainable Development in Africa 15, no. 4 (2013): 79-95.
[30] Olowonihi and Musa, "Intelligence Gathering and Its Contribution to Nigeria's National Security," 142-165;
[31] Bashir Bala and Usman A. Tar, 'Regional Cooperation in West Africa: Counter-Terrorism and Counter-Insurgency,' African Security, 14, no. 2 (2021): 186-207. doi:10.1080/19392206.2021.1929747.
[32] Abraham Ename Minko, 'Emerging Technologies in Boko Haram's Operations and Counter-Terrorism Efforts in Central Africa,' Journal of Terrorism Studies 7, no. 1 (2025): Article 3. Pp. 1-16
[33] RSDI, 'The Rise of the Satellites.'
[34] United States Army, Threat Tactics Report: Boko Haram (Fort Leavenworth: TRADOC G2, 2015), 12-18, https://info.publicintelligence.net/USArmy-BokoHaram.pdf. Accessed on March 26, 2026.
[35] Kilcullen, Counterinsurgency, 29–33.
[36] Ifeanyichukwu Michael Abada et al., 'National Interests and Regional Security in the Lake Chad: Assessing the Multinational Joint Task Force,' The Journal of Social Sciences Research 6, no. 1 (2020): 40–49.
[37] Rob Flynn and Paul Bellaby ed. Risk and the Public Acceptance of New Technologies, Institute for Social, Cultural and Policy Research University of Salford, (New York:Palgrave Macmillan, 2007).

[38] Falode, 'Hybrid Doctrine: The Grand Strategy for Counterinsurgency and Counterterrorism Operations in Nigeria,' 15–19.

[39] Ikpaya Ikpaya et al., 'Quest of Nigeria into Space for Sustainable Development,' paper presented at 14th International Conference on Space Operations, (2016). doi:10.2514/6.2016-2345.

[40] IAF, 'National Space Research and Development Agency,' Wikipedia, 'National Space Research and Development Agency,' https://www.iafastro.org/membership/all-members/national-space-research-and-development-agency-nasrda.html. Accessed on April 13, 2026,.

[41] Ikpaya et al., 'Quest of Nigeria into Space for Sustainable Development,

[42] Olowonihi and Musa, "Intelligence Gathering and Its Contribution to Nigeria's National Security," 150.

[43] Ikpaya et al., 'Quest of Nigeria into Space for Sustainable Development,

[44] Nsemba Edward Lenshie et al., 'Boko Haram, Security Architecture and Counterinsurgency in North-East, Nigeria,' Armed Forces and Society 50, no. 1 (2024): doi:10.1177/0095327X221121656.

[45] ORYX 'A Guide to Nigeria's Military Drones,' 2021, https://www.oryxspioenkop.com/2021/09/a-guide-to-nigerias-military-drones.html. Accessed on May 19, 2026.

[46] Space Security Portal, 'Nigeria,' accessed March 2026, https://spacesecurityportal.org/states/nigeria. Accessed on April 11, 2026..

[47] Amaraegbu, 'Failure of Human Intelligence,' 79-95.

[48] Aminu Idris and Assel Tutumlu, 'Boko Haram's Resilience and the Porosity of Nigerian Border, Ikenga International Journal of Institute of African Studies, 22, no. 1 (2021):1-21.

[49] Military Africa, 'Nigeria Acquiring Bayraktar TB2 Drone and Not Akinci,' September 2022, https://www.military.africa/2022/09/nigeria-acquiring-bayraktar-tb2-drone-and-not-akinci/. Accessed on April 13, 2026.

[50] Military Africa. "Nigeria's Defence Space Administration Enters Drone Production." *Military Africa*, November 17, 2024. https://www.military.africa/2024/11/nigerias-defence-space-administration-enters-drone-production/. Accessed on March 26, 2026.

[51] AllAfrica, 'Satellite Deployment - Key to Nigeria's National Security,' December 2025, https://allafrica.com/stories/202512080496.html. Accessed on April 13, 2026.

[52] AllAfrica, 'Satellite Deployment - Key to Nigeria's National Security.'

[53] Francis Okpaleke et al., Drone Technology in Nigeria's Space: An Advance Warfare Against National Insecurity (ResearchGate, 2025), https://www.researchgate.net/publication/394086096. Accessed on April 13, 2026.

[54] Falode, 'Hybrid Doctrine: The Grand Strategy for Counterinsurgency and Counterterrorism Operations in Nigeria,' 15-19.

[55] Olowonihi and Musa, "Intelligence Gathering and Its Contribution to Nigeria's National Security," 142-168.

[56] RSDI, 'The Rise of the Satellites.'

[57] Umaru Molmela et al., "Drone Technology in Nigeria's Space: An Advance Warfare against National Insecurity" *Kwararafa Security Review, Vol 3, no* 1, June 2025, pp. 184-198.

[58] Okpaleke et al., Drone Technology in Nigeria's Space, 2025.

[59] Abada et al., 'National Interests and Regional Security in the Lake Chad,' 40-49.

[60] Olowonihi and Musa, "Intelligence Gathering and Its Contribution to Nigeria's National Security," 142-156

[61] Musa, 'Defence Ministry to Strengthen Collaboration with the National Space Research and Development Agency (NASRDA) For National Security Operations' February 26, 2026. https://defence.gov.ng/2026/02/26/defence-ministry-to-strengthen-collaboration-with-the-national-space-research-and-development-agency-nasrda-for-national-security-operations-musa/. Accessed on April 13, 2026.

[62] Olowonihi and Musa, 'Intelligence Gathering,' 155.

[63] Ikpaya, 'Quest of Nigeria into Space for Sustainable Development,' 7-8.

[64] Olowonihi and Musa, "Intelligence Gathering and Its Contribution to Nigeria's National Security," 158.

[65] Punch Nigeria, 'NIGCOMSAT, Military Use Nigeria's Satellite Technology to Tackle Insecurity,' October 2024, https://punchng.com/nigcomsat-military-use-nigerias-satellite-technology-to-tackle-insecurity/. Accessed on 13 April, 2026.

[66] Aerospace Security, 'Challenges and Opportunities of Nigeria's Space Policy,' accessed March 2026, https://aerospace.csis.org/challenges-and-opportunities-of-nigerias-space-policy/. Accessed on 13 April, 2026.

67. International Crisis Group, 'Curbing Violence in Nigeria (II),' 22-27.
68. Al Jazeera Centre for Studies, 'The Sahel's Shifting Sands: How the Security Landscape Is Redrawing Regional Alliances,' March 2025, https://studies.aljazeera.net/en/analyses/sahels-shifting-sands-how-security-landscape-redrawing-regional-alliances. Accessed on April 13, 2026.
69. UN Security Council, 'Sahel Now Accounts for Half of Global Terror Deaths, Secretary-General Tells Security Council,' November 2025, https://press.un.org/en/2025/sc16226.doc.htm. Accessed on April 13, 2026
70. Global Terrorism Index 2025. https://reliefweb.int/report/world/global-terrorism-index-2025. Accessed on April 13, 2026.
71. Usman Tar and Bala Bala, 'Lake Chad Basin: Emerging Regional Architecture for Counter-Terrorism and Counter-Insurgency,' in Routledge Handbook on Counter-Terrorism and Counter-Insurgency in Africa, ed. Usman Tar (London: Routledge, 2021), 379-392.
72. Oryx., 'A Guide to Nigeria's Military Drones.'
73. Bala et al., 'Regional Cooperation in West Africa.'
74. Oryx., 'A Guide to Nigeria's Military Drones';
75. Security Council Report, 'West Africa and the Sahel, April 2025 Monthly Forecast,' April 2025, https://www.securitycouncilreport.org/monthly-forecast/2025-04/west-africa-and-the-sahel-14.php.. Accessed on April 13, 2026.