GEOSPATIAL INTELLIGENCE AND THE AFRICAN HISTORICAL LANDSCAPE: IMPLICATIONS FOR NIGERIA'S SECURITY AND DEVELOPMENT, 1999-2024

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Abstract

This essay addresses the historical and technological significance of geospatial intelligence to the study of the African continent, Nigeria's national security and development, 1999-2024. The problem at hand is that little scholarly attention has been accorded to the institutionalization of geospatial technologies, originally designed for scientific monitoring, as strategic resources to be employed in counterinsurgency and policymaking throughout Africa. The study aims to assess Nigeria's uses of satellite remote sensing, Geographic Information Systems (GIS), and spatial-temporal mapping in reconstructing historical landscapes and addressing current security threats. Specifically, the objectives are to: (1) trace the evolution of Nigeria's geospatial capability from the establishment of the National Space Research and Development Agency (NASRDA) in 1999; (2) examine how geospatial assets

have been used in reconstructing historical landscape and documenting ecological and migratory patterns; (3) evaluate their role in Nigeria's counterinsurgency against Boko Haram; and (4) propose strategies for enhancing geospatial sovereignty through institutional and continental cooperation. A historical method of documentary analysis and secondary sources were employed. The study reconstructs Nigeria's geospatial direction and its application in both governance and security. The findings reveal that geospatial technologies have enabled documentation of migration flows, environmental degradation, and infrastructural transformation in conflict-affected areas such as the Sambisa Forest, as well as real-time monitoring for counterinsurgency purposes. The study concludes that institutionalizing geospatial intelligence into the security architecture of Nigeria is not only a historically proven system of governance but also a sustainable boost to response military action. It advocates for more inter-agency collaboration, indigenous capacity building, and continental partnerships to strengthen Africa's geospatial sovereignty.

Keyword: Geospatial Intelligence; African Historiography; Geographic Information Systems (GIS); Satellite Technology; National Security; Technology and History Method

Introduction

The integration of geospatial intelligence into the field of African history and policy analysis has reshaped how policymakers and historians both examine space, sovereignty, and development. While archives of silences, broken colonial records, and contentious memories complicate the attempt to reconstruct the past, technology such as Geographic Information Systems (GIS), remote sensing, and satellite image presents new avenues for methodology. These approaches not only facilitate the recovery of geographically explicit information on migration, resource use, and territorial transformation, but also demonstrate how geography itself is an efficacious force in the process of producing the historical record of Africa.

Nigeria is a particularly perceptive case. The country's spatial legacies were deeply marked by the colonial cartographic actions of the Berlin Conference (1884-1885), which imposed artificial boundaries that fragmented precolonial sovereignties and generated enduring conflicts. [1]Such distortions are still evident in recurring ethnic competitions, border confrontations, and insurgencies in regions such as the northeast, Niger Delta, and Middle Belt. Therefore, geospatial intelligence is more than a tactical means to counterinsurgency but also methodological praxis for rethinking the longue durée of Nigeria's processes of territory.

To structurally demonstrate this twofold role of geospatial intelligence, this article first situates the research within the broader digital turn in historiography, demonstrating how satellite images and GIS have augmented the scope of interpretation of African history. It further discusses the institutional adoption of

space technology in Nigeria, primarily the role of the National Space Research and Development Agency (NASRDA), and considers case studies at the Sambisa Forest where geospatial intelligence has had direct impact on counterinsurgency campaigns. Comparative analysis with Kenya, Algeria, and South Africa is provided, highlighting regional trends and variations in uses of spatial technologies for security and development in Nigeria. Methodologically, the article adopts a historical method of data analysis, critically examining policy documents, and secondary literature supplemented by geospatial datasets to provide depth of the context. The findings show that geospatial intelligence in Nigeria has been both an epistemic bridge more than the limitations of text-based historiography and a utilitarian tool for enhancing governance and national security. The study concludes by proposing a historically sensitive model for integrating geospatial intelligence into Africa's broader development and security agenda, emphasizing ethical use, institutional resilience, and continental cooperation.

Conceptual Clarifications

The relationship between geospatial intelligence and African historical landscapes calls for a probing examination of specific conceptual frameworks that underpin this study. The concepts, while prevalent within scholarly discourse, need to be defined to demarcate analytical accuracy and theoretical concordance.

Geospatial Intelligence

Geospatial intelligence or GEOINT is the comprehensive integration of imagery analysis, geospatial data processing, and intelligence production in order to support decision-making.[2] Though, Lowenthal defines geospatial intelligence as "the exploitation and analysis of imagery and geospatial information to describe, assess, and visually depict physical features and geographically referenced activities on the Earth".a3a It encompasses different technology components such as satellite images, aerial photography, geographic information systems, and spatial analysis procedures which all collectively produce actionable products of intelligence. Geospatial intelligence today is better described as an expansion of its technical collection of data, but more as a knowledge system for production that builds understanding of spatial relationships, control of space, and environmental processes (Paglen). Critical geographers like (Stephen Graham), argue that geospatial technologies are creating new forms of "vertical sovereignty" that transcend traditional territoriality through aerial surveillance and satellite tracking capabilities. This description is particularly relevant in postcolonial African contexts where traditional sovereignty arrangements intersect with technological possibility.

African Historical Landscape

The "African historical landscape" is used to describe physical geography and superimposition of human activity, cultural practice, and political structure on different temporal scales (Vansina). Contrary to the document of European historiographic traditions, African historical landscapes synthesize oral tradition,

archaeology, environmental and spatial data to reconstruct past processes and their continued legacies. Mudimbe's work on African epistemologies shows how colonial cartography pra ctices imposed European spatial categories upon indigenous systems of geography, which created hybrid landscapes with both overriding imposed administrative systems and resilient cultural geographies. This theoretical perspective becomes essential in understanding how modern geospatial intelligence functions with respect to prevailing patterns of territorial organization, resource deployment, and social relationships. Recent work on the geography of Africa brings out landscape as "palimpsest" a surface increasingly multiple inscriptions from various periods still in part visible and potent. This is a framework from which to explore the manner in which colonial boundaries, post-colonial state-building, and contemporary security concerns inscribe and intersect each other within certain geographical landscapes.

Security

Scholarship on security studies has evolved deeply from state-centered military definitions to broader conceptualizations that consider human security, environmental security, and societal security dimensions. [4] Security in African environments involves an array of intersecting issues including state fragility, resource war, environmental degradation, and transnational crime networks that require interdisciplinary analytical approaches. Critical security studies scholars call attention to security as an inter-subjectively constructed concept based on power relations, historical experience, and cultural background rather than simply objective calculations of threat (Booth). Such a perspective is particularly enlightening when considering the manner in which African states apply geospatial intelligence technology to characterize threat narratives, regularize surveillance operations, and validate intervention by force. Postcolonial security introduces greater analytical sophistication by examining how colonial forms of administration, territorial borders, and governance institutions continue to influence contemporary security issues. [5] The phrase "postcolonial security assemblages" takes into consideration how African states merge inherited colonial institutions with emergent technologies and international partnerships to address multifaceted security challenges.

Development

Theory of development in African scholarship encompasses rival paradigms from modernization theory to dependency theory to post-development critiques contesting major presumptions about progress, growth, and social change. [6] Contemporary development discourse lays more emphasis on local agency, indigenous knowledge systems, and culturally adjusted strategies rather than foreign models. The relationship between development and geospatial technologies creates what scholars' term "digital development" policies that harness spatial data, satellite monitoring, and digital infrastructure to address poverty, environmental chaos, and governance challenges.[7] However, critical development studies scholars warn against technological determinism that assumes digital solutions will automatically deliver wanted social effects without regard to underlying structural inequalities. African

development scholarship underscores a necessity to investigate how global technologies intersect with local social, economic, and political conditions.[8] Interpretation of this perspective is key for understanding how applications of geospatial intelligence function towards or hinder development objectives across a range of African settings.

This article uses Nigeria as a case study of the intersection of these conceptual frameworks in practice. Nigeria's investments in space infrastructure, including the Nigeria Sat constellation and military strategic applications, reflect larger African patterns of technologically-informed security management and governance. Nigeria's struggle with Boko Haram insurgency in the north-eastern regions of the country provides particularly strong evidence of how spatial technologies overlap with modern security concerns while producing new modes of historical record. The overarching argument made here positions geospatial intelligence beyond technological innovation; rather, it is an epistemological landscape on which African pasts can be reconstructed in spatially anchored contexts. This is especially significant to postcolonial countries where there are insurgent movements, contested borders, and climatic concerns that call for spatial and temporal hermeneutic practices.

Applications of Geospatial Intelligence to Historical Reconstruction

The integration of computational methods into historical practice often perfunctorily labeled "the digital turn" has radically remapped the conceptual foundations through which historians engage temporality, spatiality, and evidentiary interpretation.[9] One of the most transformative developments in such digital remapping is geospatial intelligence, which, through the synthesis of computational cartography, spatial analytics, and diachronic inference, enables historians to interrogate the past at multiple scales. It permits the integration of micro-histories of place with broad macro-historical trends, thus permitting a layered understanding of historical processes in space and time.[10] Worth mentioning is the point that geospatial intelligence is not just a representational tool but a generative style of research capable of posing new questions in the historiography and revealing previously hidden dimensions of the historical record.[11]

African historiography, long characterized by oral traditions, ethnographic reconstructions, and colonial archive sources, is a rich context for geospatial applications. Oral accounts and colonial records are still deeply historiographical but in many cases are not spatially located well enough and temporally sensitive enough to utilize for advanced historical reconstructions.[12] Herein is the power of geospatial technologies, remote sensing, terrain modeling, and GIS mapping, in particular that bridge a methodology gap. Scholars conceptualize and dissect spatial processes such as migratory routes, settlement expansion, ecological transformation, and the formation of trade or transport infrastructures with unprecedented accuracy and extent.[13]

An example is the geospatial reconstruction of trans-Saharan caravan routes and trade networks. Previously, these ancient roads were inferred based on travelers'

descriptions, missionaries' reports, archaeological records, and fragmented oral traditions. Today, with the use of satellite technology, hydrological modeling, and computerized elevation software, historians can verify and validate these scattered reports and reconstruct potential courses in arid and topographically challenging terrain.[14] These geospatial reconstructions work to do much more than authenticate cultural memory; they transfer African historical agency into active histories and reveal the logistical sophistication, environmental adaptability, and interregional interdependence of precolonial African communities.

These computationally enabled reconstructions redirect long-standing assumptions of African historical stagnation and instead underscore the continent's integration into expansive global and ecological networks. By adopting geospatial intelligence as both a conceptual and methodological tool, historians are developing spatial narratives that remap African agency and technological inventiveness and, in the process, engage the possibilities of present-day digital epistemologies. The outcome is a historiography that not only digitizes the past but also reconstructs it as an active relationship between space, time, and knowledge capable of recording both indigenous spatial logics and the fluidities of transformational history.[15]

Historical Landscapes as Security Frontiers: The Case of Nigeria

In the Nigerian context, the development of geospatial intelligence is inextricably linked with changing paradigms of postcolonial spatial sovereignty, development governance, and national security. The last two decades have witnessed heavy investment by the Nigerian state in space-based technologies as a sign of a strategic reorientation toward predictive intelligence, real-time surveillance, and decision-making through space. This evolution is most clearly seen in developments like the Nigerian Earth observation constellation of NigeriaSat-1, NigeriaSat-2, and Nigeria Sat-X, and the Nigerian Communications Satellite (NigComSat-1R). These facilities, envisioned and operated as a franchise under the National Space Research and Development Agency (NASRDA) and NigComSat Ltd. umbrella, mark a pivotal shift in Nigerian policy towards a utilitarian use of space technologies in civilian planning and development and national security.[16]

This strategic reorientation occurs in the context of a dramatically altered threat landscape. Conventional benchmarks of national security, military deterrence and territorial defense are increasingly being rendered problematic by asymmetrical warfare, transnational insurgency, climatic vulnerabilities, and infrastructural frailties. In such disordered security landscapes, geospatial intelligence has emerged as a privileged infrastructure of anticipatory governance, enabling the state to not only watch and respond to threats but to remap the dynamic specialties of insecurity.[17]

The worth of geospatial intelligence is particularly evident in Nigeria's northeast, where the Boko Haram insurgency has been among sub-Saharan Africa's most severe security challenges. As it emerged in the late 2000s, Boko Haram's territorial ambitions, mobile warfare tactics, and environmental adaptability have necessitated an ever more technologically advanced response. Maybe the clearest illustration of

the worth of geospatial intelligence is in spatially documenting insurgent territorial flux, most significantly in Sambisa Forest. Once an open ecological corridor, the forest throughout the 2010s was transformed into a stronghold for insurgents with temporary facilities, logistical bases, and hidden transshipment routes. This development was recorded not just by human intelligence (HUMINT) and reports in the field, however, but with also high-resolution temporal satellite imaging, which tracked patterns of vegetation clearing, structural appearance, and altered mobility routes through time.

Such spatial record-keeping doesn't work just at the tactical level, that is., informing drone strikes, guiding air surveillance, or coordinating combined operations, but also provides a specific window into the territorial logics of insurgency through historiography. Effectively, geospatial intelligence has rendered insurgent spaces legible to historians and military strategists alike. Geospatial intelligence allows one to visually and analytically recreate the insurgents' mobility, the morphology of camps, and the socio-political geographies of contested spaces.[18] Combined with oral histories, ethnographic mapping, and local epistemologies, this spatial archive reveals the improvisational politics of sovereignty, spatial reshaping, and displacement of community politics that are often poorly documented in conventional textual archives.

Nigeria's case, then, is a witness to the fact that geospatial intelligence is not merely a technocratic supplement to military force but also a crucial epistemological instrument for rethinking the geography of violence, territory, and political power. It reaffirms the urgency of African nations to use spatial technologies not only as instruments of counterinsurgency but as an instrument for embedding spatiality in broader historical, political, and development contexts. As insurgent landscapes shift and state defenses evolve, the environment itself is re-imagined as a frontier where the politics of cartography, the violence of place-making, and the reshaping of memory converge.

Figure 1: Satellite images of the Dure area of Sambisa show the gradual build-up of road networks and the build-up of clusters of structures in the settlement between 2014 and 2021. [19]

The ability to map and analyze landscape change using geospatial systems has wider real-time military use and introduces new dimensions into the historiographical study of ungoverned and contested territories. These technologies allow researchers and security practitioners alike to question critically the spatial dynamics involved in insurgent conflict, that is, how insurgencies organize, develop, and embed themselves in the terrain and ecological system of specific territories. [20] By accumulating spatial data over time, geospatial intelligence allows historians to create an evidentiary foundation on which to reconstruct the conditions under which militant geographies form such as deforestation patterns, settlement morphological change, militant movement corridors, and exposure patterns to key natural resources.

This epistemological shift redefines the very terms of historical evidence. No longer the exclusive domain of oral testimony, declassified military reports, and eyewitness accounts, conflict zone historiography now accepts high-resolution satellite time series, GIS models, and drone reconnaissance records as legitimate historical artefacts.[21] This way, war's virtual footprints documented by landscape transformation and thermal imaging emerges as an important primary source in the understanding of both the material infrastructure and symbolic spatiality of insurgent rule.[22] A practical illustration of this convergence was witnessed in June 2023 when the Nigerian Air Force utilized the Chinese-made Wing Loong II drone to destroy terrorist targets taking cover in the Mandara Mountain range along Nigeria's northeast border ("*DefTube Africa"*). The incident is an example of how contemporary military operations are now choreographed by satellite-fed targeting systems and multi-layered geospatial surveillance. The operational significance is not merely in the tactical efficacy or technical sophistication of unmanned aerial systems (UAS), but in their capacity to generate a digital corpus of war documents constituted by video, telemetry, and spatial mappings, which comprise a novel kind of military-historical record. ("*Military Africa"*) Geospatial intelligence therefore, simultaneously exists both as a tactical instrument and as an archive, both informing strategic action and providing a spatial-visual record of conflict. For security historians of postcolonial Africa, this represents a significant historiographical advance: enabling the study of insurgency not merely through textual narrative but via interactive, multi-layered cartographies that make visible the temporal and spatial logics of war, resistance, and territorial conflict.[23]

See how Nigerian Air Force drone eliminated over 100 Boko Haram terrorists in Borno state.

Figure 2: Air Assault on Boko Haram Terrorista24a

Case Study Analysis: The Sambisa Forest Complex

The Sambisa Forest Complex gives a vivid image of the shifting relationship between geospatial intelligence and the historiographical understanding of insurgent territoriality. Originally bounded as a pre-colonial game reserve under British occupation, the transformation of Sambisa into a crucial Boko Haram stronghold by the mid-2010s speaks to the strategic reclamation of pre-existing geographical spaces by non-state actors.[25] Between 2014 and 2016, the forest cover, spanning some 1,300 square kilometers, functioned as a de facto insurgent capital, hosting principal command infrastructure, training camps, and ideological indoctrination centers. Multi-temporal satellite imagery within this period has revealed widespread landscape transformation, suggestive of orchestrated and concerted territorial manipulation. High-resolution satellite imagery verifies that land clearance expanded from about 15 square kilometers in 2010 to over 150 square kilometers by 2016 a tenfold rise that is more indicative of long-term insurgency strategy than spontaneous encampment. The cleared areas themselves were not scattered indiscriminately; instead, they tended to cluster around water sources, high grounds, and lines of mobility primary indicators of an appreciation for both logistical effectiveness and tactical dependability.

Geospatial Information System (GIS) overlays also demonstrate a distinct spatial hierarchy within Boko Haram's occupied terrain. Enormous central nodes, often grouped behind defensive perimeters, served as command centers and training camps, while satellite camps were utilized as logistical staging points, observation points, or mobile combat units. This is a model of a decentralized, depth-based defense that relies on mobility, dispersal, and redundancy features of fourth-generation warfare.[26] Critically, the integration of geospatial data with human intelligence reports provides an even richer image of the territorial usefulness of the

forest. Reports of insurgents apprehended and hostages freed verify that various sections of Sambisa were used for agriculture, religious indoctrination, weapons caches, and sheltering abductees.[27] Such a dual-use function both military and socio-governance, demonstrates Boko Haram's attempt to establish an alternative order, underpinned by infrastructural stability as opposed to guerrilla temporality. The implications of this geospatial-historical evidence are double. First, it re-describes the Sambisa Forest not only as a geographic terrain but as a geopolitical territory whose evolution maps the path of the insurgency's ideological and military route. Second, it places methodological stress on spatial-temporal intelligence in constructing robust historical narratives of insurgent authority within postcolonial Africa. With the application of drone spying, satellite imaging, and GIS platforms, historians can now reconstruct the spatial rationalities of insurgent power with an empirical precision previously impossible through textual archives.

Geospatial Intelligence as a Historical Source

Historians are increasingly beginning to engage with geospatial intelligence not as a marginally connected use but as an independent evidentiary foundation with its epistemological pull. Rather than being used as a technological veneer over entrenched repositories, geospatial data such as high-resolution satellite imagery, spatial analysis, and terrain modeling constitute a separate class of historical evidence. Along with enriching traditional sources, these tools generate new types of historical knowledge that are simultaneously empirical and interpretive.[28] When these data are employed to rethink such earlier historical questions of land ownership, resource allocation, and administrative hierarchies, they are seen to uncover the longue durée of spatial inequity and its enduring legacy on present instability. One particularly astute methodological approach is the superimposing of colonial cadastral maps and land grant registries over contemporary maps of conflict. In African environments, and in Nigeria in particular, such diachronic mapping discloses unpalatable continuities among colonial spatial organization and today's zones of ethno-religious confrontation or insurgency.[29] For instance, when administrative frontiers erected under early twentieth-century British indirect rule meant to consolidate hierarchical domination are overlaid on modern geographies of rebel activity or communal conflict, inherited dynamics of exclusionary space become apparent. Such continuities, made visible by Geographic Information Systems (GIS), provide an effective analytic tool for understanding the reproduction of instability across generations.

Yet, the use of geospatial intelligence is also a complex ethical issue when deployed in military operations. While the technologies make precision strikes and operational efficiency possible, they can also cause humanitarian catastrophes when deployed without adequate safeguards.[30] One grim example was in December 2023, when the Nigerian Air Force drone bombing of Tudun Biri, Kaduna State, was a miscalculation and struck a civilian gathering, killing a minimum of eighty-five individuals.[31] The incident serves as a reminder of the dual-edged sword that geospatial intelligence is:

as it is capable of enriching historical and strategic knowledge, so too is it able to inscribe permanent humanitarian costs into the history books

Figure 3: Nigerian army drone strike accident kills at least 85 civiliansa32a

Despite the reliance on satellite-based surveillance and the presumption of full situational awareness, incidents such as the December 2023 Tudun Biri airstrike underscore the vulnerability of geospatial networks when disconnected from real-time human intelligence and moral oversight.[33] For the historian, such events are a bitter reminder that geospatial repositories, regardless of their richness in spatial-temporal data, must be interpreted carefully, with due consideration of the political and military power inequalities involved in their collection, classification, and use.[34] These archives raise daunting ethical questions for historiography: Whose image? How are "targets" designated, identified, and recorded? How far can historians trust the impartiality of the military-created geospatial documents, especially when their generation can be accompanied by non-combatant displacement, injury, or even death? [35] These are queries that compel scholars to engage in reflexive questioning of technical procedures and institutional spaces that constitute geospatial data production.

As geospatial intelligence increasingly becomes central to both contemporary warfare and historical reconstruction, it must be vigilant on two fronts: intellectual precision in its scholarly application and moral responsibility in its actual application. Historians must be meticulous not to take geospatial outputs at face value without also triangulating them with other sources of evidence, such as oral histories, ethnographic field research, or declassified reports. [36] Ethically, they must be careful how spatial technologies blur ethical boundaries, becoming tools not only of research but of coercion, surveillance, and state violence. The challenge, therefore, is to construct historiographies that acknowledge geospatial intelligence as simultaneously an analytic tool and a politically situated archive whose uses and abuses cannot be divorced from the topographies of power that produce it.

Technology, Statecraft, and Historical Imagination

The formulation of continent-scale geospatial architectures such as the African Union Space Policy and the African Resource Management Constellation (ARMC) is a case in point of the re-imagination of geospatial technologies not merely as a cartographic or surveillance tool, but rather as a vehicle for regional diplomacy, governance rationality, and continental integration.[37] They articulate Africa's independence as a group in the discipline of space sciences, a conscious departure from a historical course where African geographies were mapped, appropriated, and administratively remapped by others. In this supranational endeavour, Nigeria's activist engagement with satellite launching and geospatial cooperation couches space science in terms of the ideological current of postcolonial modernism, where technological sovereignty is a signifier for political agency and continental mastery.

It is here that Nigeria's functionality meets its symbolism. By belonging to ARMC and launching satellites such as NigeriaSat-1 and NigComSat-1R, the country positions itself not as a recipient of space-based technologies but rather as a producer of geospatial data and a regional actor in the reconfigured geopolitical economy of spatial knowledge.[38] Historically, this is not just reclamation of Africa's cartographic visibility but a remapping of mapping itself, wanted and projected from space rather than imposed from colonial metropoles.

Furthermore, geospatial intelligence offers historians a lens through which to re-engage the historical geography of power, especially inasmuch as it intersects with militarized spatial technologies. Nigeria's expanding array of unmanned aerial systems, including the domestically produced TSAIGUMI, Chinese-provided Wing Loong II, and Super Tucano represents not only a technological modernization of military capability but an ideological extension of state power.[39] These drones are not just tactical tools but rather symbolic performances of a state's right to govern from the air reasserting cartographic control over territories once arranged by colonial partition and later destabilized by postcolonial fragmentation. The technological frontier is thus a realm where historical narratives, statecraft, and spatial sovereigntyconverge.

Figure 4: The Tsaigumi UAV was built by the Nigerian Air Force aerospace engineersa40a

Figure 5: Nigeria Takes Delivery of Chinese Drones to Combat Insurgency, Armed Banditrya41a

Figure 6: A Nigerian A-29 Super Tucano taxis down the runway at Moody Air Force Base, Georgia, in September 2021. SENIOR AIRMAN REBECKAH MEDEIROS/U.S. AIR FORCE[42]

The advent of geospatial technology has profound historiographical implications. No longer the sole domain of cartography's techniques surveying instruments, printed maps, and topological data sets these instruments now inhabit contested terrain of sovereignty, identity, and collective memory.[43] Through the potential of satellite imaging and spatial analysis, African countries such as Nigeria can begin to re-inscribe the histories of territorial sovereignty in manners that resist colonial cartographies that erased indigenous polities and disrupted socio-cultural continuities.[44] In this manner, geospatial intelligence is portrayed as more than a strategic or surveillance tool; it is depicted as a postcolonial narrative recovery tool, a postcolonial method of African spatial rescue and remapping via indigenous technological production and control. Here, mapping is not a representational or descriptive process; rather, it is a political statement and a historical speech act. Within African historiography, geospatial analysis heralds a paradigmatic change, whereby the satellite, the UAV, and the GIS layer are all methodological interlocutors between the silences of the past and the possibilities of the future. They offer African historians an alternative epistemological foundation for writing space, one that breaks the dependence on colonial archives and initiates a new phase of spatially enabled historical agency.[45]

Comparative Regional Analysis

Kenya: Border Security and Counterterrorism

Kenya's geospatial intelligence development parallels the country's prolonged engagement with Al-Shabaab incursions from Somalia. The 2017 establishment of the Kenya Space Agency marked an ambitious investment in the acquisition of

satellite imagery and Geographic Information System (GIS) equipment to support both developmental and security applications.[46] Management of the 700-kilometer border between Somalia and Kenya has been a persistent challenge, resulting in the inclusion of real-time monitoring by satellites and change detection technologies. Construction of border fences with sensor networks is a physical–digital hybrid solution; however, specialists believe that such technological measures will push away rather than erase dangers in case they fail to address the socioeconomic causes of instability.

Algeria: Saharan Surveillance

Algeria's geospatial intelligence strategy stems from thirty years of internal security vulnerability and the ongoing need to fight transnational crime along the Saharan corridor. The Algerian Space Agency (ASAL) and its AlSat constellation of satellites provide it with indigenous capabilities used for civilian purposes as well as military surveillance of vast expanses of desert (ASAL). The In Amenas gas plant attack in 2013 demonstrated the capacity and the limitations of geospatial surveillance. While satellite monitoring allowed for surveillance of distant-from-principal facilities, the attack revealed vulnerabilities in the protection of solitary infrastructure against duly prepared attackers, prompting the government to act by integrating spatial intelligence with secure surface defenses more closely.[47]

South Africa: Regional Leadership

South Africa has the most advanced geospatial capabilities on the continent through the Council for Scientific and Industrial Research (CSIR) and the South African National Space Agency (SANSA). These institutions provide regional technical development leadership in tackling peacekeeping missions on the African continent (SANSA). The South African model focuses on public–private partnerships, where defense firms provide geospatial services to local and international clients. Though such coexistence promotes technological development, it also raises issues about commercial interests' control over national security policy and geospatial data sovereignty implications (South African Defence Review).

Policy Implications and Strategic Recommendations

Short-Term Strategies (1-3 years)

Nigeria should emphasize enhancing data-sharing frameworks between civilian space agencies such as the National Space Research and Development Agency (NASRDA) and the military intelligence agencies with corresponding security levels (NASRDA). Extensive investment in technical specialist training courses will maximize indigenous analysis capabilities and reduce reliance on foreign experts.[48] Establishing ethical standards for geospatial intelligence utilization in security operations will not only

guarantee efficiency in operations but also prevent civilian loss of life, an issue raised through incidents such as the December 2023 Tudun Biri tragedy.

Medium-Term Objectives (3-7 years)

Regional partnership agreements should be established to enable intelligence sharing among West African states with the same asymmetric security threats (ECOWAS). Public-private partnerships could accelerate technology development while keeping sensitive technologies within national control. Integrating geospatial intelligence with other inputs human intelligence (HUMINT), signals intelligence (SIGINT), and open-source intelligence (OSINT) would offer a multi-layered and holistic situational awareness platform.[49]

Long-Term Vision (7-15 years)

African Union initiatives such as the African Resource Management Constellation (ARMC) will enhance collective technological sovereignty while reducing the expenditures of individual states (Sansa). Developing indigenous satellite manufacturing capability would eradicate foreign suppliers for critical intelligence activities.[50] Moreover, the integration of artificial intelligence (AI) and machine learning (ML) in geospatial analysis will enable auto-threat detection and predictive analytics and hence augment anticipatory governance.[51]

Ethical Implications and Constraints

The employment of geospatial intelligence has serious ethical implications that need to continue being explored. Observational powers of high resolution aggravate privacy concerns, and protecting civilians demands strict targeting procedures and human oversight of automated systems.[52] The air raid on Tudun Biri is one example of the danger attributable to poor verification techniques employed in geospatial-assisted military strikes.[53]

Data sovereignty is an additional pressing issue: reliance on foreign satellite infrastructures and commercial image providers would jeopardize national security. Nevertheless, the necessitating technologies must be balanced to be self-sufficient by means of strategic partnerships that provide autonomy while enabling capability development. The dual-use nature of geospatial technologies means that analysis tools designed for acceptable defense purposes can be utilized for authoritarian surveillance or human rights violations, and thus scholarship must uphold high standards of ethics in guiding both security operations and historical understanding.[54]

Conclusion

This paper attempted to show that geospatial intelligence has matured beyond a technical supplement to historical research or a tactical instrument of military strategy; it is a revolutionary epistemological and political force. In the Nigerian context, the twinned nature of the technology as both an instrument of counterinsurgency strategy and as a historiographical repository shines light upon how space-based capacities reshape notions of territory, power, and security in the postcolonial state. The Sambisa Forest case demonstrates the manner in which geospatial tools are able to capture insurgent territoriality with greater accuracy than oral evidence or isolated military evidence, and build a robust visual-spatial record for future historical interrogation.

But as regional comparisons illustrate, Nigeria's experience is part of a broad African pattern in which states, whether Kenya with its counterterrorism border patrols, Algeria with its Saharan surveillance, or South Africa with its continental hegemony, are reimagining the uses of spatial technologies for national and continental goals. These paths are all mixes of indigenous capacity building, external partnerships, and negotiations of data sovereignty, each varying according to specific security landscapes and political economies.

At the policy level, the recommendations made here point to a multi-tiered strategy: short-term linking of gaps between civilian and military information infrastructures; medium-term development of regional architectures for collaborative sharing of intelligence; and long-term emergence of indigenous production and AI–GIS integration to establish African technological autonomy. Technology development is, however, insufficient. Without moral guidelines, control in operation, and astute awareness of power dynamics, the same geospatial technologies that protect people can also harm them, as tragically illustrated by the Tudun Biri airstrike.

For the historian, these tensions create a dual responsibility. On the one hand, there is a methodological need to embrace geospatial intelligence as a rightful primary source, which can open up the longue durée of spatial inequality, colonial hangovers, and contemporary geographies of violence. On the other hand, there is a moral need to interrogate the provenance, framing, and implications of such data, and particularly where it originates from military or politically motivated sources. This is concerned with the management of geospatial archives as built artefacts, not objective data, but as artefacts that are embedded in relations of power, sovereignty, and dispute.

Generally, African geospatial intelligence and that of Nigeria, especially, is at work at the intersection of technology, statecraft, and historical imagination. Its arrival in African historiography portends a paradigm shift from text-driven, static accounts to dynamic, spatial-temporal reconstructions in harmony with both indigenous knowledge traditions and cutting-edge digital methods. As Africa is constructing its continental space architectures, the challenge and question are to appropriate these tools to emancipatory ends: to make borders secure without re-inscribing earlier exclusions, to construct histories anew without erasing alternative narratives, and to

establish technological autonomy without consolidating authoritarian domination. It is in and through this measured path alone that geospatial intelligence can fulfill its promise as both a watchman of security and a defender of historical truth.

Endnotes

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