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Integrating Natural Geomorphic and Cultural Heritage Assets into Urban Recreational Planning: A Framework for Resource-Based Development in Zaria, Nigeria

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Abstract

Rapid urbanization in Zaria Urban Area, northern Nigeria, has intensified pressure on limited open spaces and diminished opportunities for structured recreation. This study develops a resource-based framework that integrates the city's underutilized natural geomorphic assets (Kufena Hills, Dutsen-Abba Rock, Zaria Dam and Polo Field) with its rich cultural heritage assets (Emir's Palace, traditional festivals such as Hawan Sallah, and indigenous crafts) into a coherent urban recreational planning system. Drawing on field surveys, an inventory of existing facilities, service-radius analysis, and stakeholder insights, the paper evaluates current spatial distribution, functionality, and maintenance deficits. Findings reveal that while a 5 km service radius indicates reasonable geographic coverage, threshold population standards are unmet and most public facilities suffer from inadequate maintenance. The proposed framework designates five priority recreation sites, recommends complementary active and passive facilities, and outlines a two-phase implementation plan (2024–2030) supported by public–private partnerships. The study contributes a transferable model for secondary African cities seeking to convert local natural and cultural capital into inclusive, sustainable recreational infrastructure that enhances public health, social cohesion and local economic development.

Keywords: Urban Recreational Planning, Geomorphic Heritage, Cultural Heritage, Resource-Based Development, Zaria, Spatial Equity

Introduction

Periodic interruption of routine activity is essential for physical, mental, and social regeneration. Recreation, defined as voluntary activity undertaken for enjoyment or personal satisfaction during leisure time (Yukic, 2005; John, 2003), constitutes a critical component of urban liveability. In rapidly expanding African secondary cities, however, the provision and spatial organisation of recreational facilities frequently lag behind population growth and land-use intensification.

Zaria Urban Area, spanning Zaria and Sabon-Gari Local Government Areas in Kaduna State, Nigeria, exemplifies this challenge. Established several centuries ago, the city has experienced pronounced urban sprawl that has consumed potential open spaces and left residual recreational facilities unevenly distributed, poorly maintained and often non-functional (Encyclopedia, 2021). Existing outdoor assets, football pitches, basketball and volleyball courts, polo fields and scattered gardens are concentrated around institutional campuses and a few planned neighbourhoods, while large portions of the urban fabric remain underserved.

Concurrently, Zaria possesses distinctive natural geomorphic features (Kufena Hills, Dutsen-Abba Rock, Zaria Dam, the Polo Field) and a dense layer of cultural heritage (Emir's Palace complex, traditional equestrian festivals, blacksmithing, pottery, weaving and indigo dyeing). These assets remain only partially integrated into formal recreational planning. International experience demonstrates that resource-based recreational strategies that deliberately link natural and cultural capital can enhance accessibility, generate local economic benefits and reinforce place identity (Gold, 1980; Houlihan, 2000).

This paper therefore aims to develop a practical framework for integrating Zaria's natural geomorphic and cultural heritage assets into urban recreational planning. Specific objectives are: (i) to review principles and standards relevant to resource-based recreational development; (ii) to characterise the spatial and socio-economic context of Zaria Urban Area; (iii) to inventory existing facilities and evaluate their distribution against service-radius and threshold-population criteria; and (iv) to propose a phased, site-specific recreational development plan grounded in the city's natural and cultural resources.

METHOD

The study adopted a mixed-methods design combining primary field investigation with secondary data analysis. Primary data were obtained through systematic reconnaissance surveys of all identified recreational sites, structured observation of facility condition and usage, and oral interviews with facility managers and local stakeholders. Secondary sources included topographic and land-use maps, the 2006 national census (projected to 2026 at 3.2% annual growth, yielding an estimated population of 995,337, planning standards published by the National Recreation and Park Association (NRPA), and relevant scholarly literature.

Spatial analysis employed a 5 km service radius centred on major facilities to assess geographic coverage, while threshold-population standards (approximately 30,000 residents per major outdoor recreation node) were applied to evaluate adequacy. A sample of 285 respondents, determined via the Krejcie and Morgan table and selected through systematic sampling, provided data on educational and occupational profiles, recreational habits, preferred activity types and perceptions of facility maintenance. Descriptive statistics (percentages, frequencies) were used to summarise socio-economic and patronage patterns. Qualitative synthesis of natural and cultural potentials informed the subsequent site-selection and facility-programming stages of the proposed framework.

Study Area

Zaria Urban Area lies between latitudes 11° 02′ 15″ N and 11° 10′ 56″ N, and longitudes 7° 36′ 44″ E and 7° 44′ 58″ E, bounded by Kudan, Igabi, Giwa and Soba Local Government Areas. The terrain is gently undulating (632m–647m above sea level) within the Northern Guinea Savannah. Annual rainfall averages 750 mm; relative humidity ranges from approximately 30 % in the dry season to over 90 % in the wet season. These biophysical conditions support both outdoor active recreation and the preservation of geomorphic features.

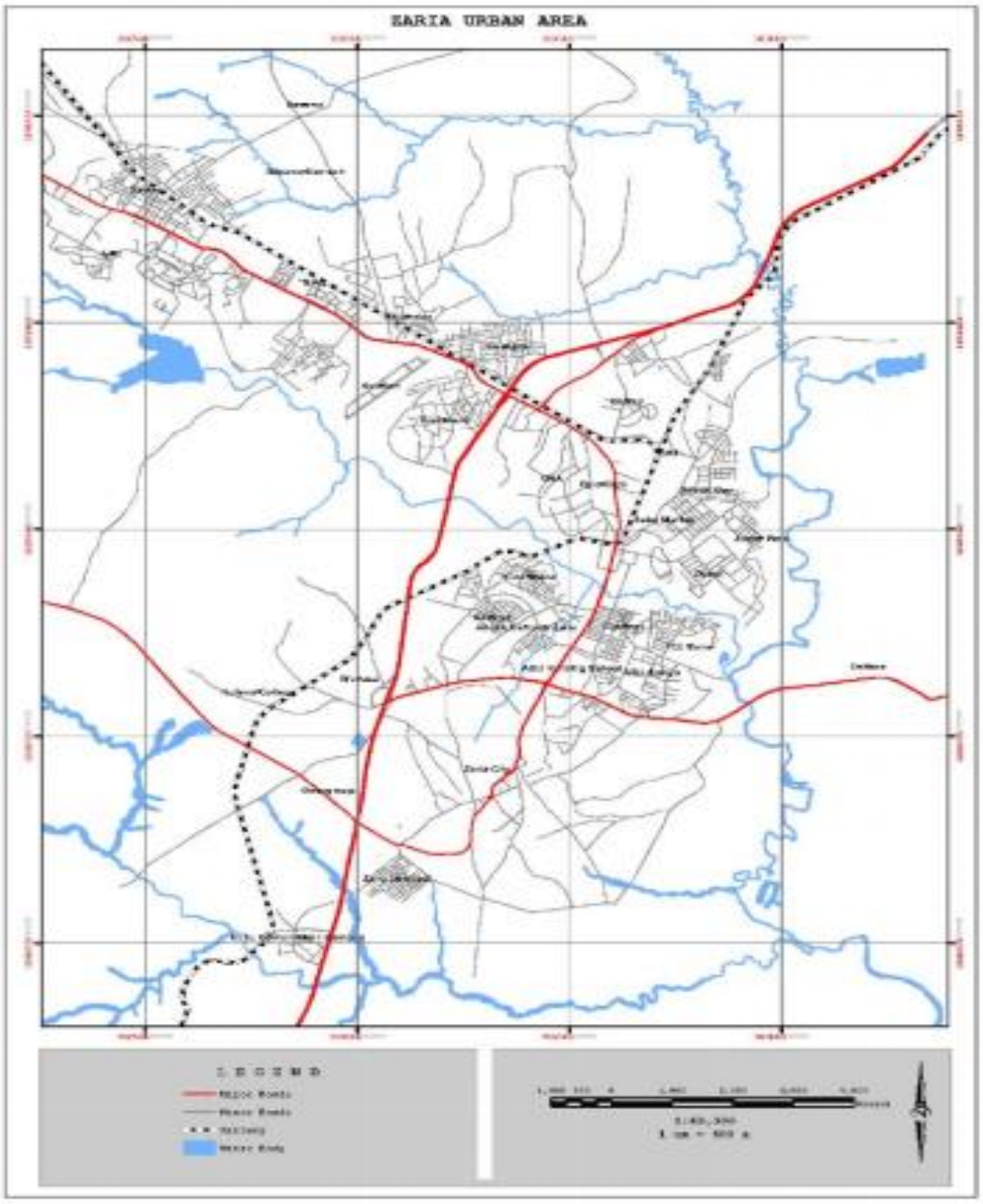


Figure 1: Zaria Urban Area

Source: *Google Earth/GIS base map, 2026.*

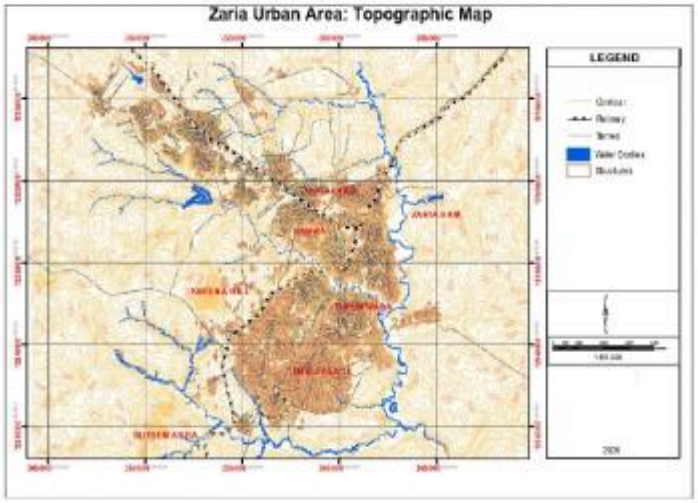


Figure 2: Topographic Map of Zaria Urban Area
Source: *Field Survey/Google Earth/GIS base map, 2026.*

Socio-Economic Context and Existing Facility Inventory

Respondents were predominantly engaged in farming (37%), followed by students (24%), civil servants (21%) and traders (18%). Educational attainment was diverse, with secondary education (23%), Qur'anic education (22%) and primary education (21%) most common. These profiles indicate a population that values both active outdoor sports and culturally embedded leisure practices.

Field inventory recorded 11 football pitches (9 functional), four basketball courts (all functional), three volleyball courts (two functional), one polo/golf course, three garden/rest areas, and three non-functional cinemas. Spatial mapping revealed clustering around Ahmadu Bello University, Nuhu Bamalli Polytechnic, Federal College of Education, and the Zaria Stadium at Dogarawa. Application of a 5 km service radius suggested reasonable geographic coverage; however, the estimated threshold population of approximately 30, 000 residents per major facility was not met across most of the urban area, confirming quantitative inadequacy.

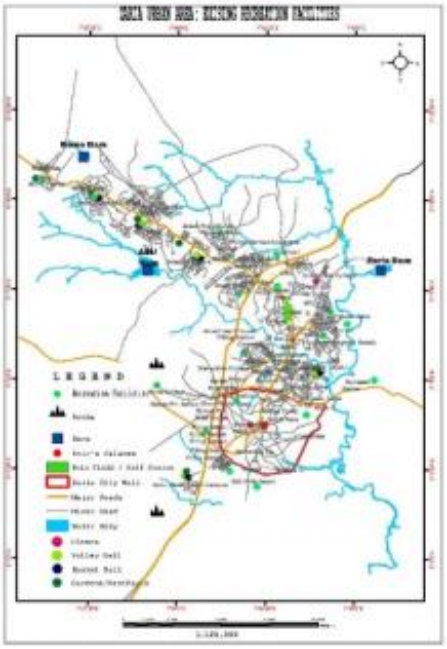


Figure 3: Existing Recreational Facility
Source: *Field Survey/Google Earth/GIS base map, 2026.*

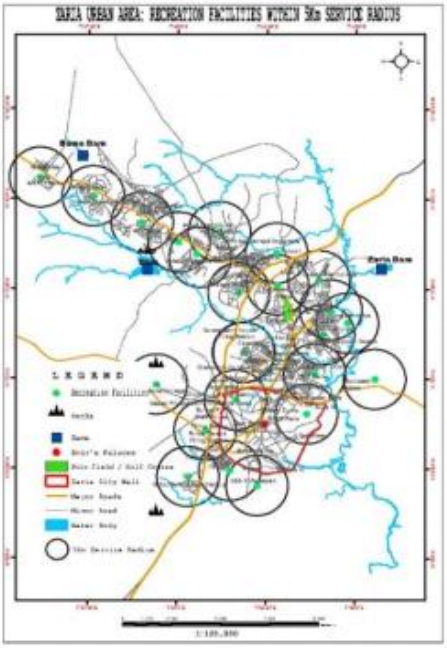


Figure 4: Spatial Distribution of Recreation Facilities within 5km Radius ***Source:*** *Field Survey /Google Earth/GIS base map, 2026.*

Natural Geomorphic Potentials

Four principal geomorphic assets were identified. Kufena Hills, rising to approximately 1,220m and covering 53.78 ha, offer opportunities for mountaineering, hiking, picnicking and nature interpretation. Dutsen-Abba Rock, located along the Kaduna–Kano expressway, presents a flat summit suitable for panoramic viewing and limited active recreation (7ha). Zaria Dam, already utilised for municipal water supply, is surrounded by expansive open land capable of supporting boating, fishing, swimming, lakeside trails and passive recreation. The Polo Field in the Government Reservation Area provides a relatively flat, well-drained surface already partially used for polo and golf, with residual capacity for expanded active and passive programmes.



Plate 1: Kufena Hills



Plate 2: Dutsen-Abba

Cultural Heritage Potentials

Cultural assets centre on the historic Emir's Palace and associated district palaces, the surviving segments of the ancient city wall (Ganuwa), and a calendar of traditional festivals, most notably, Hawan Sallah, Hawan Daushe and Hawan Biriki, characterised by elaborate equestrian displays. Indigenous crafts (blacksmithing, pottery, weaving, indigo dyeing) supply both living cultural practice and potential souvenir economies. These elements collectively constitute a distinctive place-based recreational and tourism product that remains only loosely linked to formal urban recreational planning.



Plate 3: The Emir's Palace
Source: *Field Survey, 2026.*

Key Constraints

Six interrelated constraints hinder effective integration: (i) chronic under-maintenance of existing public facilities (64 % of surveyed facilities were reported as inadequately maintained); (ii) absence of

a comprehensive recreation master plan; (iii) weak policy articulation and institutional fragmentation across two local government areas; (iv) uneven distribution of supporting infrastructure; (v) limited public awareness and marketing; and (vi) shortage of specialised recreational planning capacity at the local-government level.

Proposed Resource-Based Framework

The proposed framework designates five priority recreation nodes that explicitly couple natural and cultural assets with complementary facilities:

a. Kufena Hills – holiday camps, administrative block, car-hire services, active and passive recreational facilities;
b. Zaria Dam – holiday camps, golf course extension, restaurants, boating/fishing/swimming infrastructure, lakeside trails;
c. Dutsen-Abba Rock – museum, art-and-craft gallery, holiday camps, active and passive facilities;
d. Zaria Polo Field – upgraded polo club, restaurants, car-hire services, expanded active and passive programmes;
e. Emir's Palace precinct – art-and-craft galleries, festive terraces and theatres, museum interpretation, restaurants and passive recreation spaces.

Implementation is organised in two phases. Phase One (2026–2029) focuses on institutional arrangements, public awareness, site clearance and mobilisation. Phase Two (2030–2033) addresses infrastructure upgrading, facility construction and commissioning. Financing is envisaged as a partnership between state government (major infrastructure), local governments (feeder roads and maintenance) and private investors (hospitality and specialised recreational facilities).

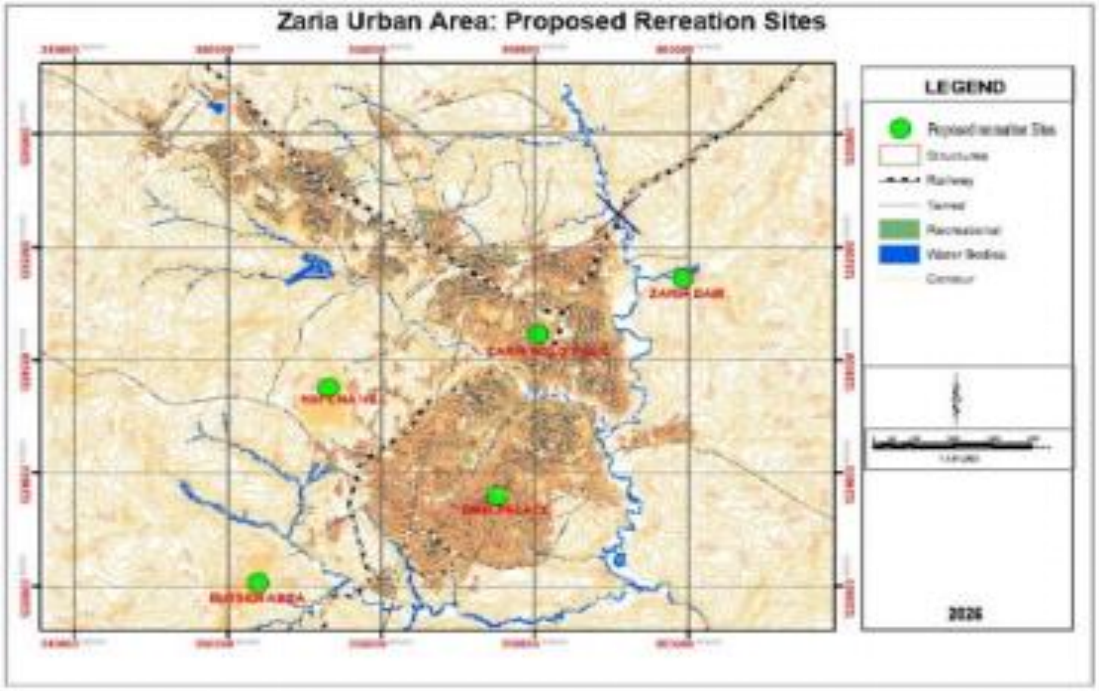


Figure 5: Proposed Recreation Sites ***Source:*** *Field Survey/Google Earth/ArcGIS, 2026.*

Table 1: Proposed recreation sites and complementary facilities

Site	Proposed Facilities
Kufena Hills	Holiday camps, administrative block, car-hire, active & passive facilities
Zaria Dam	Holiday camps, golf course, restaurants, boating/fishing/swimming, trails
Dutsen-Abba Rock	Museum, art & craft gallery, holiday camps, active & passive facilities
Zaria Polo Field	Polo club upgrade, restaurants, car-hire, expanded active & passive programmes
Emir's Palace	Art & craft galleries, festive terraces/theatres, museum, restaurants, passive spaces

Source: Author's synthesis from field survey, 2026

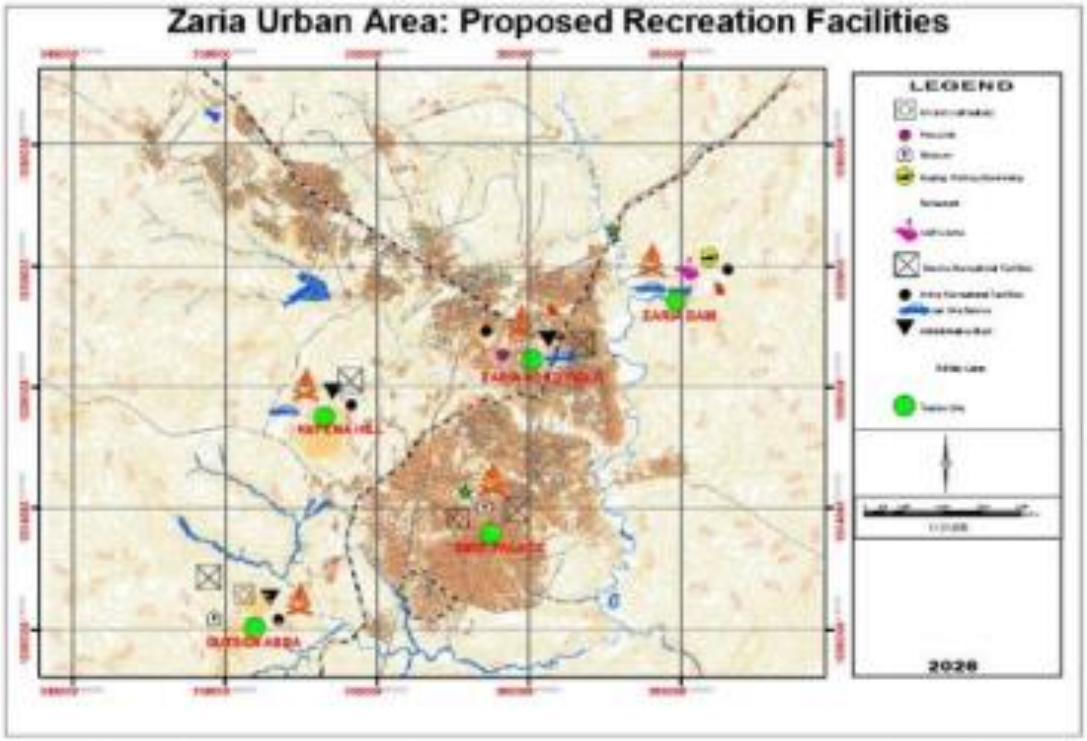


Figure 6: Proposed Recreation Facilities
Source: *Field Survey/Google Earth/ArcGIS, 2026.*

The framework aligns with established recreational planning principles of accessibility, coordination, integration, adaptability, feasibility and citizen involvement (Gold, 1980; Ekenebe, 1988). By anchoring new investment in existing natural and cultural capital, it minimises land-acquisition costs, reinforces local identity and creates multiple entry points for public health, social interaction and micro-enterprise development.

CONCLUSION

Zaria Urban Area possesses a latent portfolio of natural geomorphic and cultural heritage assets that can be systematically converted into a coherent recreational system. Current spatial coverage is

geographically plausible yet quantitatively inadequate, and most public facilities suffer from maintenance deficits. The resource-based framework presented here designates five priority nodes, specifies complementary facility programmes and sequences implementation over a six-year horizon. Successful realisation requires strengthened institutional coordination between Zaria and Sabon-Gari Local Government Areas, sustained public–private collaboration, and continuous community engagement. Beyond the immediate study area, the approach offers a replicable model for other rapidly urbanising secondary cities in West Africa that seek to leverage endogenous natural and cultural resources for inclusive recreational development, improved public health outcomes and local economic diversification.

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