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BASELINE ASSESSMENT OF URBAN DECAY IN SELECTED NEIGHBOURHOODS OF BENIN CITY, NIGERIA: PHYSICAL, ENVIRONMENTAL AND SOCIO-ECONOMIC DIMENSIONS

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Abstract

Background: Urban decay is a multidimensional process involving the deterioration of physical infrastructure, environmental services, public utilities, and the socio-economic vitality of neighborhoods. Establishing baseline conditions is essential for understanding the severity of decline and evaluating renewal outcomes.

Objective: This study assessed the baseline physical, environmental, and socio-economic conditions of selected neighborhoods in Benin City, Nigeria, prior to the Edo State Government's urban renewal intervention.

Methods: A convergent parallel mixed-methods design was adopted. Data were collected from 784 respondents across six neighborhoods — Ewaise, Iyaro, Uselu N' Eguae-iyoba, Ogida, Ugbekun, and Oregbeni — within a 5-km radius of King Square, using structured questionnaires, key-informant interviews, and direct observation. Descriptive statistics and Exploratory Factor Analysis [EFA] were used for quantitative data, while thematic analysis was used for qualitative data.

Results: EFA identified four dimensions of urban decay: 1. Basic Urban Infrastructure Deficiency, 2. Environmental Service Failure, 3. Transport and Safety Deterioration, and 4. Public Utility and Environmental Stress. Baseline assessment showed severe deterioration across all nine indicators. Security recorded the highest proportion of "very poor" ratings, followed by drainage, road condition, water supply, and environmental cleanliness. Street lighting had the lowest mean score. Qualitative findings revealed flooding, abandoned buildings, poor accessibility, declining commercial activity, unemployment, and insecurity.

Conclusion: The findings indicate that urban decay in Benin City is systemic rather than isolated. This underscores the need for integrated urban regeneration strategies that simultaneously address infrastructure, environmental services, housing, public utilities, safety, and socio-economic vitality.

Keywords: Urban regeneration; Neighbourhood decline; Environmental quality; Socio-economic conditions; Benin City; Nigeria

1. Introduction

Urbanization is an important driver of economic and social transformation, but the benefits of urban growth are not distributed evenly across space. Neighbourhoods that experience prolonged infrastructure deficits, weak environmental services, housing deterioration and declining economic activity may enter processes of cumulative decline commonly described as urban decay or urban blight (Okeke 2002 & Wahab, 2018). Contemporary urban policy increasingly recognizes that neighbourhood decline cannot be addressed adequately through isolated infrastructure projects because physical, environmental and socio-economic conditions interact across urban space.

According to Olalekan, 2014; Ijeoma, Onyejekwe & Essaghah, 2020 Urban decay has traditionally been associated with visible physical deterioration, including deteriorated buildings, declining housing quality, poor roads and abandoned properties. However, the phenomenon extends beyond the physical fabric of the city. Declining environmental quality, inadequate water and electricity services, poor waste management, insecurity, flooding, weak commercial activity and socio-economic vulnerability can reinforce one another and accelerate neighbourhood decline (Owoeye, & Omole, 2012). Urban regeneration literature consequently increasingly treats neighbourhood deterioration as an interconnected urban-system problem rather than as a collection of independent infrastructure deficiencies.

The distinction is particularly important in rapidly urbanizing cities in developing countries. Where population growth occurs faster than the expansion and maintenance of infrastructure and public services, existing neighbourhoods may experience increasing pressure on roads, drainage, housing, water supply, waste management and other services (Eni, & Abua, 2014). The resulting environmental deterioration evidently undermines residential quality, investment, property maintenance and local economic activity.

This research focuses on Benin City which provides an important setting for examining this process. The city has experienced substantial spatial and demographic expansion, while parts of its traditional urban core have experienced prolonged physical, environmental and socio-economic deterioration (Ozo, 2008). The underlying environmental consequences includes deteriorated housing, degraded public infrastructure, abandoned buildings, inadequate drainage, flooding, poor waste disposal, insecurity, inadequate street lighting and declining environmental quality within the affected neighbourhoods (Onokerhoraye & Omuta, 1994; Chokor, 2021).

The Edo State Government initiated an urban renewal and slum-upgrading

programme in Benin City in 2008. The intervention included road construction and rehabilitation, drainage construction, pedestrian walkways, public-building renovation, waste-management improvements, traffic management, public transport facilities, open-space development and beautification.

However, evaluation of an intervention requires an understanding of the condition that existed before implementation. Without a reliable baseline, subsequent changes may be difficult to attribute to intervention and the original scale of neighbourhood deterioration may be obscured. This paper therefore isolates the baseline component of the deplorable Benin City. It specifically focuses on investigating the existed urban environment condition of selected neighbourhoods prior to urban renewal.

The study addresses an important gap in the literature by moving beyond a general description of urban deterioration to provide an empirically structured baseline of multiple dimensions of neighbourhood decline. Broadly, the scope covered a systematic development of an Urban Decay Indicator Framework through Exploratory Factor Analysis aim at examining the severity and character of baseline conditions (Couch, 1990; Lee, 2009).

The specific objective is therefore to assess the baseline physical, environmental and socio-economic conditions of selected neighbourhoods in Benin City prior to urban renewal interventions.

This article addresses the following research question: What were the physical, environmental and socio-economic conditions of the selected neighbourhoods in Benin City prior to urban renewal interventions?

2.Conceptual and Theoretical Background

2.1 Urban decay as a multidimensional process

According to Gbadegesin, Oladokun & Ayorinde, 2011; Fabiyi, 2011, Urban decay may be understood as a cumulative process through which neighbourhoods lose physical functionality, environmental quality, economic vitality and social stability. Such decline may manifest through deteriorating buildings, infrastructure failure, inadequate public services, environmental degradation, abandonment and declining investment.

The evidence from Benin City supports this multidimensional interpretation. The study conceptualizes urban decay as involving deterioration in physical infrastructure, environmental quality, public utilities and socio-economic conditions rather than deterioration of individual buildings alone (Ayo-Odifiri, Alasa, Emeana, Fagbami & Duruanyim, 2021).

This interpretation is consistent with the broader regeneration literature, which emphasizes the interaction between physical urban fabric and socio-economic processes.

Couch, Sykes and Börstinghaus (2011), for example, demonstrate the importance of context and path dependency in the intervention of deplorable urban Centre.

2.2 Urban Political Ecology perspective

Urban Political Ecology as postulated by Swyngedouw, (1996) provides a useful framework for understanding why environmental and infrastructure conditions differ across urban space. The theory views urban environments as produced through interactions between political, economic, social and environmental processes. Infrastructure provision, environmental quality and access to services are therefore not simply technical outcomes; they are also influenced by governance, resource allocation and institutional priorities. It underpins the politics of urban renewal as well as the politics in urban renewal intervention of a blighted neighbourhood. From this perspective, the baseline condition of a neighbourhood is not merely a physical description. It represents the accumulated outcome of planning decisions, infrastructure investment, maintenance practices, environmental management and socio-economic processes (Mehdipour, & Rashd Nia, 2013).

3. Materials and Methods

3.1 Study Area

The study was conducted in the central area of Benin City, Edo State, Nigeria. The research area was delineated within a 5-km radius of King Square, popularly known as Ring Road, which represents the traditional city Centre. The area extends across parts of Oredo, Egor and Ikpoba-Okha Local Government Areas.The selected neighbourhoods were Ewaise and Iyaro in Oredo; Uselu N'Eguaiyoba and Ogida in Egor; and Ugbekun and Oregbeni in Ikpoba-Okha.Benin City is situated within a low-lying tropical environment and experiences substantial rainfall. These environmental characteristics are relevant to the study because drainage deficiencies and flooding were among the reported manifestations of neighbourhood decline.

3.2 Research design

A convergent parallel mixed-methods design was employed (Fetters, Curry, & Creswell, 2013). The quantitative and qualitative data were collected and analyzed independently before being integrated during interpretation. The quantitative component involved structured questionnaire administration, while qualitative evidence was obtained through interviews with heads of streets and key community informants. Direct observation was also undertaken to document housing conditions, infrastructure, environmental quality and other neighbourhood characteristics.

3.3 Sampling and respondents

Twenty-five neighbourhoods were identified within 5-km radius of Benin City using the King Square (Ring Road) as the focal point from which six neighbourhoods were

selected using simple random sampling.The questionnaire sample was determined using Cochran's formula at a 95% confidence level. The thesis reports a calculated sample of 784 respondents. The final baseline analysis reported in Table 4.13 is based on 784 respondents. The respondent profile included 406 females (51.8%) and 378 males (48.2%). Respondents also varied in length of residence: 26.1% had lived in the neighbourhood for less than five years, 26.0% for 5–10 years, 23.9% for 11–20 years and 24.0% for more than 20 years.

3.4 Data collection instrument

The questionnaire included sections addressing respondents' socio-economic characteristics and perceptions of pre-intervention neighbourhood conditions. Baseline questions assessed roads, drainage, housing quality, waste management, security and other infrastructure and environmental indicators using a five-point scale ranging from very poor to very good. For the baseline analysis, nine indicators were considered. These includes Road condition, Water supply, Housing quality, Environmental cleanliness, Electricity supply, Security, Drainage, Waste management and Street lighting. The qualitative interviews explored conditions before renewal, including flooding, deteriorated roads, housing conditions, accessibility, property occupancy, commercial activity and socio-economic difficulties.

3.5 Data analysis

Descriptive statistics comprising frequencies, percentages, means and standard deviations were used to assess baseline conditions. Exploratory Factor Analysis was employed to identify the underlying structure of urban decay. The Kaiser-Meyer-Olkin measure and Bartlett's Test of Sphericity were used to assess the suitability of the dataset for factor analysis. Principal Component Analysis was used for extraction, factors with eigenvalues greater than one were retained and Varimax rotation was applied to improve interpretability.

4. Results

4.1 Empirical structure of urban decay

The factor analysis established that urban decay in the selected Benin City neighbourhoods was multidimensional. The KMO statistic was 0.516, while Bartlett's Test of Sphericity was statistically significant ($p = 0.002$), indicating that the correlation structure was adequate for exploratory factor analysis.

Four dimensions were extracted from the nine observed indicators, accounting collectively for 50.381% of the total variance.

Dimension	Principal indicators
Basic Urban Infrastructure Deficiency	Housing quality, water supply, electricity
Environmental Service Failure	Waste management, environmental cleanliness
Transport and Safety Deterioration	Road condition, security
Public Utility and Environmental Stress	Drainage and road deterioration

Table 1. *Empirically derived dimensions of urban decay. Source: Author's analysis, 2026.*

4.2 Baseline physical and environmental conditions

The baseline assessment revealed consistently poor conditions across all nine indicators. The coding scheme was Very Poor = 1, Poor = 2, Fair = 3, Good = 4 and Very Good = 5; consequently, lower mean scores indicate more severe baseline deficiencies.

Indicator	Very poor n (%)	Poor n (%)	Fair n (%)	Mean	SD
Road condition	370 (47.2)	290 (37.0)	124 (15.8)	1.99	0.83
Water supply	369 (47.1)	291 (37.1)	124 (15.8)	1.73	0.75
Housing quality	350 (44.6)	292 (37.2)	142 (18.1)	1.73	0.75
Environmental cleanliness	364 (46.4)	284 (36.2)	136 (17.3)	1.73	0.75
Electricity supply	355 (45.3)	285 (36.4)	144 (18.4)	1.69	0.73
Security	396 (50.5)	270 (34.4)	118 (15.1)	1.71	0.74
Drainage	382 (48.7)	281 (35.8)	121 (15.4)	1.69	0.73
Waste management	357 (45.5)	281 (35.8)	146 (18.6)	1.67	0.73
Street lighting	352 (44.9)	299 (38.1)	133 (17.0)	1.65	0.73

Table 2. *Baseline condition of selected neighbourhoods. Source: Author's calculation, 2026.*

Security had the highest proportion of very-poor responses, with 396 respondents (50.5%) rating it very poor. Drainage followed with 48.7%, while roads and water supply recorded 47.2% and 47.1%, respectively. Environmental cleanliness was rated very poor by 46.4% of respondents.

Street lighting recorded the lowest mean score (1.65), indicating the most severe perceived deficiency. Waste management followed with a mean of 1.67, while electricity and drainage each recorded 1.69. Road condition had the highest mean score (1.99) but remained within the poor range.

Importantly, none of the nine indicators received a good or very-good baseline rating. Less than one-fifth of respondents rated any indicator as fair.

4.3 Socio-economic manifestations of baseline urban decay

Although the principal quantitative baseline indicators focused strongly on infrastructure and environmental conditions, the qualitative evidence demonstrated that these deficiencies had wider socio-economic consequences.

Respondents reported declining property values, vacant buildings, reduced commercial activities, unemployment, poverty and insecurity. Several interviewees explained that poor environmental conditions discouraged landlords and tenants from remaining in affected properties.

The occupational composition of the survey sample provides additional socio-economic context. Artisans constituted 17.0% of respondents, private business owners and unemployed respondents each represented 15.2%, private-firm employees accounted for 14.0%, farmers 13.9%, students 12.8% and civil servants 12.0%.

Housing tenure was also relatively diverse, with tenants accounting for 35.2%, owner-occupiers 35.1% and residents of family houses 29.7%. This diversity is important because urban decay affects households differently depending on their relationship with property, employment and neighbourhood economic activity.

5. Discussion

5.1 Urban decay was systemic rather than isolated

The strongest finding of this study is that urban decay in the selected Benin City neighbourhoods was systemic and multidimensional.

The baseline data demonstrate that nine different aspects of neighbourhood functioning were simultaneously rated predominantly poor or very poor. This means that the deterioration was not simply a road problem, housing problem or waste-management problem. Instead, the neighbourhoods exhibited interconnected deficiencies across infrastructure, environmental services, utilities, transportation and safety. The factor analysis

strengthens this interpretation. Four latent dimensions explained 50.381% of the total variance, demonstrating that the observed indicators were not entirely independent manifestations of decline.

5.2 Infrastructure deficiency and environmental service failure

The particularly low ratings for street lighting, waste management, electricity and drainage reveal a significant deficiency in everyday urban services.

Street lighting had the lowest mean score, while waste management was the second most severe indicator. These conditions have consequences beyond physical appearance. Poor waste management can contribute to environmental degradation, while inadequate lighting may influence perceptions of safety and the use of public spaces after dark.

Similarly, drainage deficiencies are especially important in Benin City because flooding was repeatedly identified in the qualitative interviews. Respondents described recurrent flooding as affecting mobility, housing and environmental quality.

5.3 Physical decay and social insecurity

Security was the indicator with the largest proportion of very-poor ratings, with half of the respondents (50.5%) assessing pre-intervention security conditions as very poor.

The association between deteriorated physical environments and insecurity is consistent with the logic underlying Broken Windows Theory. However, the findings should not be interpreted as proving a direct causal relationship between poor infrastructure and crime. The survey establishes a strong coexistence of physical deterioration and insecurity, while the qualitative findings demonstrate that residents experienced these conditions simultaneously.

5.4 Socio-economic consequences of neighbourhood deterioration

A significant contribution of the study is its demonstration that urban decay had consequences beyond physical and environmental conditions.

The qualitative findings link neighbourhood deterioration with declining property values, vacant properties, weakened commercial activity, unemployment, poverty and social exclusion.

This suggests a reinforcing cycle of Infrastructure deterioration; declining environmental quality; reduced neighbourhood attractiveness; reduced investment and, occupancy; weakening economic activity and further deterioration.The cycle is particularly relevant and peculiar to traditional inner-city neighbourhoods where buildings may be inherited through family ownership and property owners may lack the financial capacity to undertake substantial rehabilitation as noticed in the ancient City of Benin the study area.

5.5 Implications for urban regeneration

The baseline evidence has a direct implication for urban renewal policy. The condition of the neighbourhoods demonstrates that interventions should be integrated rather than sector-specific. Improving roads without drainage, lighting, waste management, housing and environmental services may leave other dimensions of decay unresolved. The findings therefore support a neighbourhood-based regeneration framework in which baseline assessment precedes intervention. Such assessment should identify the combination of deficiencies affecting each neighbourhood rather than applying a uniform intervention package.

6. Policy and Planning Implications

Baseline diagnosis should precede urban renewal. Government agencies should undertake systematic assessment of neighbourhood conditions before selecting intervention priorities.

Urban decay should be monitored using multidimensional indicators. Monitoring should include infrastructure, environmental services, transportation, safety and public utilities.

Drainage and environmental management require particular attention because drainage deficiency and flooding were prominent baseline problems.

Physical regeneration should be linked to socio-economic revitalisation. Infrastructure improvement alone may not guarantee sustained neighbourhood recovery.

Neighbourhood residents should be involved in regeneration planning because residents possess detailed knowledge of how urban decline affects everyday life.

8. Conclusion

This study assessed the baseline physical, environmental and socio-economic conditions of selected neighbourhoods in Benin City before urban renewal interventions. The findings demonstrate that urban decay in the study area was extensive, multidimensional and interconnected.

Across the nine assessed indicators, respondents predominantly rated conditions as very poor or poor. Security, drainage, road condition, water supply and environmental cleanliness were among the most prominent deficiencies, while street lighting recorded the lowest mean baseline score. No assessed indicator achieved a good or very-good baseline rating.

The Exploratory Factor Analysis further demonstrated that the observed deterioration could be organised into four broad dimensions: Basic Urban Infrastructure Deficiency, Environmental Service Failure, Transport and Safety Deterioration, and Public Utility and Environmental Stress. Together, these dimensions explained 50.381% of the total variance.

The qualitative evidence extended the interpretation by showing that physical and

environmental deterioration was associated with flooding, abandoned and deteriorated buildings, poor accessibility, declining commercial activity, vacant properties, unemployment, poverty and insecurity.

The principal implication is that urban decay in Benin City should be understood as a neighbourhood-system problem rather than as isolated infrastructure failure. Sustainable regeneration therefore requires coordinated attention to infrastructure, environmental services, housing, safety, public utilities and socio-economic vitality.

Establishing this baseline is also important because it provides the empirical foundation for evaluating whether subsequent urban renewal interventions produced measurable changes.

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