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# Geography of Expertise: Mapping the Knowledge Domain in Urban and Regional Planning in Nigeria

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**Abstract**

Against the background of a critical gap in the systematic analysis of research focus and expertise distribution in urban and regional planning (URP), this study maps expertise within the field in Nigeria. The study analyzes diverse areas of specialization among 211 researchers across 41 institutions through their Google Scholar profiles. It adopts a multi-facet analytical tools such as frequency analysis, VOSviewer, Location Quotients (LQ), and Geographical Information System (GIS) to examine the dominance and regional concentration of these areas of specialization. The findings reveal that the South-West region emphasizes housing (19%) while the North-Central zone focuses on urban governance (16%). In the North-East, research is concentrated on environmental planning (67%), whereas the South-South region prioritizes infrastructural and resource planning (25%). Despite these strengths, the study identifies critical research gaps, including a lack of focus on housing and land management in the North-East and insufficient attention to climate change and community development across all regions. The South-South also shows limited research on urban governance and management. Thematic clusters such as urban governance, housing, infrastructural planning, and environmental design highlight the interconnectedness of various specializations and the need for integrated approaches. The study recommends diversifying research focus, promoting interdisciplinary collaboration, enhancing capacity building, and aligning research efforts with national and regional development priorities. By addressing these gaps and leveraging regional strengths, Nigeria can develop more effective and sustainable urban planning strategies. This study serves as a foundational resource for future research, policy-making, and academic collaboration in urban and regional planning in Nigeria.

**Key words: Geography of Expertise: Knowledge Domain, Urban and Regional Planning**

## 1 Introduction

Urban and Regional Planning (URP) is a vital discipline addressing the complex challenges arising from rapid urbanization, infrastructure development, environmental sustainability, and socio-economic inequalities. In Nigeria, the accelerated rate of urban growth has made effective planning strategies indispensable for managing cities that are simultaneously experiencing population surges and grappling with issues like inadequate housing, insufficient transportation systems, environmental degradation, and the proliferation of informal settlements (World Bank, 2020; Akinmoladun & Oluwoye, 2007).

According to the World Bank, over 50% of Nigeria's population now resides in urban areas, a proportion projected to increase substantially in the coming decades (World Bank, 2020). This demographic shift amplifies the need for urban planners to devise innovative and sustainable solutions that enhance the quality of life for urban residents while ensuring equitable development (Olujimi, 2009).

As cities become critical drivers of development, a clear understanding of the research expertise within URP becomes essential for tackling the array of challenges that urban environments present. Research in URP is increasingly shaped by emerging themes such as climate change adaptation, urban resilience, smart city development, and participatory planning (Adelekan, 2016; Agbola & Agunbiade, 2009). Identifying the specialized areas of URP, researchers not only delineates the current thematic focus but also reveals gaps in knowledge and opportunities for collaboration within the academic community (Adelekan, 2016; Agbola & Agunbiade, 2009). This analysis is crucial in aligning research efforts with the pressing needs of urban environments, especially in

rapidly urbanizing countries like Nigeria.

Despite the growth of academic contributions in Nigerian URP, there remains a gap in the systematic analysis of research focus and expertise distribution. While some Nigerian scholars continue to concentrate on traditional areas such as land use planning, transportation, and housing, an increasing number are shifting their focus to more contemporary issues such as urban informality, environmental sustainability, and social equity (Ogunkan, 2022; Adelekan, 2016; Oduwaye, 2009). This shift indicates a diversification in research areas, but also highlights disparities in focus that could benefit from a more comprehensive mapping of expertise across the field.

This study aims to fill this gap by mapping the areas of specialization of URP researchers in Nigeria as reflected on their Google Scholar profiles. Technological advancements, particularly in bibliometric analysis and profiling tools like Google Scholar, have provided researchers with powerful means to explore the intellectual landscape of any discipline. Such tools enable the tracking of citation patterns, collaboration networks, and areas of specialization across institutions and regions, offering a nuanced view of the field (Sugimoto and Larivière, 2018; Sugimoto and Larivière (2018). Through an analysis of the stated research interests of researchers in urban and regional planning, the study provides an overview of the expertise distributed across Nigerian institutions and regions, pinpointing both strengths and under-researched areas. Such mapping will help educators, policymakers, and practitioners better understand the alignment between urban planning expertise and the challenges Nigerian cities face. Moreover, it will contribute to identifying strategic areas where enhanced research and capacity building are needed.

Understanding the areas of specialization within Nigerian URP research is essential for fostering interdisciplinary collaboration, aligning academic efforts with national development priorities, and ensuring that Nigerian urban planners are equipped to address the multifaceted issues that come with rapid urbanization. As urban challenges become increasingly global in nature, the insights gained from this study will also contribute to the broader discourse on urban planning and policy development in the Global South.

By examining the distribution of expertise among Nigerian URP scholars, the study aims to enhance understanding of the intellectual landscape within the field, promoting more targeted research and informed urban planning practices.

This study offers valuable insights into the distribution of expertise among Nigerian URP researchers, highlighting areas of strength as well as those requiring further development. By providing a detailed mapping of the knowledge domains within the Nigerian context, the study will serve as a foundational resource for future research, policy-making, and academic collaboration. Ultimately, it will help ensure that urban planning in Nigeria is well-prepared to meet the demands and challenges of the 21st century, supporting sustainable urban development and improved quality of life for urban populations.

## 2 Research Objectives

The study aims to:

1. Examine the characteristics of urban and regional planning researchers in Nigeria.
2. Analyze the diversity and distribution of areas of specialization among urban and regional planning researchers in Nigeria.
3. Analyze the thematic clustering of specializations in urban and regional planning.
4. Investigate the geographical distribution of these areas of specialization across Nigerian universities and research institutions.

Asses the gaps in expertise among Nigerian urban and regional planning researchers

## 3 Methodological Framework

### 3.1 The Study Setting

The setting for this study is Nigeria, the largest economy and most populous country in Africa. It serves as a dynamic context for urban and regional planning due to its diverse demographic, economic, and environmental challenges. To explore the knowledge domain in urban and regional planning, the study leverages Nigeria's division into six geopolitical zones—North-Central (NC), North-East (NE), North-West (NW), South-East (SE), South-South (SS), and South-West (SW) (see Figure 1). These zones reflect distinct socio-economic and cultural landscapes, enabling a nuanced understanding of how expertise is distributed across the country. The zones are critical to analyzing regional variations in urban and regional planning expertise, revealing how factors such as urbanization, population growth, and environmental challenges influence specialization and research focus. Studying Nigeria provides an opportunity to contextualize planning expertise in a country balancing rapid urbanization with sustainable development needs.

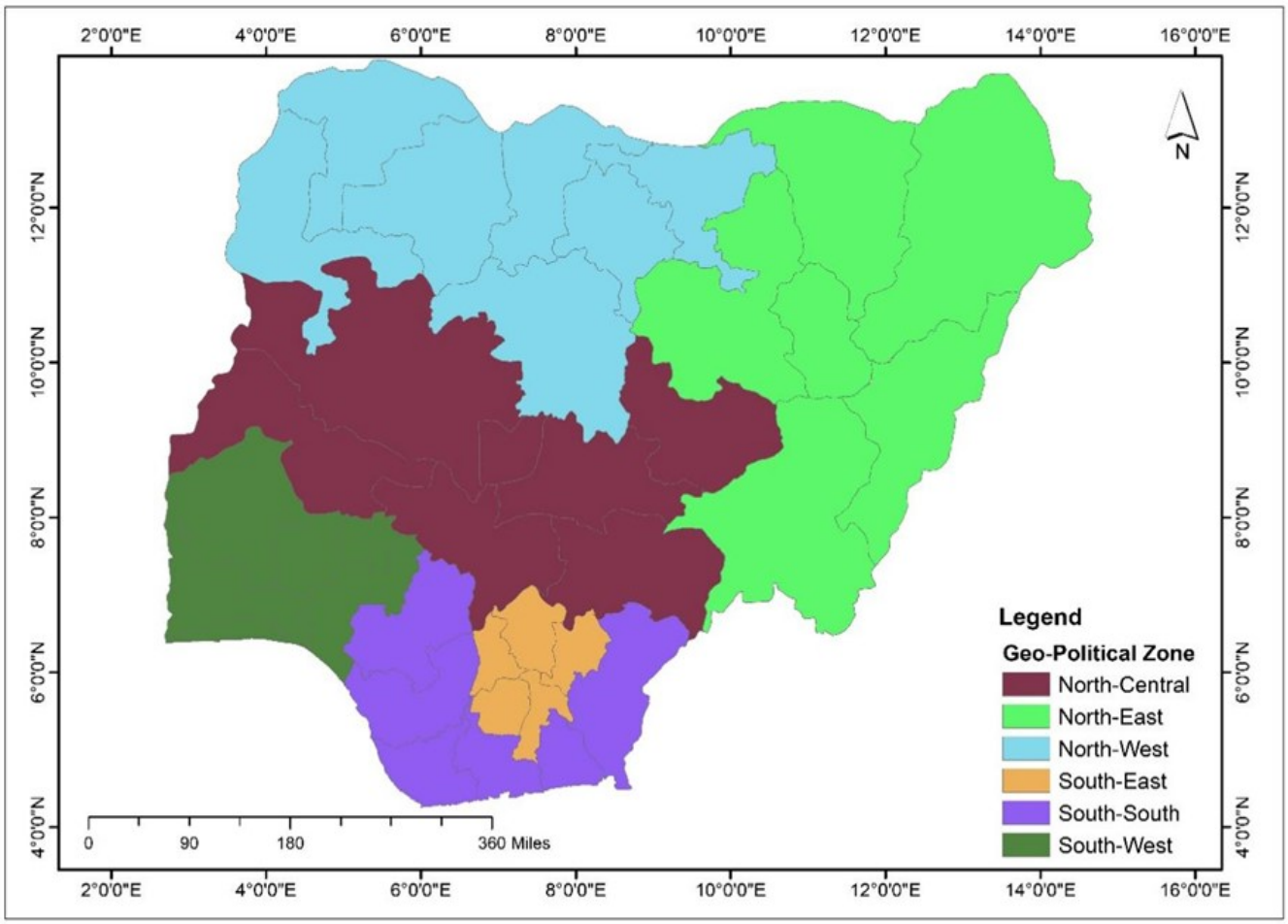


Figure 1: The Geopolitical Zones of Nigeria

### 3.2 Research Design

The study employed a descriptive research design to investigate the emerging areas of specialization in urban and regional planning research in Nigeria. This approach focused on systematically identifying and analyzing specialization trends within the field using Google Scholar profiles.

### 3.3 Data Required

To effectively conduct the study, several key types of data were required. A comprehensive list of academic staff and other researchers involved in urban and regional planning across Nigerian institutions was needed. This included staff from universities, polytechnics, and research institutes. The information was gathered from institutional directories, official websites, and accreditation bodies. Access to Google Scholar profiles for these researchers was also crucial. The focus was on extracting information related to their areas of specialization, excluding publication titles and keywords. This ensured that the analysis centered solely on the specializations mentioned by the researchers themselves. Additionally, institutional information detailing the type of institution (whether it was a university, polytechnic, or research institute) and its geographical location within Nigeria was required. This allowed for the classification of institutions into the six geopolitical zones of Nigeria: South-South, South-West, South-East, North-Central, North-West, With the list institutions offering urban and regional planning as a guide, the Google scholars profile of researchers affiliated to these institutions were examined. Only those researchers, including academic staff, technologists and students, who had Google Scholar profiles were included in the study, ensuring that data on their specializations was accessible and reliable. The final step in sampling involved accessing the Google Scholar

profiles of the identified researchers. Data extraction focused exclusively on the areas of specialization listed in these profiles. Researchers without Google Scholar profiles were excluded from the study, as their specialization areas could not be analyzed.

### 3.3 Sampling Procedure

The sampling procedure involved several steps to ensure a representative and comprehensive data set. A list of all relevant institutions offering urban and regional planning programs was compiled. (see Figure 2). This included universities, polytechnics, and research institutes. The list was constructed using Town planner Registration council (TOPREC) accreditation sources to ensure thorough coverage.

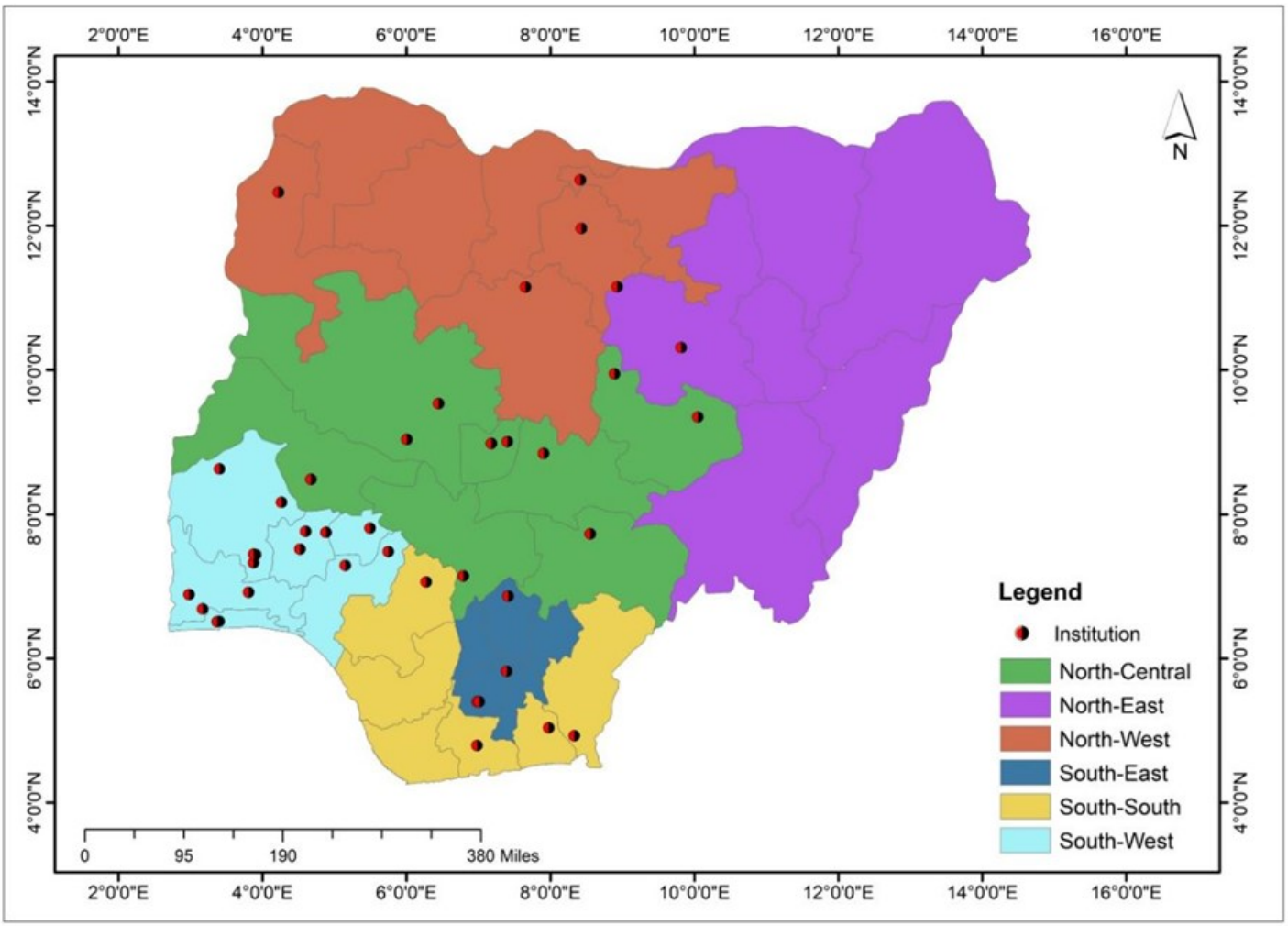


Figure 2: Geographical Locations of Institutions Offering Urban and Regional Planning in Nigeria

At the end of the selection process, the profiles of 211 researchers across 41 planning schools were deemed suitable for the study, having met the criteria of affiliation with relevant urban and regional planning programs. The distribution of the included researchers by institutions, geopolitical zone and types of affiliate institution is summarized in Tables 1-3.

*Table 1: Selected researchers by Institutions*

| SN | Institutions | Types of Institution | Geopolitical zone | Researchers |
|---|---|---|---|---|
| 1 | Federal University of Technology, Minna | University | North-Central | 23 |
| 2 | Federal University of Technology, Akure | University | South-West | 20 |
| 3 | Ladoke Akintola University of Technology | University | South-West | 13 |
| 4 | University of Nigeria, Nsukka | University | South-East | 13 |
| 5 | University of Lagos | University | South-West | 12 |
| 6 | University of Jos | University | North-Central | 11 |
| 7 | University of Ibadan, Ibadan | University | South-West | 10 |
| 8 | Ahmadu Bello University, Zaria | University | North-West | 8 |
| 9 | Obafemi Awolowo University, Ile-Ife | University | South-West | 8 |
| 10 | Osun State University | University | South-West | 8 |
| 11 | University of Ilorin | University | North-Central | 8 |
| 12 | Olabisi Onabanjo University | University | South-West | 7 |
| 13 | Federal University of Technology, Owerri | University | South-East | 6 |
| 14 | Bells University of Technology | University | South-West | 5 |
| 15 | Federal Polytechnic, Ilaro | Polytechnic | South-West | 5 |
| 16 | Federal University, Oye-Ekiti | University | South-West | 5 |
| 17 | Abubakar Tafawa Balewa University | University | North-East | 4 |
| 18 | Bayero University, Kano | University | North-West | 4 |
| 19 | Benue State University | University | North-Central | 4 |
| 20 | Lead City University, Ibadan | University | South-West | 4 |
| 21 | Abia State University, Uturu | University | South-East | 3 |
| 22 | Adekunle Ajasin University, Akungba-Akoko | University | South-West | 3 |
| 23 | The Polytechnic, Ibadan | Polytechnic | South-West | 3 |
| 24 | Auchi Polytechnic, Auchi | Polytechnic | South-South | 2 |
| 25 | Federal Polytechnic, Idah | Polytechnic | North-East | 2 |
| 26 | Modibbo Adama University of Technology, Yola | University | North-East | 2 |
| 27 | Nuhu Bamalli Polytechnic, Zaria | Polytechnic | North-West | 2 |
| 28 | University of Uyo, Uyo | University | South-South | 2 |
| 29 | Waziri Umaru Federal Polytechnic Birnin Kebbi | Polytechnic | North-West | 2 |
| 30 | Baze University, Abuja | University | North-Central | 1 |
| 31 | Cross Rivers University of Technology | University | South-South | 1 |
| 32 | Federal Polytechnic, Bida | Polytechnic | North-Central | 1 |
| 33 | Federal Polytechnic, Nekede | Polytechnic | South-East | 1 |
| 34 | Hussaini Adamu Federal Polytechnic, Kazaure | Polytechnic | North-West | 1 |
| 35 | Nasarawa State University, Keffi | University | North-Central | 1 |
| 36 | Oke Ogun Polytechnic, Saki | Polytechnic | South-West | 1 |
| 37 | Osun State College of Tech, Esa-Oke | Polytechnic | South-West | 1 |
| 38 | Rivers State University of Science and Tech. | University | South-South | 1 |
| 39 | University of Abuja | University | North-Central | 1 |
| 40 | University of Ibadan | University | South-West | 1 |
| 41 | Yaba College of Technology | Polytechnic | South-West | 1 |
| | Total | | | 211 |

### 3.4 Data Analysis

Data analysis was conducted through a structured process to reveal patterns and relationships between specialization areas.

A frequency analysis was conducted to examine the diversity and degree of mention of areas of specialization among researchers. This analysis aimed to identify how often different specializations are cited and to assess the range of topics within the urban and regional planning field. By looking at the number of times each area of specialization was mentioned by researchers, we can gauge the popularity and research focus within the discipline. The results highlight the breadth of interests and the extent to which specific areas are prioritized by researchers in Nigeria, providing insight into potential fragmentation or concentration in the knowledge domain.

To minimize potential bias from uneven participation across different regions or institutions, the analysis was conducted separately by strata, such as geopolitical zones and institutions. This stratified approach allows for more accurate comparisons and helps to reveal regional differences or trends that might otherwise be overlooked in a combined analysis.

Based on the frequency of mention, VOSviewer was applied to group similar areas of specialization into clusters. VOSviewer was used for conducting the cluster analysis due to its ability to visualize relationships and identify clusters based on co-occurrence data. The co-occurrence matrix was input into VOSviewer, and clusters were generated using the software's modularity-based clustering algorithm. Specializations that were frequently mentioned appeared closer together, forming clusters that reflect related research themes as identified from scholars' Google Scholar profiles.

Location Quotient (LQ) analysis was used to examine the concentration of research specializations in Urban and Regional Planning across Nigeria's geopolitical zones. LQ compares the prevalence of specific specializations in a region to the national level, helping to identify regional strengths or gaps.

The LQ formula is restated for this study as:

$$LQ = \frac{Siz/Sz}{Sin/Sn}$$

Where:
Siz = Specialization i in the zone (z)
Sz= All specializations in the zone (z)
Sin= Specialization i across all zones (nationwide)
Sn= All specializations across all zones (nationwide)

This calculation yields a ratio that reveals whether a specialization is more concentrated in a specific region compared to its national distribution. For example:

If the LQ is greater than 1, the area of specialization is more concentrated in that zone than at the national level, indicating the region may be a leader or focus area for that specialization.

If the LQ is less than 1, the specialization is underrepresented in that zone, implying a lower focus relative to the national trend.

If the LQ equals 1, the specialization is proportionally represented in both the zone and nationwide.

This method highlights regional strengths and disparities in research, guiding strategies to balance specialization development across Nigeria.

Geographic Information Systems (GIS) was employed to map the spatial distribution of areas of specialization in urban and regional planning across Nigeria's six geopolitical zones. This mapping technique allowed for the visualization of geographic patterns, enabling researchers to pinpoint regions with concentrated expertise in specific subfields

### 3.5 Ethical Considerations

Ethical considerations were central to the responsible conduct of this study. Confidentiality was ensured by anonymizing the identities of researchers in all reports and presentations of the results. The emphasis was placed on areas of specialization rather than on individual researchers. Given that Google Scholar profiles were publicly accessible, formal consent for data use was not required. However, the study adhered to ethical guidelines in handling and presenting this publicly available data. Ensuring the accuracy and reliability of the data throughout the research process was essential to uphold the integrity of the findings.

## 4 Findings

### 4.1 Characteristics of Participating Researchers

This analysis explores the characteristics of participating researchers in Urban and Regional Planning in Nigeria, focusing on their institutional affiliations, ownership structures, and geopolitical distributions. The detail of the researchers as provided in Table 1 indicates that 211 researchers from 41 affiliated institution spread

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across the six geopolitical zones were included in this study.

#### 4.1.1 Institutional Affiliation of Participating Researchers

Table 2 highlights the top 20 institutions in Nigeria offering Urban and Regional Planning programs, based on the number of researchers affiliated with each institution, as determined through their Google Scholar profiles. This analysis delves into the distribution of researchers across different types of institutions—federal, state, and private—while emphasizing their affiliations, ownership structures, and the geopolitical zones represented in the context of urban planning research.

Federal universities play a pivotal role in defining the research landscape of Urban and Regional Planning (URP) in Nigeria. Among the top 20 institutions contributing to research in this field, 12 are federally owned, underscoring the substantial influence of these institutions on the discipline. The Federal University of Technology, Minna, with 23 researchers, and the Federal University of Technology, Akure, with 20 researchers, exemplify this dominance, reflecting their robust academic frameworks and extensive research capabilities. This prominence is attributed to their access to significant government funding, advanced research infrastructure, and a larger pool of academic personnel. Federal universities are strategically distributed across Nigeria's geopolitical zones, with notable concentrations in the North-Central and South-West regions. Their strong presence highlights their critical role in addressing the urbanization challenges specific to these regions and advancing the frontiers of urban planning scholarship nationally.

State universities also contribute meaningfully to the URP research domain, with 5 out of the top 20 institutions being state-owned. Leading this cohort are Ladoke Akintola University of Technology (13 researchers) and Olabisi Onabanjo University (7 researchers). These state universities play a vital role in addressing localized urban challenges, particularly within the South-West geopolitical zone, where they are predominantly situated. Despite operating with comparatively limited resources, their research outputs underscore their commitment to addressing regional urban issues and fostering academic inquiry. The ability of these institutions to generate impactful research underscores their importance in enriching the diversity of perspectives within Nigeria's urban planning discourse.

*Table 2: The Top 20 Researchers by Institution and Ownership Structure*

| Institution | Researchers | Ownership |
|---|---|---|
| Federal University of Technology, Minna | 23 | Federal |
| Federal University of Technology, Akure | 20 | Federal |
| Ladoke Akintola University of Technology | 13 | State |
| University of Nigeria, Nsukka | 13 | Federal |
| University of Lagos | 12 | Federal |
| University of Jos | 11 | Federal |
| University of Ibadan, Ibadan | 10 | Federal |
| Ahmadu Bello University, Zaria | 8 | Federal |
| Obafemi Awolowo University, Ile-Ife | 8 | Federal |
| Osun State University | 8 | State |
| University of Ilorin | 8 | Federal |
| Olabisi Onabanjo University | 7 | State |
| Federal University of Technology, Owerri | 6 | Federal |
| Bells University of Technology | 5 | Private |
| Federal Polytechnic, Ilaro | 5 | Federal |
| Federal University, Oye-Ekiti | 5 | Federal |
| Abubakar Tafawa Balewa University | 4 | Federal |
| Bayero University, Kano | 4 | Federal |
| Benue State University | 4 | State |
| Lead City University, Ibadan | 4 | Private |

Source: Authors, 2025

Private universities, although relatively few in number, have begun to assert their presence within the URP research landscape. Among the top 20 institutions, Bells University of Technology, Ota, and Lead City University, Ibadan, stand out with 5 and 4 researchers, respectively. This achievement is notable given that only about four private institutions in Nigeria currently offer URP programs. These institutions demonstrate that private universities can contribute significantly to urban planning research, despite often facing resource constraints. Their emergence as contributors reflects their commitment to building strong research capacities and addressing urbanization challenges, particularly in the South-West region, where they are concentrated. The growing role of private universities in research signals a positive trend towards diversifying the academic ecosystem and enhancing the overall capacity of Nigerian institutions to engage with critical urban and regional planning issues.

This distribution of research efforts across federal, state, and private institutions highlights a dynamic interplay of resources, expertise, and regional focus that collectively enriches the study and practice of Urban and Regional Planning in Nigeria.

### 4.1.2 Geographical Distribution of Researchers in Urban and Regional Planning

Figure 3 shows the geographical distribution of researchers in Urban and Regional Planning (URP) across Nigeria.

The distribution reveals significant disparities, reflecting the varying levels of academic engagement and institutional support in different regions. The analysis of the data shows that the South-West geopolitical zone is the most dominant contributor to URP research, with a total of 107 researchers. This region is home to some of the country's most prominent institutions, such as the University of Lagos and Obafemi Awolowo University. The high concentration of researchers in the South-West can be attributed to several factors, including the rapid urbanization and population growth occurring in urban centers like Lagos, which drives the demand for innovative research solutions to pressing urban challenges. Moreover, the South-West benefits from strong institutional support, with federal and state universities that provide extensive resources and funding opportunities for research. Established academic networks and collaborations in this region further facilitate knowledge sharing, enabling researchers to engage in impactful studies and initiatives related to urban planning.

Following the South-West, the North-Central region has emerged as the second-largest contributor, with 50 researchers. Key institutions like the Federal University of Technology, Minna support a significant number of researchers in this area. The North-Central zone's central location within Nigeria allows it to address a mix of urban and rural development issues, providing a unique platform for researchers interested in sustainable urban planning and infrastructure development.

In contrast, the South-East and North-West regions show under representation in URP research, with 23 and 17 researchers, respectively. Despite the presence of reputable institutions in the South-East, such as the University of Nigeria, Nsukka, the overall participation remains low. This indicates that while there is potential for research, it may not be fully harnessed compared to other regions. The North-West's limited representation may be influenced by other academic priorities that detract from urban planning initiatives, leading to fewer contributions from this area.

The North-East and South-South regions have the fewest researchers, with 8 and 6 researchers, respectively. This minimal representation raises critical concerns about research activity in these zones. In the North-East, ongoing security challenges and limited institutional support may hinder research efforts, resulting in a lack of engagement in URP. Meanwhile, the South-South, which is rich in resources and faces unique urban challenges, is also underrepresented, highlighting the need for increased emphasis on urban planning research to address local urbanization and environmental issues.imThe geographical distribution of researchers in URP has significant implications for the future of urban planning in Nigeria. The concentration of researchers in the South-West and North-Central regions underscores the necessity for balanced development across all areas of the country. Expanding research initiatives in the underrepresented regions could enhance the overall quality and applicability of urban planning strategies. Each geopolitical zone faces distinct urbanization challenges, and by fostering research efforts in these areas, scholars can provide valuable insights tailored to local contexts.

Additionally, encouraging collaboration among institutions across different geopolitical zones can facilitate knowledge sharing and foster a more integrated approach to addressing urban challenges nationwide.

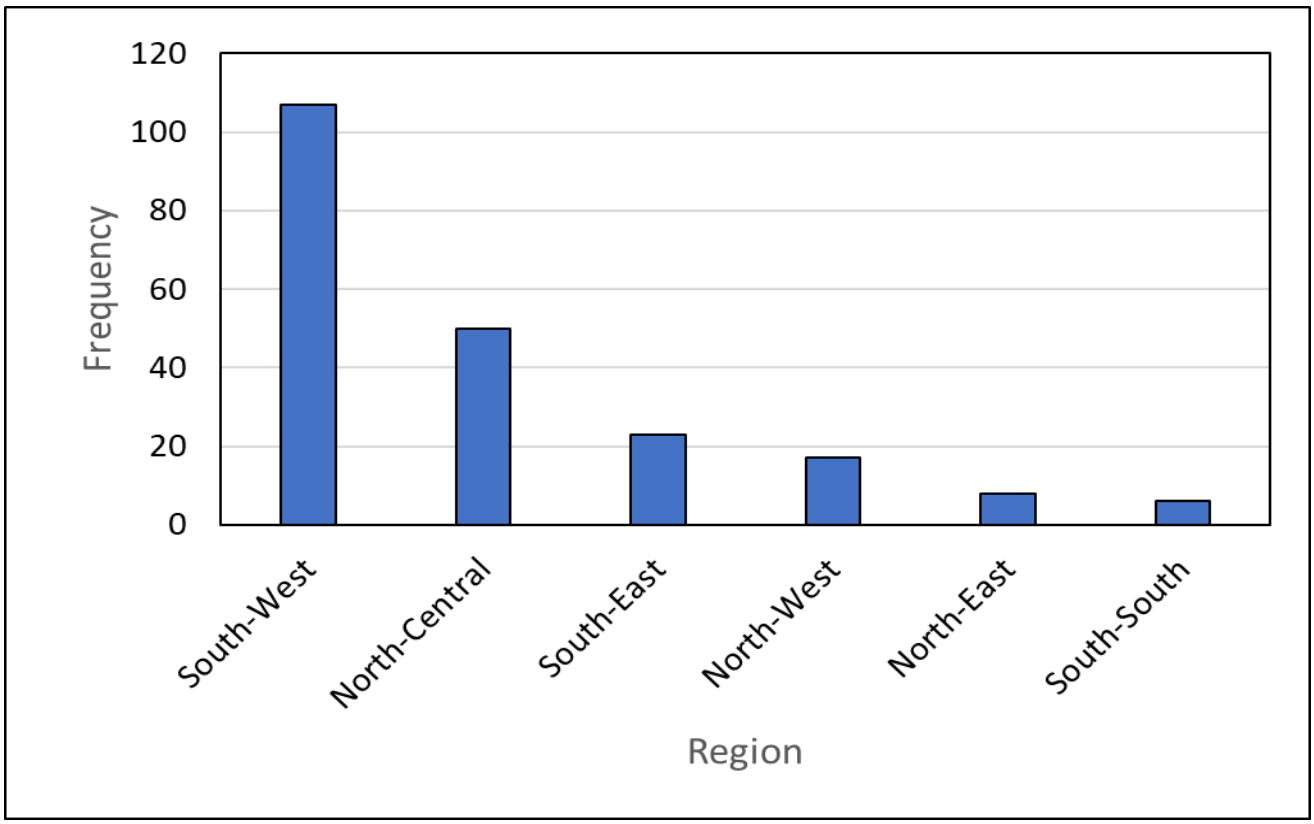



*Figure 3: Geographical Distribution of URP researchers*

**4.2 Diversity and Distribution of Areas of specialization**

The analysis of the areas of specialization among 211 urban and regional planning researchers from 41 planning schools in Nigeria reveal a broad range of specializations. Common categories such as "urban and regional planning," "town planning," "urban planning," and "regional planning" were frequently cited but were excluded from the detailed analysis because they represent broad, overarching categories rather than specific areas of specialization. Including them would have obscured more focused areas of expertise and distorted the overall trends in specialization.

Similarly, terms like "GIS and remote sensing," "research methodology," and "quantitative techniques" were also removed from the analysis. These are tools or methodologies rather than actual research specializations. For instance, "GIS and remote sensing" is applied across many different research areas, "research methodology" encompasses various research approaches, and "quantitative techniques" refers to analytical methods used across multiple topics. Excluding these terms ensured a clearer focus on substantive research specializations where researchers are most actively engaged.

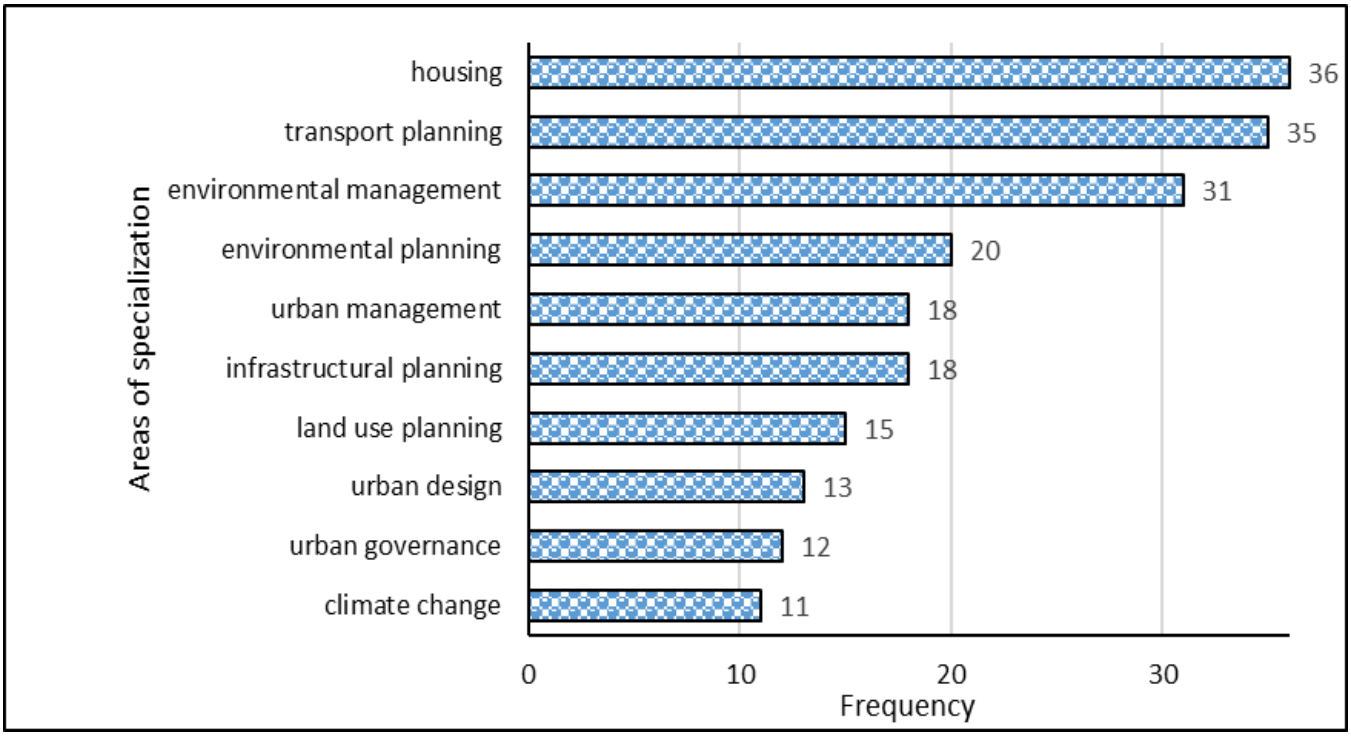
After refining the data, a total of 226 distinct areas of specialization were identified among the 211 urban and regional planning researchers in Nigeria. This finding is particularly significant as it indicates that the number of unique specializations exceeds the total number of researchers. In other words, each researcher appears to focus on a particular niche within the broader field of urban and regional planning, with very little overlap in their areas of expertise. This suggests a high level of individualization in the researchers' focus areas, where each person

seeks to carve out a unique space for themselves within the discipline.

While this diversity of specialization demonstrates the wide-ranging interests and expertise within the field, it also points to a potential issue of fragmentation. The presence of so many distinct specializations could lead to a compartmentalization of knowledge, where researchers work in isolated silos rather than engaging in interdisciplinary collaboration. This fragmentation could ultimately undermine the broader, integrative goals of urban and regional planning, which traditionally seeks to address complex, interconnected urban issues by drawing on a wide range of knowledge and expertise ((Dickey *et al*., 2022; Signoroni, 2022). Further analysis reveals that the 226 distinct areas of specialization are represented 511 times among the researchers, indicating that each researcher has an average of approximately 2.42 areas of specialization.

Although researchers seem to engage with multiple specializations, this does not fully address the issue of fragmentation, as the overall knowledge domain may still remain divided, with researchers operating within isolated niches. This fragmentation continues to hinder the development of a cohesive, interdisciplinary approach to urban and regional planning.

When the frequency of mention for the areas of specialization is disaggregated, the results for the top 10 areas are depicted in Figure 4. This figure visually represents the distribution of research focus among urban and regional planning scholars in Nigeria, showcasing the prominence of specific specializations within the academic community.




The distribution shown in Figure 4 highlights the critical areas of specialization within the urban and regional planning community in Nigeria, offering valuable insights into the prevailing research interests that align with contemporary urban challenges. The high frequency of mentions for transport planning, housing, and environmental management indicates not only the concentration of expertise but also the prioritization of these areas in addressing urban issues.

Housing, with 36 (17.06%) researchers actively contributing, stands out as a key area of interest. This area of focus highlights the urgent need for addressing housing shortages, inadequate and dehumanising living conditions, and the rise of informal settlements. This area reflects the complexities of

urbanization in Nigeria, where rapid population growth and urban expansion often outpace the development of formal housing markets. The emphasis on housing research points to an increasing concern about how to accommodate millions of urban dwellers while avoiding overcrowded slums and improving living conditions. Researchers in this field are likely exploring ways to create affordable housing, implement effective urban development policies, and integrate housing into broader urban planning frameworks to promote more inclusive cities (Jelili *et al*., 2023; Salau *et al*., 2023; Aduwo *et al*., 2016).

Transport planning, another major area of focus with 35(16.6%) researchers, reflects the increasing demand for more efficient urban mobility systems, which are vital to addressing congestion, pollution, and accessibility issues in rapidly expanding cities. Efficient transportation is essential for ensuring equitable access to jobs, services, and resources, particularly in densely populated urban areas. Sustainable transportation solutions, such as improved public transit, non-motorized transport, and better road networks, are needed to reduce urban sprawl and environmental degradation while enhancing quality of life for urban residents (Sanchez-Sepulveda *et al*., 2024; Goodman *et al*., 2021; Allirani & Verma, 2022). This research emphasis suggests a strong commitment to finding solutions that balance urban growth with environmental sustainability and social equity.

Environmental management, also with 31(14.7%) researchers, underscores the rising importance of sustainability in urban planning practices. The growing focus on this area highlights how urban planners are responding to the challenges of climate change, resource depletion, and environmental degradation. Environmental management encompasses strategies for maintaining ecological balance, conserving resources, and integrating green spaces into urban designs. It also includes initiatives for managing pollution, waste, and the sustainable use of land. Similarly, environmental planning, with 20(9.48%) researchers, is closely linked to these concerns, focusing on designing urban areas that are more resilient to environmental hazards, reducing carbon footprints, and promoting climate adaptation measures. Together, these two areas indicate a strong emphasis on creating cities that are not only livable but also environmentally responsible (Harms, 2024; Newman, 2020; Heymans *et al*., 2019).

Urban management (18 or 8.53% researchers) and urban design (13 or 6.16% researchers) reflect the multifaceted nature of planning that integrates both functional and aesthetic aspects of city development. Urban management involves the day-to-day governance and operation of urban spaces, ensuring that cities function smoothly while addressing the challenges of urban growth, such as service delivery, infrastructure maintenance, and public safety. Urban design, on the other hand, focuses on the physical layout and visual aspects of cities, shaping how public spaces are experienced by residents and visitors. It influences everything from street layouts to park placements, ensuring that cities are not only efficient but also pleasant places to live. This intersection between design and governance highlights the need for comprehensive strategies that combine functionality with quality of life improvements (Gearin & Hunt, 2024; Carmona, 2019; Haas & Mehaffy, 2019). in order to ensure international comparability, add proportions as much as possible to the figures quoted.

### 4.3 Thematic Clustering of Areas of Specialization

To examine the thematic clustering of areas of specialization, a network visualization of the knowledge domains among urban and regional planners in Nigeria was generated using VOSviewer. The results as shown in Figure 5 reveals a rich and interconnected web of specializations. The nodes, representing distinct areas of specialization, vary in size based on their prominence and centrality in the network, while the edges—lines connecting the nodes—indicate how frequently these specializations co-occur in research or practice. Thicker lines suggest stronger connections, meaning those specializations are often addressed together. The color-coded clusters highlight related themes, allowing us to understand the broader groupings within urban and regional planning in Nigeria.

Infrastructure planning, an area of focus for 18 researchers, is essential for providing the backbone of any urban area. The development of physical infrastructure, including roads, bridges, water supply, and energy systems, is crucial for supporting economic growth, improving living conditions, and enabling sustainable urban expansion. The focus on infrastructure suggests that researchers are working on finding ways to meet the growing demands of cities while ensuring that infrastructure systems are resilient, efficient, and capable of supporting future development (Sánchez-Silva & Baker,

2024; Wu *et al*., 2024; Collier & Venables, 2016).

Land use planning, with contributions from 15 (7.11%) researchers, plays a central role in guiding how cities grow and develop. Effective land use planning is necessary to balance competing demands for space, ensuring that residential, commercial, industrial, and recreational areas are all accommodated while minimizing conflict. This area is critical for promoting sustainable urban growth by addressing issues such as zoning, land allocation, and development regulations. It also plays a role in ensuring equitable access to resources and services, particularly for marginalized populations who might otherwise be excluded from prime urban areas.

Urban governance, an area studied by 13 (6.16%) researchers, highlights the role of policies, institutions, and stakeholders in shaping urban development outcomes. Effective urban governance involves coordination between government agencies, private sector actors, civil society, and communities to ensure that cities are managed in a way that reflects the needs and aspirations of all residents. The focus on governance emphasizes the importance of transparency, accountability, and participatory decision-making in shaping urban futures (Horelli & Wallin, 2024; Bokolo, 2023; Agyeman & Evans, 2022).

Finally, the increasing attention to climate change, with 11 (5.21%) researchers contributing, underscores the growing recognition of the profound impact that climate-related risks have on cities. Climate change adaptation and mitigation are becoming central to urban planning, with a focus on designing cities that are resilient to extreme weather events, rising sea levels, and other environmental threats. This area of research likely involves strategies for reducing urban carbon footprints, promoting green building practices, and developing policies that enhance urban resilience in the face of climate change (Pamukcu-Albers *et al*., 2024; Hachem-Vermette *et al*., 2024; Russo & Cirella, 2020). Overall, these top areas of specialization collectively showcase the research priorities within the field and the vital issues that urban and regional planning researchers in Nigeria are actively addressing.

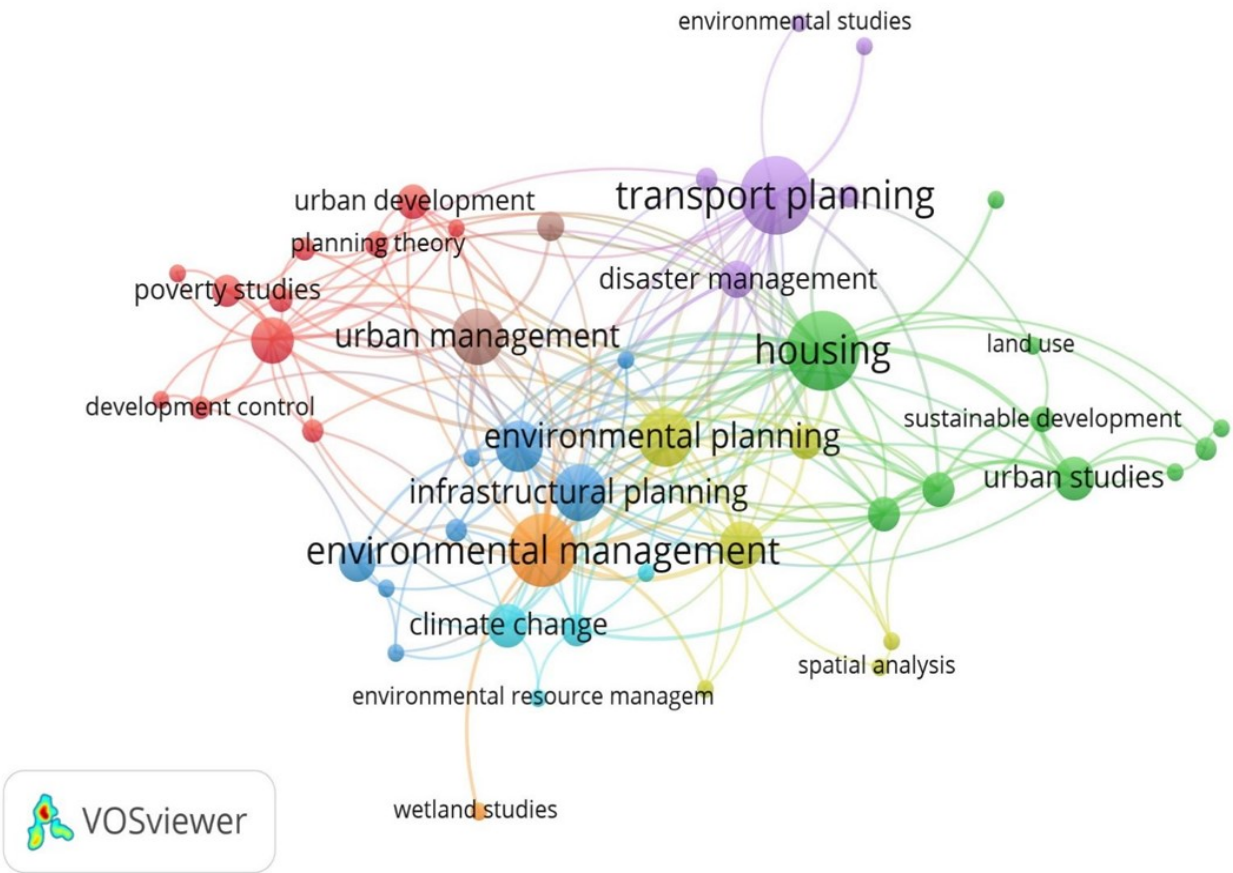



*Figure 5: A network visualization of the knowledge domains among urban and regional planning Researchers in Nigeria*

The analysis of the co-occurrence patterns among areas of specialization for urban and regional planners in Nigeria reveals several cluster groupings that form themes that reflect the multifaceted nature of urban planning. Each theme encapsulates a distinct set of concerns and focuses, highlighting the interconnectedness of various specializations and the complex challenges faced in urban environments.

Cluster 1, "Urban Governance and Development," highlighted in red on the network map, includes areas such as Urban Governance, Urban Development, Poverty Studies, Gender Studies, Advocacy Planning, and Urban Agriculture. These specialties together emphasize the critical role of governance structures and policies in shaping urban environments. Urban Governance acts as the central theme, underscoring the need for robust governance frameworks in urban planning. The presence of Poverty Studies and Gender Studies reflects a strong focus on social equity and the inclusion of marginalized groups in urban development efforts. Urban Agriculture, meanwhile, represents a growing interest in sustainable food systems, further linking governance, development, and community well-being.

Cluster 2, shown in orange on the network map, is centered on "Housing and Land Management." This cluster includes key areas such as Housing, Urban Studies, Regional Development, Sustainable Development, and Land Use. Housing stands out as a crucial element, reflecting its central role in urban planning and development. The focus on housing affordability, accessibility, and quality aligns with broader sustainable development goals, addressing critical challenges faced by urban populations. The inclusion of Urban Studies indicates a growing interest in understanding the complexities of urban life and advocating for policies that address these dynamics. Additionally, Land Use emphasizes the strategic management of land resources, which is vital for balancing development priorities with environmental protection. Overall, this cluster highlights the integration of social, economic, and environmental considerations in housing policies, reinforcing the idea that adequate housing is a fundamental human right.

Cluster 3, represented in blue on the network map, is themed "Infrastructural and Resource Planning." This cluster includes Infrastructural Planning, Land Use Planning, Sustainability Studies, and Urban Economics. Infrastructural Planning highlights the importance of efficient transportation systems, utilities, and urban services, all of which are essential for promoting economic growth and enhancing urban livability. Land Use Planning further emphasizes the strategic management of land resources to support urban expansion in a sustainable manner. The inclusion of Sustainability Studies reflects a growing commitment to incorporating ecological considerations into the planning and management of infrastructure and resources. This cluster adopts a comprehensive approach, balancing the need for immediate infrastructural development with long-term sustainability goals, ensuring that urban growth is both functional and environmentally responsible.

Cluster 4, represented in green on the network map, is themed **Environmental Planning and Urban Design**. This cluster comprises Environmental Planning, Urban Design, Solid Waste Management, and Spatial Analysis. The focus on Environmental Planning reflects an increasing emphasis on integrating sustainability and ecological concerns into urban development. Urban Design in this cluster signals a commitment to creating urban spaces that enhance community interaction, identity, and social cohesion. Solid Waste Management points to practical concerns in maintaining environmental quality, while Spatial Analysis aids in understanding the spatial distribution of urban resources and challenges. This cluster highlights the importance of balancing functionality, environmental integrity, and social dynamics in urban planning.

**Cluster 5**, represented in purple, is themed **Transportation and Disaster Management**. This cluster includes Transport Planning, Urban Mobility, Disaster Management, and Transport Management. The focus on Transport Planning underscores the critical role transportation systems play in urban connectivity and accessibility. Urban Mobility extends this focus, ensuring efficient and sustainable movement of people and goods. Disaster Management within this cluster signals an awareness of urban vulnerabilities, such as natural disasters, emphasizing the importance of resilience and preparedness planning. Overall, this cluster reflects the necessity of integrated planning to address both transport systems and disaster mitigation, ensuring cities remain safe and connected in the face of emerging challenges.

**Cluster 6**, marked in yellow, revolves around **Climate Change, Community Development, and Urban Safety and Security**. These areas highlight the intersection of environmental challenges and community well-being, stressing the need for comprehensive planning strategies that address both climate impacts and social welfare. The focus on Climate Change reveals the urgent need for urban planners to develop adaptive strategies that protect populations and infrastructure from environmental threats. Community Development points to efforts to improve living standards, while Urban Safety and Security suggest strategies to create safe environments. This cluster highlights an integrated approach to urban planning that prioritizes resilience and the welfare of communities.

**Cluster 7**, indicated by teal, consists of **Environmental Management and Wetland Studies**. The emphasis on Environmental Management signals a strong commitment to incorporating sustainable practices into urban planning and development. Wetland Studies within this cluster reflect the recognition of critical ecosystems that need preservation and protection within urban areas. This cluster indicates a growing focus on balancing developmental objectives with ecological stewardship, ensuring that cities not only grow but also conserve their environmental assets, such as wetlands, to ensure long-term resilience and ecological balance.

The cluster with brown color, **Urban Management and Impact Assessment**, encompasses Urban Management, Environmental Impact Assessment (EIA), and Urban Studies. Urban Management within this cluster reflects a focus on strategic oversight of urban growth, resource allocation, and service delivery. EIA highlights the practice of evaluating the environmental and social effects of urban projects before implementation, ensuring alignment with sustainability goals. Urban Studies in this cluster emphasize ongoing analysis of urban dynamics to inform better decision-making processes. Together, this cluster illustrates the importance of comprehensive management, accountability, and sustainability in urban governance.

It is noteworthy that in this network analysis, several areas of specialization, such as Adaptation to Climate Change, Energy Planning, Community Health Issues, and Urban Crime, appear isolated. This lack of connection may indicate that these topics are niche or emerging fields that have yet to be fully incorporated into the broader urban and regional planning discourse. For instance, while Energy Planning plays a crucial role in addressing the global energy transition, its isolation suggests that there may be insufficient interdisciplinary research linking it to urban design or infrastructure planning. Likewise, Community Health Issues and Urban Crime are vital components of urban governance that warrant further investigation to better understand their connections with spatial planning and urban management. Promoting cross-disciplinary collaboration could facilitate the integration of these specializations into mainstream urban planning research.

### 4.4 Geographical Patterns of Areas of Specialization

For the geographical analysis of areas of specialization in Nigeria, the geopolitical zones are used as the spatial unit for several key reasons. First, they correspond with the country's governance structure, making the findings directly applicable to policy formulation and resource distribution. Each zone has its own distinct challenges, enabling the analysis to provide targeted insights that address specific regional needs. By using geopolitical zones, the study ensures consistency in data collection and facilitates meaningful comparisons across regions. Additionally, this approach aligns with Nigeria's goal of balanced and equitable development, helping to identify strengths and gaps in urban planning across the zones. Overall, this analysis is designed to reveal regional variations and concentrations of expertise among urban and regional planning researchers, making it both relevant and actionable for guiding regional development strategies.

To remove potential bias from uneven participation across different regions, the analysis was conducted separately by geopolitical zones. This stratified approach allows for more accurate comparisons and helps to reveal regional differences or trends that might otherwise be overlooked in a combined analysis.

#### 4.4.1 Regional Variations of Areas of Specialization

Urban and Regional Planning (URP) in Nigeria is a diverse and adaptive discipline, reflecting the unique needs and challenges of different geopolitical zones. A detailed analysis of the field's areas of specialization reveals significant regional variations in research priorities, shaped by distinct environmental, social, and economic conditions. Table 2 provides a comprehensive breakdown of the most prominent areas of specialization in URP for each of Nigeria's six geopolitical zones. Figure 6 complements this analysis by providing a visual representation of the regional distribution of specializations. The figure captures the spatial patterns of research focus, offering a clear depiction of how each zone aligns its academic and practical efforts with its urban challenges.

Together, Table 2 and Figure 6 highlight the critical role of regional contexts in shaping the landscape of URP research in Nigeria. In the South-South region, Transport Planning (38%) emerges as the leading specialization with a notable emphasis on developing efficient transportation networks. Given the strategic importance of the region's coastal areas, which host major ports, this focus on transportation aligns with efforts to boost regional connectivity and support economic growth. Transport infrastructure is critical for facilitating trade and mobility in this heavily industrialized and urbanized zone. Other significant areas include Land Use Planning (25%), Environmental Studies (13%), Urban Design (13%), Waste Management (13%), and Environmental Management (13%). The diverse range of these specializations reflects the region's need for sustainable urban development, resource management, and environmental protection to mitigate

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*Table 3: Regional Distribution of Areas of Specialization*

| Areas of Specialisation | SS | | SE | | NC | | NW | | SW | | NE | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fre | % | Fre | % | Fre | % | Fre | % | Fre | % | Fre | % |
| Transport planning | 3 | 38 | 4 | 15 | 6 | 11 | 2 | 13 | 21 | 17 | 0 | 0 |
| Land use planning | 2 | 25 | 4 | 14 | 0 | 0 | 0 | 0 | 8 | 6 | 0 | 0 |
| Environmental studies | 1 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Urban design | 1 | 13 | 4 | 14 | 5 | 9 | 0 | 0 | 6 | 5 | 0 | 0 |
| Waste management | 1 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Environmental management | 0 | 0 | 5 | 14 | 5 | 9 | 2 | 13 | 22 | 18 | 0 | 0 |
| Urban development planning | 0 | 0 | 3 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Environmental planning | 0 | 0 | 2 | 7 | 0 | 0 | 0 | 0 | 13 | 10 | 2 | 67 |
| Housing | 0 | 0 | 2 | 7 | 13 | 23 | 2 | 13 | 23 | 19 | 0 | 0 |
| Planning theory | 0 | 0 | 2 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Climate change | 0 | 0 | 2 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| City sustainability | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Urban governance | 0 | 0 | 0 | 0 | 9 | 16 | 0 | 0 | 0 | 0 | 0 | 0 |
| Urbanization | 0 | 0 | 0 | 0 | 6 | 11 | 0 | 0 | 0 | 0 | 0 | 0 |
| Urban management | 0 | 0 | 0 | 0 | 5 | 9 | 3 | 19 | 6 | 5 | 1 | 33 |
| Poverty studies | 0 | 0 | 0 | 0 | 4 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| Environmental impact assessment | 0 | 0 | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Environmental sustainability | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 13 | 0 | 0 | 0 | 0 |
| Climate change | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 |
| Climate extremes | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 |
| Community well being | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 |
| Disaster management | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 |
| Energy landscape transition | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 |
| Infrastructure planning | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 10 | 0 | 0 |
| Urban studies | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 6 | 0 | 0 |
| Regional development | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 4 | 0 | 0 |
| Total | 8 | 100 | 28 | 100 | 56 | 100 | 16 | 100 | 124 | 100 | 3 | 100 |

the impact of rapid urbanization and industrial activities.

In the North-West, Urban Management leads the list of specializations, accounting for 19% of the total, with a focus on improving governance frameworks and managing urban growth amidst environmental and socio-economic challenges. The region's rapid urbanization, coupled with environmental pressures like desertification and climate variability, has likely driven the need for robust urban management strategies. Other prominent specializations include Environmental Management (13%), Housing (13%), Environmental Sustainability (13%), and Climate Change (6%). The focus on environmental sustainability and resilience points to the region's efforts to adapt to climate impacts while ensuring sustainable urban development. Additionally, specialized areas such as Community Well-being, Disaster Management, and Energy Landscape Transition (each 6%) highlight the region's focus on social stability and energy transitions in a changing environmental context.

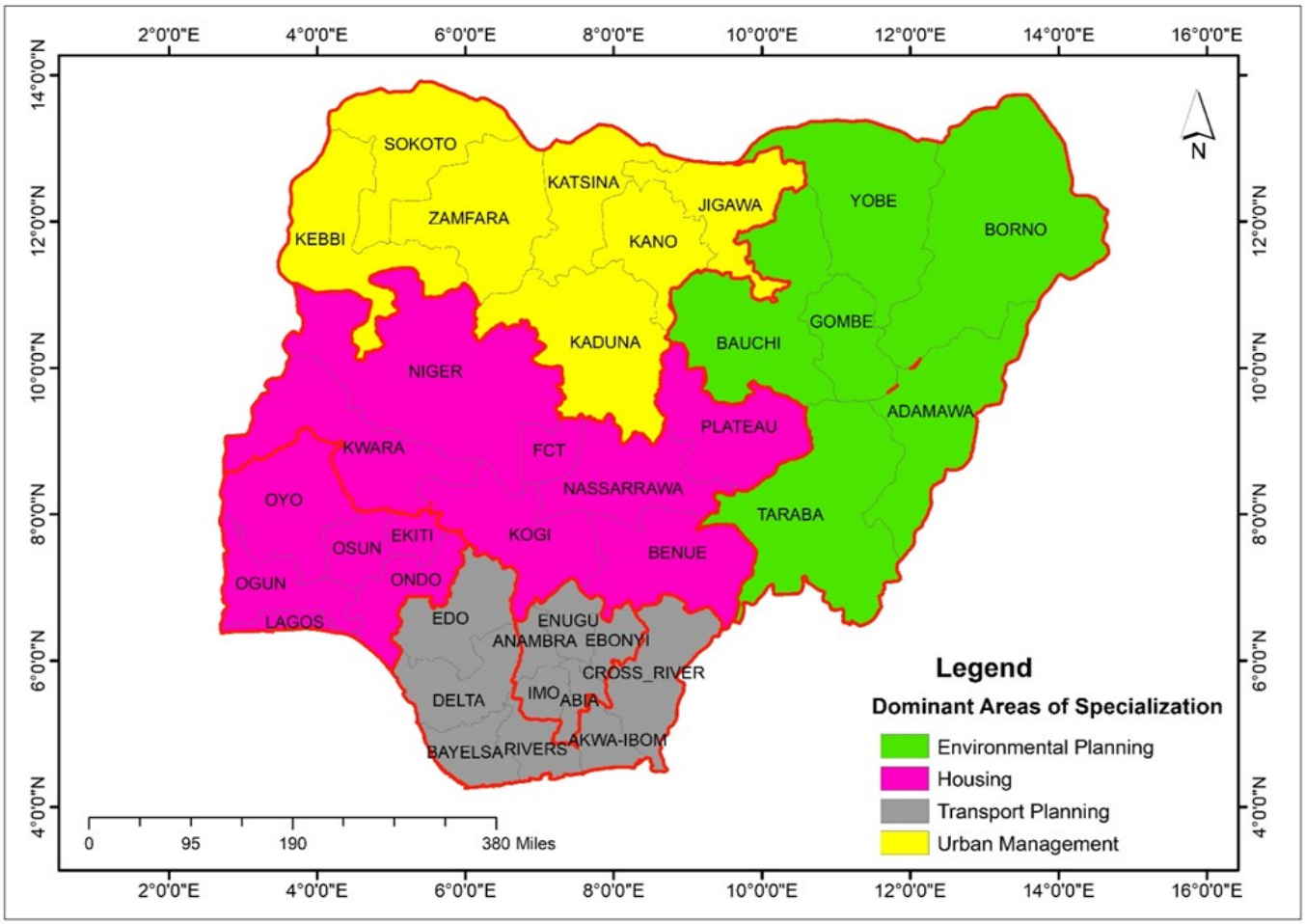



Figure 6: Regional Distribution of Areas of Specialization
Source: Authors' 2025

In the North-Central zone, Housing is the top area of specialization, comprising 23% of the total, reflecting the region's pressing need to address housing shortages in fast-growing urban areas. The emphasis on housing solutions highlights efforts to reduce the housing deficit and provide affordable options for a rapidly expanding population. Urbanization trends in the North-Central zone, driven by migration and population growth, underscore the need for adequate housing policies. Alongside housing, the region also focuses on Urban Governance (16%), Transport Planning (11%), Urbanization (11%), Environmental Management (9%), and Environmental Impact Assessment (5%). These areas suggest a comprehensive approach to managing urban expansion and its environmental and social impacts.

In the South-West, Housing stands out as the dominant specialization, making up 19% of the total. This reflects the acute housing challenges faced by the region, particularly in megacities like Lagos, where rapid population growth has outpaced housing supply. The focus on housing indicates ongoing efforts to provide affordable solutions and improve living conditions in densely populated urban areas. The region also places significant emphasis on Transport Planning (17%), signaling the need for efficient transport systems to support the large urban population and manage urban sprawl. Other important areas include Environmental Planning (10%), Infrastructure Planning (10%), Urban Studies (6%), and Regional Development (4%), which reflect a balanced approach to managing urban growth, infrastructure needs, and environmental sustainability. The dual focus on housing and transportation underscores the region's commit-

ment to addressing two of the most pressing urban challenges: shelter and mobility.

In the North-East, Environmental Planning is the top specialization, comprising 67% of the total, reflecting the region's unique environmental challenges, including desertification, deforestation, and the impacts of climate change. The focus on environmental planning is essential for developing strategies to manage land use sustainably and mitigate the effects of environmental degradation. Urban Management (33%) also appears as a key area of focus, likely due to the need for better governance and resilience in the face of environmental stressors and socio-political instability. This region's emphasis on environmental planning and urban management highlights the importance of building resilient urban systems capable of withstanding both ecological and social challenges.

In the South-East, Transport Planning leads with 15%, followed by Environmental Management (14%) and Urban Design (14%), signaling an emphasis on transportation infrastructure, environmental concerns, and urban design initiatives. The region also gives significant attention to areas such as Land Use Planning (14%), Urban Development Planning (11%), and Housing (7%), which are essential for managing urban expansion and improving living conditions

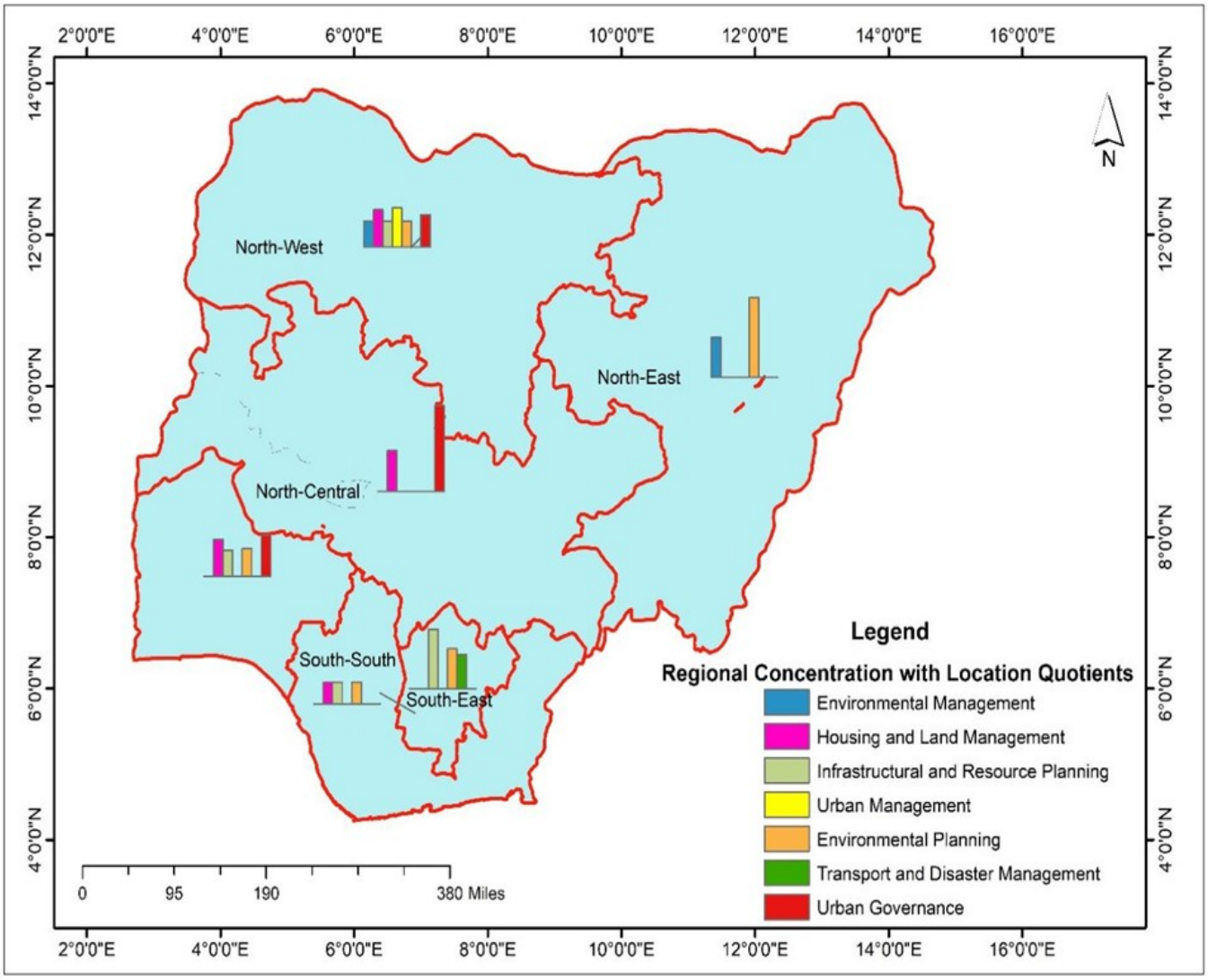
The analysis of regional variation in areas of specializations reflect the unique developmental challenges and opportunities faced by urban planners in different parts of Nigeria. Housing and transport planning dominate the more urbanized zones like the South-West and South-East, where population pressure and urban growth necessitate effective spatial and infrastructure planning. In contrast, environmental management and planning feature prominently in the North-East and North-West, where ecological and climate challenges demand sustainable planning solutions. These regional differences highlight the importance of tailoring urban planning strategies to meet the specific needs of each zone.

### 4.4.2 Regional Concentration of Areas of specialization

The regional concentration of areas of specialization was assessed using a Location Quotient (LQ) analysis, which helps identify the relative prominence of each specialization within a geopolitical zone compared to the national average. The LQ value highlights whether a region is more or less specialized in a particular area of urban and regional planning. The results, as shown in Table 4, and visually represented in Figure 7 reveal distinct patterns of specialization across Nigeria's geopolitical zones, illustrating how each region prioritizes different aspects of urban and regional planning in response to its unique challenges and opportunities.

*Table 4: Location Quotient (LQ) of Urban and Regional Planning Specializations*

| ***Specialization*** | ***NE (LQ)*** | ***SW (LQ)*** | ***NW (LQ)*** | ***NC (LQ)*** | ***SE (LQ)*** | ***SS (LQ)*** |
|---|---|---|---|---|---|---|
| *Urban Governance* | 0 | 1.9 | 1.48 | 3.97 | 0 | 0 |
| *Housing and Land Management* | 0 | 2.7 | 1.71 | 1.87 | 1 | 0 |
| *Infrastructural and Resource Planning* | 0 | 1.2 | 1.2 | 0.66 | 1 | 2.73 |
| *Environmental Planning* | 3.67 | 1.29 | 1.2 | 1.27 | 1 | 1.84 |
| *Transportation and Disaster Management* | 0 | 0.92 | 0.8 | 0.2 | 0.5 | 1.57 |
| *Climate Change and Community Development* | 0 | 0.38 | 0.3 | 0 | 0.3 | 0 |
| *Environmental Management* | 1.83 | 0 | 1.2 | 0 | 0 | 0 |
| *Urban Management* | 5.5 | 0 | 1.8 | 0 | 0 | 0 |




In the Northeast, the region's research landscape is highly focused on specific areas. The Environmental Planning and Urban Design category stands out with a striking LQ of 3.67, indicating a significant specialization in addressing environmental challenges in urban contexts. This concentration may reflect the region's need to rebuild and redesign urban environments in the aftermath of conflict (Nwaugha *et al*., 2024; Mahmoud, 2023). Additionally, Urban Management and Impact Assessment, with an LQ of 1.83, shows moderate specialization, highlighting the importance of managing urban systems and assessing the impacts of various urban policies and projects. However, there is a noticeable absence of research in other areas such as housing, transportation, and climate change, suggesting that the region's research is narrowly focused and could benefit from diversification into these crucial areas.

The Southwest presents a well-rounded research profile, characterized by significant contributions across multiple urban planning domains. Notably, Housing and Land Management emerges as a primary focus, with a location quotient (LQ) of 1.90, which reflects the region's critical imperative to address housing shortages and land use challenges. This necessity is particularly pronounced in Lagos, the region's economic nucleus, where substantial pressures on housing and infrastructure arise from rapid population growth and migration patterns (Olaniyi & Agbaje, 2024; Ifeoma et al., 2023; Ogunjobi, 2023). In response, scholars in the Southwest have concentrated their efforts on investigating housing typologies, af-

fordability, and the development of policy frameworks aimed at mitigating housing shortages and enhancing livability within rapidly urbanizing contexts. The Southwest also shows a significant focus on Transportation and Disaster Management (LQ 0.92), a priority given the region's rapid urbanization and frequent flooding. Other areas, such as Infrastructural and Resource Planning (LQ 1.20) and Environmental Planning and Urban Design (LQ 1.29), are also well-represented, demonstrating a comprehensive approach to urban development challenges. However, the absence of focus on Urban Management and Impact Assessment suggests there may be gaps in evaluating and managing the broader impacts of urban development.

The Northwest region exhibits a balanced approach across multiple urban planning fields. Housing and Land Management is the most prominent area, with an LQ of 1.48, indicating a clear emphasis on tackling housing and land-related issues, likely driven by rapid urban growth in cities like Kano. The region also places strong emphasis on Environmental Management (LQ 1.71), reflecting efforts to address environmental challenges associated with urbanization. Moderate specialization is seen in Transportation and Disaster Management (LQ 1.20) and Urban Management and Impact Assessment (LQ 1.60), suggesting a focus on infrastructural development and the management of urban impacts. However, Urban Governance and Development is underrepresented, pointing to a potential need for greater emphasis on governance and participatory planning processes.

In the North Central zone, which includes Nigeria's capital, Abuja, research is dominated by Urban Governance and Development, with a notably high LQ of 3.97. This reflects the region's focus on governance, policy-making, and urban development, likely driven by its political and administrative importance. Housing and Land Management also receives considerable attention, with an LQ of 1.87, underscoring the importance of land management in this rapidly growing region. While Environmental Planning and Urban Design is moderately represented (LQ 1.27), the absence of research on Climate Change and Community Development and Urban Management and Impact Assessment suggests that resilience and impact assessment have yet to become key research priorities. This reveals a strong focus on governance and housing but less attention to the social and environmental challenges of urban growth.

The Southeast shows a strong emphasis on Infrastructural and Resource Planning, with an LQ of 1.56, indicating a focus on infrastructure development and resource management in response to the region's industrial growth and urbanization. Environmental Planning and Urban Design is another important area, with an LQ of 1.29, highlighting efforts to integrate environmental concerns into urban planning. Additionally, Transportation and Disaster Management and Climate Change and Community Development, both with an LQ of 1.16, demonstrate the region's focus on managing transportation systems and addressing community-level impacts of climate change. However, Urban Governance and Development is less prominent, with an LQ of 0.95, indicating a gap in research focused on governance frameworks and participatory urban development processes.

The South-South region stands out for its specialization in Transportation and Disaster Management, with the highest LQ of 2.73 among the geopolitical zones. This reflects the region's critical need to manage transportation infrastructure and respond to disaster risks, particularly flooding and environmental challenges linked to oil exploration and industrial activities. Infrastructural and Resource Planning is also a key focus area, with an LQ of 1.84, highlighting the importance of strengthening infrastructure in a region known for its complex environmental context. Additionally, Environmental Planning and Urban Design (LQ 1.71) underscores the region's focus on addressing environmental impacts through sustainable urban design. Interestingly, there is no recorded research focus on Urban Governance and Development or Housing and Land Management, suggesting that while environmental and infrastructural issues dominate the research agenda, governance and housing may require more attention.

Each geopolitical zone in Nigeria exhibits distinct patterns of specialization in urban planning research, as revealed by the LQ analysis. The Northeast focuses heavily on environmental and urban management challenges, while the Southwest and Southeast show a more balanced research profile across multiple areas, with a strong emphasis on housing and infrastructure. The Northwest and North Central zones prioritize housing, governance, and land management, though the North Central's strong governance focus contrasts with the Northwest's more even distribution across areas. Finally, the South-South region's dominant focus on transportation and disaster management reflects its unique environmental challenges. This regional diversity in research priorities highlights both the unique challenges faced by each region and poten-

tial gaps where further research could be directed, particularly in areas like governance and climate resilience.

### 4.5 Research Gaps in Nigeria's Urban and Regional Planning

Data from LQ shows that certain geopolitical zones in Nigeria have developed strong research capacities in specific areas of urban and regional planning, reflecting their unique challenges. The North-East stands out for its significant research in environmental planning and urban management, which is crucial for addressing desertification, environmental degradation, and rebuilding urban centers affected by conflict. In the South-South, there is a notable specialization in infrastructural and resource planning, driven by the region's status as Nigeria's oil-producing area. This focus is vital for balancing urbanization, infrastructure development, and environmental preservation. Meanwhile, the North-Central zone excels in urban governance, emphasizing the frameworks and policies necessary for effective city management, particularly in rapidly growing cities like Abuja, where urban pressures create significant governance challenges.

Despite these regional strengths, the data reveals significant gaps in research that could hinder balanced development across Nigeria. These gaps highlight a lack of attention to critical issues essential for the sustainable growth of cities and regions, emphasizing the need for urban and regional planning to align with the diverse needs of the country's geopolitical zones.

#### 4.5.1 North-East: Lack of Focus on Housing and Land Management

The North-East faces urgent infrastructure and housing needs due to conflict, displacement, and poverty. However, there is little to no research interest in housing and land management, which is critical for rebuilding communities affected by insurgency. This lack of focus is concerning, especially given the region's massive internally displaced population, necessitating extensive planning for resettlement and reconstruction. Research in housing and land management is vital for addressing land allocation, equitable access to resources, and developing resilient housing systems that withstand socio-political and environmental challenges. Without such research, efforts to rebuild towns such as Damasak, Chibok, and Baga in Borno State—previously devastated by insurgencies—are likely to be inadequate, resulting in poorly planned resettlement initiatives, further displacement, and the proliferation of urban slums. Additionally, the lack of attention to land management could intensify existing land disputes, which are already a significant source of tension in the region.

To mitigate these challenges, it is imperative for urban and regional planning researchers in collaboration with research institutions and government agencies to prioritize housing and land management in the North-East. This includes investing in affordable housing models, strengthening land tenure systems, and promoting community-based planning approaches that are responsive to the region's post-conflict recovery needs.

#### 4.5.2 Climate Change and Community Development: A Neglected Area

A glaring gap in research across all geopolitical zones is the lack of attention to climate change and community development. Nigeria's vulnerability to climate change manifests in increasing desertification in the north, rising sea levels in the south, and more frequent floods nationwide. These environmental changes profoundly impact communities, especially those reliant on agriculture and natural resources" (Obianyo, Kelechi, & Onwualu, 2023; Olujobi, 2024).

Despite this, no region has developed a robust research focus on climate change adaptation, mitigation, or community resilience. The South-South, home to the Niger Delta—one of the most vulnerable regions—shows little activity in this area, suggesting inadequate preparation for future climate challenges, such as worsening floods and infrastructure damage. Similarly, in the North-East and North-West, the lack of research on climate change impacts limits opportunities for developing effective strategies to mitigate these stressors. The absence of research on community development is equally alarming, as vulnerable regions need empowered communities to adapt to changing conditions. Research could inform policies that promote sustainable livelihoods, build local capacity for disaster risk reduction, and encourage the use of renewable energy to combat environmental degradation. Without these initiatives, Nigeria remains ill-equipped to tackle the socio-economic and environmental crises stemming from climate change.

Addressing this gap will require concerted efforts from academic institutions, policymakers, and international development agencies to fund and promote research on climate resilience and community development, along with fostering cross-regional collaboration to create a cohesive national approach to adaptation.

#### 4.5.3 South-South: Limited Focus on Urban Governance and Management

Despite being highly urbanized and industrialized, the South-South region exhibits a striking lack of research focus on urban governance and urban management. This gap is troubling given the rapid urbanization in cities like Port Harcourt, Calabar, Uyo and Warri, where inadequate governance systems contribute to uncontrolled growth and environmental degradation (Folorunso & Folorunso, 2022; Stakeholder Democracy Network, 2015). Research in urban governance is essential for developing effective policies to regulate land use, provide services, and manage urban expansion sustainably. Without robust governance structures, urban centers in the South-South risk becoming hubs of pollution,

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social inequality, and infrastructural decay. Research into urban management is also critical for creating strategies to mitigate negative impacts from industrial activities, especially those related to the oil industry.

As urbanization accelerates, the challenges faced by the South-South, including pollution from oil spills and resource mismanagement, will become more pronounced, stressing the region's fragile ecosystems. The lack of research on managing these issues suggests that the region is unprepared for the governance and environmental challenges it will inevitably encounter. Investing in research on urban governance and management will help the South-South develop frameworks that promote sustainable growth, equitable access to urban services, and environmental protection. Such research is crucial for creating resilient cities that can adapt to economic and environmental disruptions linked to the oil and gas industries

## 5 Implications and Future Directions

The analysis of research specializations within Nigerian urban and regional planning reveals a complex landscape shaped by regional disparities, as well as a dynamic interplay between traditional and emerging areas of study. These findings carry significant implications for the future of urban planning research in the country and suggest several strategic directions that could enhance the field's impact and relevance.

One of the most striking observations is the concentration of research in certain dominant areas, such as Housing, Transport Planning and Environmental Management. These areas are critical given the pressing challenges Nigeria faces, including rapid urbanization, environmental degradation, and inadequate infrastructure. The focus on these issues reflects an urgent need to develop solutions that can address the immediate concerns of urban living. However, the diversity of research topics also points to a broad and evolving academic inquiry, indicating that Nigerian scholars are not only addressing current challenges but are also anticipating future needs.

Regional disparities complicate the research landscape. The South-West region, home to some of Nigeria's most prestigious universities, exhibits a broad and diversified research focus, driven by its established academic and professional infrastructure. This region's dominance in areas like Housing and Environmental Management underscores its role as a trailblazer in addressing the multifaceted challenges of urbanization. In contrast, regions like the North-East and South-East show much lower levels of specialization. This disparity is likely due to socio-economic challenges, limited research capacity, and fewer academic resources. Addressing these regional imbalances is essential for ensuring that all parts of the country can contribute to and benefit from advances in urban planning research.

The interdisciplinary nature of urban and regional planning is another key finding. Effective solutions to urban challenges require input from various fields, including social sciences, environmental sciences, engineering, and public policy. For instance, tackling housing shortages involves not just architectural and urban planning expertise but also insights from economics, sociology, and public health. This interdisciplinary approach is essential for developing holistic solutions that address the root causes of urban problems rather than just their symptoms.

Moreover, the emergence of niche and underexplored areas such as Energy Planning, Community Health Issues, and Urban Crime suggests that the field of urban planning is evolving in response to new challenges and opportunities. These areas, while currently less prominent, are poised to become increasingly important as urbanization continues and the impacts of climate change become more severe. Expanding research in these areas will be crucial for preparing Nigeria's cities for the future.

Looking towards future directions, there is a clear need for enhanced collaboration and integration among universities, polytechnics, policymakers, and other stakeholders. Such partnerships can combine theoretical insights with practical applications, leading to more comprehensive and effective solutions. Strengthening research capacity in emerging areas like climate change adaptation, sustainable development, and public health is vital, necessitating investments in training, resources, and infrastructure to support robust research efforts.

Integrating research findings into policy and practice is essential for translating knowledge into tangible improvements in urban environments. Close collaboration between researchers and policymakers can facilitate the development of evidence-based strategies that address current and future urban challenges. Investing in advanced technologies and innovative methodologies should continue to be a priority, as these tools enhance the ability to analyze complex urban systems and inform effective planning and decision-making processes.

Addressing existing research gaps, particularly within polytechnics, is crucial for developing a comprehensive understanding of urban issues and formulating effective responses. Expanding research efforts in underrepresented areas ensures a more balanced and inclusive approach to urban planning. Promoting social equity and inclusivity remains a fundamental goal, with future research focusing on empowering marginalized groups and ensuring that ur-

ban development benefits all segments of society.

Developing regionally and locally tailored strategies is also important for addressing the specific needs and challenges of different communities. Context-sensitive approaches allow for more targeted and effective interventions that respect the unique characteristics and requirements of various urban settings.

## 6 Conclusion

This study highlights the changing landscape of urban and regional planning in Nigeria, where increasing specialization is shaping the field. Through the analysis of researchers' profiles from a range of institutions, it is evident that specializations are diversifying, mirroring the complex challenges faced by modern urban environments. Dominant themes such as Housing and Land Management and Transportation and Disaster Management have emerged, underscoring their significance in addressing Nigeria's pressing urbanization issues. The study also stresses the importance of fostering interdisciplinary collaboration and enhancing research capacity, particularly in new and emerging areas that hold the potential for innovative urban solutions. To ensure that urban and regional planning in Nigeria remains relevant and effective, it is crucial to integrate research outcomes into policy-making and practical applications. This will help bridge the gap between theoretical knowledge and practical implementation, leading to more cohesive and impactful planning practices. Additionally, prioritizing social equity and addressing regional disparities should be integral to planning efforts, ensuring that all communities benefit from progress in the field. In conclusion, the future of urban and regional planning in Nigeria lies in its ability to adapt to shifting dynamics, embrace emerging specializations, and cultivate a collaborative and inclusive approach. By doing so, the field can successfully navigate the complexities of urbanization and contribute to the sustainable development of Nigeria's cities and regions.

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