

RECONFIGURATIONS IN THE URBAN NETWORK OF PARAÍBA: THE URBAN-REGIONAL ROLES PLAYED BY SUB-REGIONAL CENTERS AND ZONE CENTERS

Reconfigurações na rede urbana paraibana: os papéis urbano-regionais desempenhados pelos centros sub-regionais e centros de zona

Reconfiguraciones en la red urbana paraibana: los rol urbano-regionales de los Centros Subregionales y Centros de Zonas



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ABSTRACT

The research presented in this article constitutes a scope of the Doctoral Thesis developed between 2019 and 2023. It aims to discuss the reconfigurations occurring in the urban network, focusing empirically on the Brazilian state of Paraíba, particularly concerning the expansion of the number of hierarchies and the roles they play in the urban-regional context. To achieve this objective, studies from the Região de Influência das Cidades (REGIC), secondary data collection, and exploratory fieldwork were analyzed. These were conducted to understand the dynamics of Sub-Regional Centers and Zone Centers, the analyzed urban hierarchies, as well as theoretical readings that encompass important discussions about urbanization in the Northeast region, the urban network, and the concepts of urban hierarchy and heterarchy. From this reflection, it was concluded that the Sub-Regional Centers and Zone Centers, previously considered of little relevance to the urban-regional articulation of the state of Paraíba, have come to play significant roles in the urban network as a result of the transformations analyzed. The hierarchical pattern has undergone changes due to the reconfigurations observed in the urban structure of these urban centers.

Keywords: Urban network; Hierarchy; Northeast; Paraíba.

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RESUMO

A pesquisa apresentada neste artigo constitui-se em um recorte da Tese de Doutorado desenvolvida entre os anos de 2019-2023 e tem por objetivo discutir as reconfigurações ocorridas na rede urbana, tomando como recorte empírico o estado da Paraíba, no que tange à ampliação do número de hierarquias e às relações e papéis por elas desempenhados no contexto urbano-regional. Para alcançar o referido objetivo foram analisados os estudos da Região de Influência das Cidades (REGIC), o levantamento de dados secundários e o trabalho de campo exploratório realizado com o objetivo de entender a dinâmica dos Centros Sub-Regionais e Centros de Zona, hierarquias urbanas analisadas, bem como leituras teóricas que contemplam discussões importantes acerca da urbanização da região Nordeste, a rede urbana e os conceitos de hierarquia e heterarquia urbana. A partir da construção desta reflexão depreendeu-se que os Centros Sub-Regionais e os Centros de Zona, antes considerados pouco relevantes para articulação urbano-regional do estado da Paraíba passaram a desempenhar, mediante as transformações analisadas, importantes papéis na rede urbana e que o padrão hierárquico sofreu alterações mediante as reconfigurações observadas na estrutura urbana destes centros urbanos.

Palavras-chave: Rede urbana; Hierarquia. Nordeste; Paraíba.

RESUMEN

La investigación presentada en este artículo constituye un recorte de la Tesis Doctoral desarrollada entre los años 2019-2023 y tiene como objetivo discutir las reconfiguraciones ocurridas en la red urbana, tomando como recorte empírico el estado de Paraíba, en lo que respecta a la ampliación del número de jerarquías y a las relaciones y roles que estas desempeñan en el contexto urbano-regional. Para alcanzar dicho objetivo, se analizaron los estudios de la Región de Influencia de las Ciudades (REGIC), el levantamiento de datos secundarios y el trabajo de campo exploratorio realizado con el fin de comprender la dinámica de los Centros Sub-Regionales y Centros de Zona, jerarquías urbanas analizadas, así como lecturas teóricas que abordan importantes discusiones sobre la urbanización de la región Nordeste, la red urbana y los conceptos de jerarquía y heterarquía urbana. A partir de la construcción de esta reflexión, se desprendió que los Centros Sub-Regionales y los Centros de Zona, anteriormente considerados poco relevantes para la articulación urbano-regional del estado de Paraíba, pasaron a desempeñar, a través de las transformaciones analizadas, papeles importantes en la red urbana y que el patrón jerárquico sufrió alteraciones debido a las reconfiguraciones observadas en la estructura urbana de estos centros urbanos.

Palabras clave: Red urbana; Jerarquía. Nordeste; Paraíba.

1 INTRODUCTION

In the last two decades, the cities in Paraíba have undergone processes of urban and economic restructuring, which have been instrumental in shaping new arrangements and dynamics within the urban network. As a result of this restructuring process, the state of Paraíba has redefined its hierarchies through the expansion of the roles and functions of cities classified as Sub-Regional Centers and Zone Centers.

The cities presented here have undergone transformations in their urban structures,

driven by the expansion of educational and healthcare services, as well as the dynamization of the commercial, financial, and informational sectors. Consequently, the rearticulation observed in the urban network of Paraíba can be attributed to the multiplication of urban hierarchies, which arose from the introduction and proliferation of these aforementioned elements. They have become responsible for constructing relationships based on complementarity and the sharing of functions, leading to the formation of new arrangements and dynamics within the urban network.

According to REGIC (2018), the state of Paraíba was one of the Brazilian states that underwent visible hierarchical changes in the configuration of its urban network. In addition to the reduction in the hierarchical classification of the city of Campina Grande, from Regional Capital B to Regional Capital C, the aforementioned study highlights the increase in the number of cities that began to play important roles in the urban-regional context, mainly cities classified as Zone of Central areas.

Thus, this paper aims to discuss the reconfigurations occurring in the urban network, focusing on the Brazilian state of Paraíba, regarding the expansion of the number of hierarchies and the roles and relationships they play within the urban-regional context. While other studies have addressed discussions on the urban network of Paraíba, including those by the Network of Researchers on Medium-Sized Cities (ReCiMe), this article focuses on a discussion that has not yet been explored in urban-regional studies within Paraíba's geography. Specifically, it relates to Sub-Regional Centers and Zone Centers, which are urban hierarchies that have been insufficiently studied in terms of their roles and functions.

To achieve the outlined objective, the paper will be organized into sections. Initially, the methodological approach of the research will be presented, followed by theoretical and empirical reflections, with a focus on the urban network of the Northeast region and Paraíba and its reconfigurations. In the second part, the discussion will emphasize the roles played by Sub-Regional Centers and Zone Centers and their influence on the reconfigurations of the urban network in Paraíba.

2 METHODOLOGY

To address the proposed focus, several techniques were employed on the research: document analysis, with an emphasis on REGICs (Regional Geographic Information Cards), data mapping using ArcGIS software, secondary data collection from available online databases, and exploratory fieldwork. The analysis of REGICs covers documents from 2007

and 2018, focusing on the hierarchical changes identified in each study.

Regarding secondary data collection, information was gathered on higher education institutions, including their locations and distribution, as well as data on the commercial and service sectors. This includes major commercial structures such as shopping centers and wholesale stores, and the distribution of other commercial establishments, their branches, and types.

To conduct the field research, the four Sub-Regional Centers of the state of Paraíba were selected: Guarabira, Patos, Sousa, and Cajazeiras. The latter two are interconnected by their roles within the geographical region, defined by IBGE (2017) as an intermediate multipolarized geographical region. Regarding the Zone Centers, a subset was visited, including Itaporanga, Piancó, Sumé, Pombal, and Santa Luzia.

Thus, we chose to prioritize the dynamics of the Sub-Regional Centers, considering that they facilitate more significant flows and present relevant elements for discussion. As for the Zone Centers, those located further from Regional Capitals and Sub-Regional Centers were studied, as was the case with the previously mentioned cities. During the fieldwork, an exploratory visit was conducted to the centers of the cities selected for research, observing economic dynamics, flows, and the capacity for urban and regional articulation through the provision of commerce and services. Additionally, data were collected regarding the origin of students enrolled in private Higher Education Institutions located in the cities of Patos and Cajazeiras.

In the field, observations were made regarding the types of establishments, sectors, nature, organizational patterns, and the flows, identified by the license plates of vehicles present in the main center of the cities. The collection of this information enabled the mapping of the flows emanating from the Sub-Regional Centers, which will be presented in one of the subsections of this article.

3 READINGS ON THE URBAN NETWORK: THE BRAZILIAN NORTHEAST REGION AS AN ANALYTICAL FRAMEWORK

The process of urbanization in Brazil, as well as in the Northeast, has been driven by several factors, as highlighted by the Institute for Applied Economic Research (IPEA, 2001). Among the most relevant factors for the Northeast are the inland expansion of urban

phenomena, the creation of new cities, the growth of medium-sized cities¹, and a negative migration balance in small towns.

According to Clementino (1990), the layout of Northeastern cities is influenced by two elements: the first one is related to the relation between rural and urban production, and the second element involves the role of the State through the direction of public investments, as seen with the creation of the SUDENE (Superintendency for the Development of the Northeast), which promoted infrastructure changes in interior urban centers.

The concentration of cities and urban content remains with greater density in specific areas of the Northeast region. Coastal areas host the most dynamic cities from an urban and industrial perspective, such as the Metropolises; while in the interior, Regional Capitals², Sub-Regional Centers³, and Zone Centers⁴ serve as important urban hubs for the construction of urban-regional networks. The most dynamic urban centers of the Northeastern inlands have seen an intensification of their urbanization process through the expansion of their regional roles, driven by public policies that have increased the availability of health and education services, both public and private, as well as commercial establishments across various sectors, types, and capitals.

In this context, certain characteristics can be attributed to the urbanization of the Northeast, among which the following ones stand out: the concentration of technical, scientific, and informational content in more dynamic and historically urbanized areas, such as the coastal regions; the low functional complexity of inland cities; and the significant number of small towns where the elements of urbanization are more sparsely distributed.

These aspects condition the formation of a more hierarchical urban network in terms of the functional complexity of urban centers. At the same time, they lead to the emergence

¹ According to Spósito (2017), the concept of a Medium-Sized City is appropriate for medium-sized cities that play intermediate and/or regional roles within the broader urban network. In the REGIC classification, Regional Capitals of levels B and C correspond to Medium-Sized Cities, with the exception of level A Regional Capitals, which are state capitals.

² **Regional Capitals:** urban centers that make up the second level of the hierarchical stratum and have a high concentration of management activities, but with a smaller reach in terms of the area of influence when compared to Metropolises. A total of 97 Brazilian cities are classified in this category, which is subdivided into levels A, B, and C, varying according to their population arrangements and areas of influence (REGIC, 2018).

³ **Sub-Regional Centers:** cities with less complex management activities (all are classified as level 3 in territorial management), with smaller areas of influence when compared to Regional Capitals. These are also smaller cities in terms of population, with a national average of 85,000 inhabitants—larger in the Southeast Region (100,000) and smaller in the South and Central-West regions (75,000). They are subdivided into two levels, A and B (REGIC, 2018).

⁴ **Zone Centers:** cities characterized by lower levels of management activities, they attract a smaller number of neighboring cities due to the direct appeal of their population for commerce and services based on proximity relations. There are 398 cities with an average population of 30,000 inhabitants, subdivided into two levels, A and B.

of urban nuclei that, despite being less dynamic and of limited significance on a regional and national scale, play a significant role within their local contexts, as they complement and share functions with higher-level urban centers.

This configuration reflects the archipelagic structure that, according to Santos (1993), predominated in Brazil from the 18th century until the early 20th century. It was characterized by subspaces that evolved according to their own logics, largely through relations with the external world. Each of these spaces was marked by internal dynamic poles that had little interaction with one another and were not interdependent. Thus, the lack of connectivity between spatial units, in this case, the regions, was an element that hindered network relations and the territorial integration of the country.

A territorial reconfiguration has occurred with the advancement of engineering systems, that was facilitated by the development of transportation, communication, and energy systems. These elements enable the articulation between regions, as well as between urban centers of different hierarchical levels. Technical, scientific, and informational content begins to be reproduced in various locations, in different forms and intensities, which creates the foundation for the reproduction of capital.

The geographic distribution of the technical-scientific-informational environment can be observed through the Brazilian road system, which expanded based on a certain spatial selectivity. Lins (1990) emphasizes that the opening of some highways, such as BR-101, BR-304, BR-222, BR-232, BR-324, and BR-230, in addition to state highways, that was the defining element for the integration of the region. According to the author, among the highways that integrate the Northeast region with the rest of the country, the BR-116 has had the most significant impact, as it has facilitated the integration of industrial goods-producing centers with the consumer centers in the Northeast.

Regarding the inlands of the Northeast and the state of Paraíba, one of the highways that has had the most substantial impact was BR-230, dating back to the 1970s. For Maia (2007), the construction of this highway, between 1952 and 1972, was favorable for the growth of many villages, towns, and cities located along its route, especially due to the circulation of people, goods, and services.

As a result, other cities began to gain prominence in the Northeastern and Brazilian urban network, among which are the Medium-Sized Cities, understood as important links for understanding Brazilian urbanization in the mid-20th century, particularly in the Northeast, where these structures are highly expressive in inland areas. Cities such as Campina Grande (PB), Caruaru (PE), Mossoró (RN), and Juazeiro do Norte (CE) has gained

relevance within their respective states due to their geographic location, which is an indispensable element for the potential integration and provision of economic activities related to the tertiary sector of the economy.

In this sense, the urban network extends the Northeastern inland, as these urban centers begin to interact on various scales and complement and share functions that were previously performed only by Metropolises and Regional Capitals located in coastal areas. The two most recent studies on the Brazilian urban network, published in 2007 and 2020, highlight the transformations related to changes in the Brazilian territorial structure, which, although still highly hierarchical—a fact related to the urbanization process itself and the geographic distribution of the technical-scientific-informational environment—already presents different configurations compared to previous contexts.

Thus, it is noticeable that from the first two decades of the 21st century, relationships have begun to consolidate in both hierarchical and heterarchical ways. According to Catelan (2012), heterarchy can be defined as the ability of certain places to establish connections that do not necessarily follow a rigid hierarchy, i.e., connections that are formed based on relationships across various scales and agents. In this sense, given the socio-spatial redefinitions that have occurred in places, driven by the diffusion of technique, science, and information, interactions between places begin to occur on multiple scales and with diverse content.

Heterarchical relationships materialize through firms, companies, institutions, and economic agents, as well as through the spatial diffusion of content and symbols related to the global capitalist order. The expansion of this content, in addition to other elements related to the State's role as an urban space producer, enables the hierarchical configuration that results in the classification of cities and contributes to the construction of more specific analyses that consider the multiple relationships of cities within the urban network.

According to Catelan (2012), the urban network is an appropriate framework for understanding changes in urban hierarchy, given that it consists of cities with completely different patterns in terms of economic, political, cultural, financial, managerial, or other dimensions of analysis. The diffusion of transportation, the reduction of costs and travel time, the expansion of telecommunications (e.g., mobile phone operators), the diversification and provision of commercial branches and services, and the broader scope of the financial sector are important elements for understanding the changing roles and functions of cities within the urban network as their capacity for interaction through flows expands.

Network relations control spatial interactions between places, as these are endowed with attributes that facilitate connections of varying levels and intensities. In this way, the urban network, as discussed by Corrêa (1989), becomes the means through which production, circulation, and consumption are effectively realized. It is through the urban network and the communications linked to it that various localities were able to interact, resulting in the configuration of a global economy.

Globalization, which began to take on new forms from the late 20th century, makes the urban network even more complex, as this process gives rise to the emergence of an economy articulated on a national/global scale. Regarding this new pattern of articulation that emerges from globalization, Damiani (2006, p. 136) highlights that:

The current phase of globalization establishes possibilities for multiple interactions among cities of all sizes and creates a simultaneity of communication or an intricate network of relations, breaking down strict hierarchies. Therefore, the traditional reconsideration of hierarchies must come to an end: financial links involving international financial agents exist in every city. National planning has been replaced by strategic planning, involving networks of cities—cities of various sizes, directly connected without hierarchical intermediations (own translation from Portuguese).

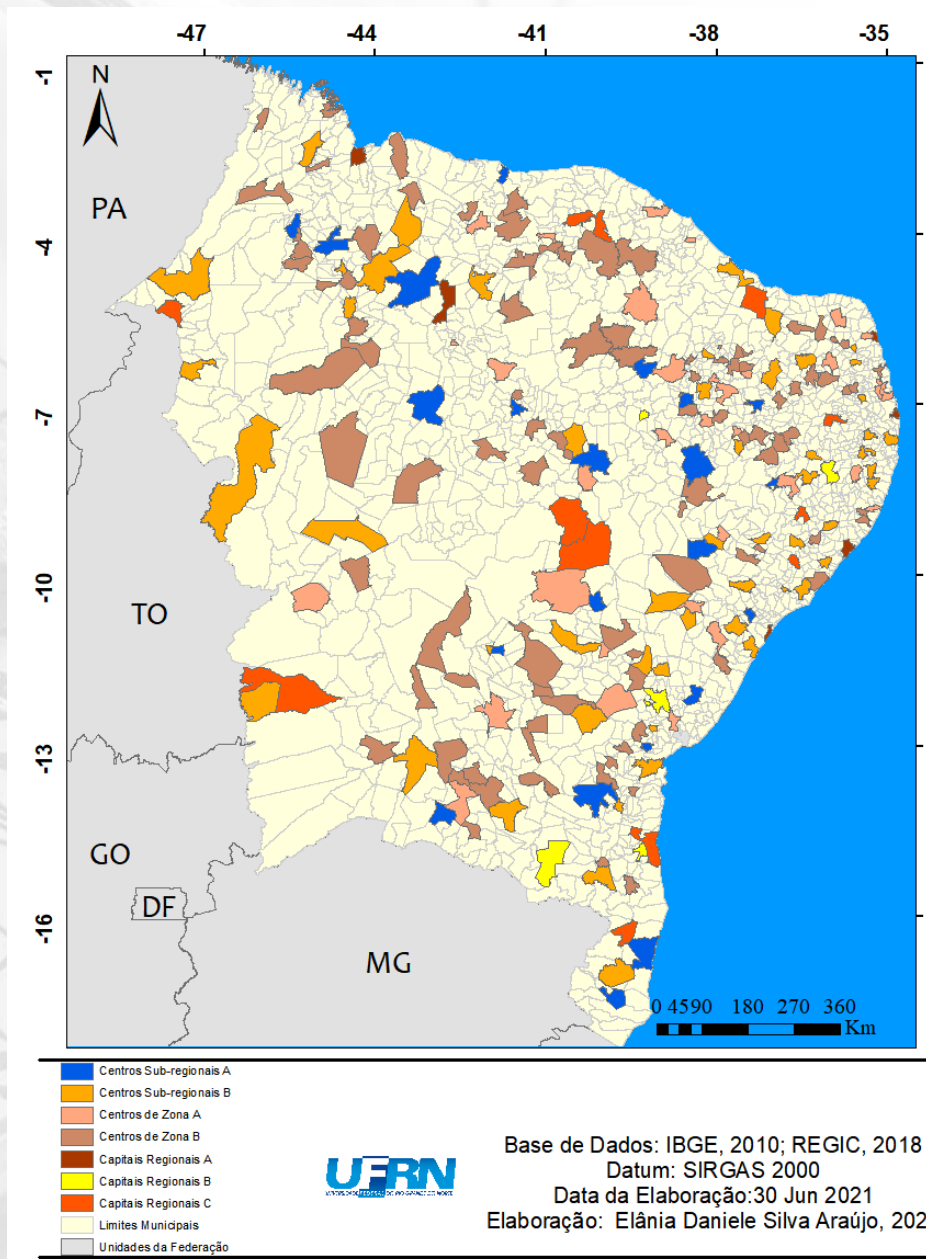
In this context, cities integrate into a global network, which is composed of various places with different roles. This networked relationship among cities is reinforced across multiple scales, from local to global. As cities connect within a network, depending on the functions they perform in a given region, they become part of a network of cities where hierarchical relationships are based on the sharing and complementarity of functions across multiple scales.

In Brazil, the way cities establish their networked relationships varies according to the diverse regional realities. For example, Northeastern cities form network relationships that differ from those in the South and Southeast, yet the content present in both regions is connected to the technical-scientific-informational environment. The roles and functions performed by Northeastern cities are mainly tied to the tertiary sector of the economy, as the spread of tertiary activities is the primary driver of the urbanization process and the configuration of the urban network, reinforcing what Santos (1985) defines as tertiary urbanization.

The urbanization process in the Northeast region and the spatial diffusion of the tertiary sector's content are crucial elements in constructing the hierarchical classification identified by the IBGE (Brazilian Institute of Geography and Statistics) in the REGIC studies.

Based on the analysis of these studies, we observe that the Northeast region is characterized by a significant number of cities classified hierarchically as Regional Capitals A, B, and C; Sub-Regional Centers A and B; and Zone Centers A and B, as detailed in Figure 01:

Figure 01 – Northeast Region: urban hierarchy - REGIC (2018)



Data source: REGIC (2018).
Organization: The author

According to the spatial distribution presented in Map 1, the Northeast region is characterized by the predominant presence of urban centers classified as Regional Capitals, Sub-Regional Centers, and Zone Centers. Due to the territorial size and specific

characteristics of the urbanization process, some Northeastern states exhibit a significant number of urban centers within these classifications, particularly Sub-Regional Centers and Zone Centers.

In the case of the state of Paraíba, these urban hierarchies have been predominant, simultaneously playing a key role in the articulation of the urban network. The following section analyzes this dimension through the roles performed by the Sub-Regional Centers and Zone Centers.

4 THE PARAIBAN URBAN NETWORK: THE ROLES PLAYED BY SUB-REGIONAL CENTERS AND AREA CENTERS

The state of Paraíba, located in the Brazilian Northeast, has experienced urbanization processes linked to the same elements previously mentioned. Urbanization expanded from the coast to the interior, driven by agricultural and livestock activities, leading to the formation of the first urban centers. Additionally, other activities, such as cotton cultivation and export, as well as the emergence of commercial activity through open markets, also has contributed to the interiorization of urban phenomena and the establishment of cities that play significant roles in the state's and region's urban network, as exemplified by Campina Grande.

Gonçalves (1999, p. 13), in studying the territorial formation and urbanization process of the state of Paraíba, writes that:

Paraíba emerged from an urban agglomeration located on the banks of the Sanhauá River; it was a city before it was a sugar mill. Even though it remained an almost unchanged landscape for more than four hundred years, it is in the city that the state is established, it is in the city that religious orders maintain their headquarters, and it is in the city that people and goods come and go from the land. The same happened with urban agglomerations along the coast, in the Brazilian Agreste region, and in the Brazilian backlands regions. Villages, towns, and cities that emerged along the cattle trails, the cotton fields, the sisal fields, mining areas, and railways. They emerge in history but have yet to become relevant objects of history (own translation from Portuguese).

As highlighted by the authors, even though the occupation of Paraíba is quite old and agricultural activities led to the formation of cities in earlier periods, these have not yet become significant historical objects, as Brazil's urbanization process did not bring these spaces into prominence, unlike what occurred in the Southeast region.

On the other hand, Gonçalves et al. (1999) emphasize that a more nuanced understanding of the urban issue in Paraíba is somewhat hindered by the scattered nature of the information, meaning there is a lack of in-depth studies on the urban issue. However, the REGIC studies have provided visibility to the dynamics of these urban centers, showing the development of their roles and functions throughout the 20th and 21st centuries.

The two most recent REGIC studies, that were conducted in 2007 and 2018, indicate significant changes in the classification of cities in Paraíba, particularly concerning Sub-Regional Centers and Zone Centers. These cities play complementary and shared roles within the urban network, constituting important spaces within their urban-regional context.

According to the analysis of the REGIC studies, from 1972 to 2018, the state of Paraíba has consistently featured four Sub-Regional Centers: Sousa, Cajazeiras, Patos, and Guarabira. Regarding the Sub-Regional Centers, it is notable that the cities classified at this hierarchical level have remained the same over time. However, they have undergone changes in their urban structures, enhancing their capacity for urban-regional articulation and the roles they play in the urban-regional context.

Regarding Zone Centers, the REGIC studies show that while the number of these centers has not significantly varied, some cities have been newly classified as Zone Centers, while others, previously classified as Zone Centers, have been downgraded to local cities. In the 2018 REGIC study, five cities from Paraíba were newly classified at this hierarchical level: Brejo do Cruz, São José de Piranhas, Serra Branca, São Bento, and Nova Floresta, the latter one being linked to the city of Cuité, which has been classified as a Zone Center since the 1972 REGIC study.

The inclusion of these cities in the Zone Center hierarchical level is due to the expansion of their urban-regional roles within their areas of influence. The other cities classified as Zone Centers in the 2018 REGIC study had already held this hierarchical position in previous studies, except for Sumé, which was classified as a Zone Center in the 2007 study due to the establishment of the Federal University of Campina Grande (UFCG) campus and the growth of tertiary activities. Other cities, such as Itabaiana, Sapé, Alagoa Grande, Areia, and Conceição, have appeared as Zone Centers in some studies but have been downgraded to local city status.

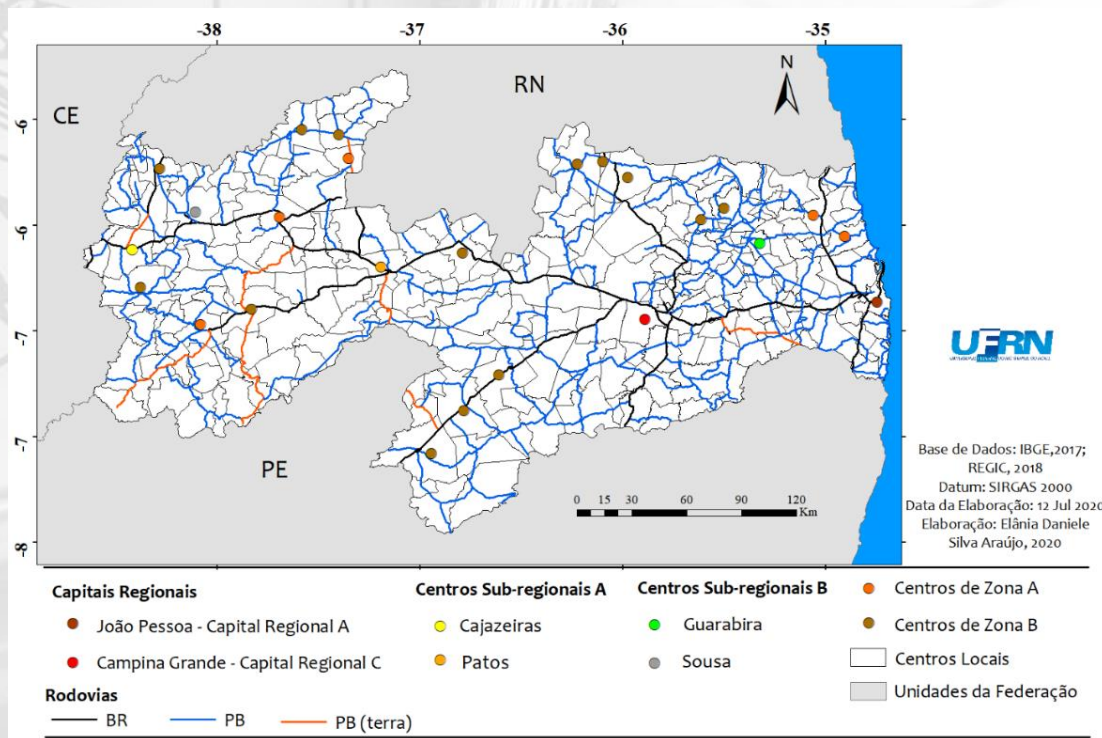
The proliferation of new hierarchies is justified by the increasing centrality of cities based on the diffusion and provision of more complex tertiary services, connected to the technical-scientific-informational environment, as well as the relative loss of roles previously

performed by hierarchically superior cities, which, despite not losing their centrality, adapt to a new logic based on the sharing and complementarity of functions.

This hierarchical classification is significant for understanding how the urban network of the state of Paraíba has evolved over the years, as well as for confirming that complementarity and the sharing of functions materialize when a greater number of cities, even those at lower hierarchical levels, begin to provide goods and services capable of attracting flows within a given urban-regional context. The Sub-Regional Centers and Zone Centers of the state of Paraíba are concrete examples of how hierarchical dynamics change, as the revitalization of these cities, based on the incorporation of new functions and their quantitative growth, allows us to affirm that the urban network becomes denser in terms of flows and relationships.

On the other hand, although Sub-Regional Centers and Zone Centers do not constitute places of national significance within the urban network, they represent important nodes for the establishment of urban-regional flows and connections across multiple scales within the state of Paraíba and the Brazilian Northeast. According to the 2018 REGIC study, as it is shown in Figure 02, the state of Paraíba has the following classification/distribution of urban hierarchies.

Figure 02 – Paraíba - urban hierarchies according to REGIC (2018)



Data source: IBGE (2017); REGIC (2018).

Organization: The author

Through the spatialization shown in Map 2, the urban network of Paraíba is articulated by the presence of four Sub-Regional Centers, two of which are level A (Patos and Cajazeiras) and two are level B (Guarabira and Sousa). In addition to the aforementioned hierarchies, Zone Centers are present in the territory, totaling seventeen centers, 5 of which are level A and 12 are level B⁵.

The hierarchies classified from the REGIC study have relevant explanatory potential to enable understanding of the changes that have occurred in the relations between cities and the urban network. The Sub-Regional Centers, in addition to complementing the functions performed by the Regional Capitals (Campina Grande and João Pessoa), also present important functionalities in the urban-regional context in which they are located.

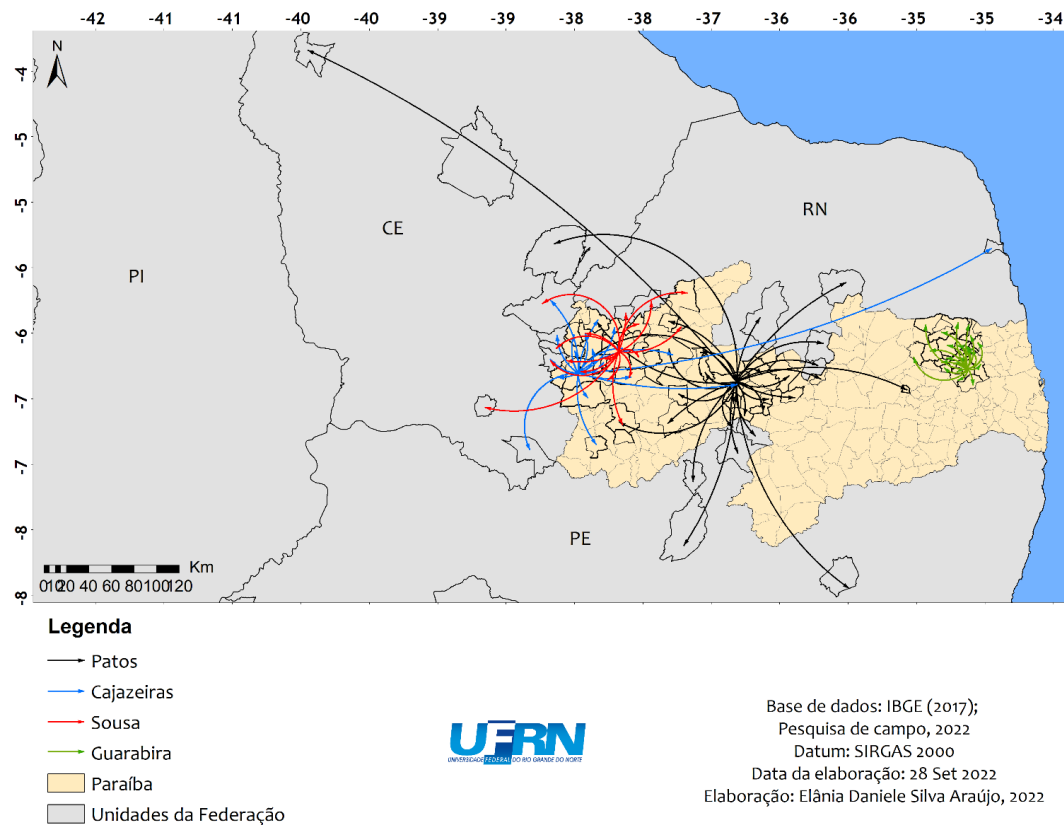
The attributes that justify such functionalities are related to services, especially education, with the presence of public and private technical and higher education institutions, as well as commercial structures, housed in their central areas. From the carried-out research, it was identified that these attributes, in addition to reinforcing centrality, expand the roles of these urban centers beyond the immediate scale, as evidenced in Figure 03.

Based on the flows depicted in Map 3, it is evident that each Sub-Regional Center in Paraíba exhibits a distinct spatial reach concerning the roles they play within their respective regions of influence. The spatial reach of a city is explained by the regional context, as various elements can expand the number of relationships the city maintains within the urban network. In cases where more than one urban hierarchy exists within the same area of influence, such as in Guarabira, the city's spatial reach becomes smaller.

In other cases, as observed in Patos, Sousa, and Cajazeiras, the absence of similar hierarchies in the region grants these cities a larger spatial reach. Additionally, the geographic situation, particularly in relation to their location near state borders, grants Sousa and Cajazeiras significant relational positions within the urban network at local/state and regional scales.

⁵ Mamanguape, Rio Tinto, Itaporanga, Pombal and São Bento (Level A); Cuité-Nova Floresta, Solânea-Bananeiras, Brejo do Cruz, Catolé do Rocha, Monteiro, Piancó, Picuí, Santa Luzia, São José de Piranhas, Serra Branca, Sumé, Uiraúna (Level B).

Figure 03 – Paraíba – spatial reach of Sub-Regional Centers



Data source: Field Research, 2022.
Organization: The author

Furthermore, it is important to consider that, despite exhibiting distinct dynamics, the flows emanating from the city centers clearly express the formation of new arrangements and dynamics. The commercial structures of the cities under analysis exhibit a certain complexity, as seen in the cities of Patos and Sousa, which have large capital establishments such as shopping centers and wholesale retail outlets. In the case of Cajazeiras, during the exploratory fieldwork, it was possible to identify the existence of a commercial gallery referred to as a shopping center and a wholesale retail outlet that had its operations interrupted during the pandemic period.

In addition to commerce, the existence of educational services, such as public and private technical and higher education institutions, also directly contributes to the formation of the urban-regional roles presented. Regarding the Zone Centers, these articulate the urban-regional dynamics within the state of Paraíba based on the same elements previously mentioned to qualify the centrality of the Sub-Regional Centers. The difference between these two hierarchies lies in the spatial reach, which is smaller in the Zone Centers compared to other hierarchies. However, the mentioned elements above, such as the

dynamization of the commercial sector and educational services, are also present in these urban localities, although they are on a simplified scale.

The attributes presented in this analysis were diagnosed through field research conducted between 2019 and 2023. In summary, it is possible, based on this information, to outline a profile of the attributes that determine the relations of the Sub-Regional Centers and Zone Centers within the urban network of Paraíba, as shown in Table 1.

Table 01 – Attributes responsible for the urban-regional influence of Sub-Regional Centers and Zonal Centers in the state of Paraíba.

| Urban hierarchies | Attributes | Cities |
|----------------------------|--|--|
| A Sub-Regional Centers (2) | They are characterized by the presence of the following/main educational institutions: UFCG, IFPB, FSM, UNIFIP. They articulate health services through the presence of Regional Hospitals and specialized health services, such as: health clinics, laboratories, etc. from a private nature. The commercial dynamic is explained by the presence of commercial chains, wholesale stores, franchises, shopping galleries and shopping centers. | Patos and Cajazeiras |
| B Sub-Regional Center (2) | They have the following/main educational institutions: UEPB, UFCG, IFPB and other private institutions. They articulate health services through the presence of Regional Hospitals and specialized health services, such as: clinics and laboratories, from a private nature. The commercial dynamics can be explained by the presence of commercial networks, wholesale stores, franchises and shopping arcades. | Guarabira and Sousa. |
| A Zone Centers (5) | They host the following major educational institutions: UFPB, UFCG, and IFPB, as well as private educational institutions. They provide health services on a smaller scale, with the presence of municipal and district hospitals. Additionally, they offer specialized health services, such as private clinics, laboratories, and similar facilities. The commercial dynamics are characterized by the presence of retail chains, franchises, small shopping arcades, and simplified local commerce. | Cuité-Nova Floresta, Solânea-Bananeiras, Brejo do Cruz, Catolé do Rocha, Monteiro, Piancó, Picuí, Santa Luzia, São José de Piranhas, Serra Branca, Sumé and Uiraúna. |

Data source: REGIC (2018); field research, 2022-2023.

The information outlined in Table 1 pertains to the attributes that facilitate the

relationships of Paraíba's Sub-Regional Centers and Zone Centers within the urban-regional context in which they are situated. It becomes evident that educational and healthcare services, along with commercial activity, are the primary elements shaping relationships across multiple scales. Furthermore, it is important to highlight that the expansion of these attributes during the first two decades of the 21st century, driven by state intervention through public policies and the expansion of capitalist social production relations, are significant factors in explaining the hierarchical changes and the broadening roles of these urban centers.

The data presented in Table 1 reflects a specific context, capturing not only the transformations that occurred in the first two decades of the 21st century, but also the global pandemic experience. In conclusion, the urban-regional configuration of the Northeast, and specifically the state of Paraíba, indicates the existence of an urban network that has been reconfigured through the multiplication of hierarchies and interscalar relations, grounded in the incorporation of new elements that have come to complexly govern the relationships between urban centers within the urban network.

5 CONCLUDING REMARKS

Based on the scope presented in this article, it is evident that the configuration of the urban network in Paraíba resembles that one from the broader Northeastern urban network, as network relations at both scales are facilitated by the roles of Sub-Regional Centers and Zone Centers. The analysis presented here partially aligns with the findings outlined in the REGIC documents, considering that REGIC provides generalist analyses that do not fully explain the specificities of urban centers, particularly the hierarchies analyzed in this study.

Thus, the significant contribution of this research lies in its explanation of the dynamics of these centers and their urban-regional roles, as previous studies in Paraíba's geography, as well as REGIC, have not yet addressed this analytical dimension. Although this study provides an overview, there is a clear need for further research that explores the urban network from yet unexplored vectors, such as local productive arrangements, the secondary sector, etc., as well as analyses that seek to understand the dynamics of Zone Centers—important hierarchies that have been under-researched.

From the construction of this reflection, it was concluded that Sub-Regional Centers and Zone Centers, previously considered to have limited relevance in the urban-regional

articulation of the state of Paraíba, have come to play significant roles in the urban network, and that the hierarchical pattern has undergone changes due to the reconfigurations observed in the urban structure of these cities.

REFERENCES

- CATELAN, M. J. **Heterarquia Urbana: interações espaciais e interescares e cidades médias.** Tese (Doutorado em Geografia) - Faculdade de Ciência e Tecnologia, UNESP, Universidade Estadual Paulista Júlio de Mesquita Filho, Presidente Prudente-SP, 2012, 227p.
- CORRÊA, R. L. Concentração bancárias e os centros de gestão do território. *In: Revista Brasileira de Geografia*, 51 (2), p. 17-32, 1989.
- CLEMENTINO, M. do L. M. **Complexidade de uma urbanização periférica.** Tese (Doutorado em Economia). Instituto de Economia da Universidade Estadual de Campinas. Campinas, SP: 1990. 307p.
- DAMIANI, A. L. Cidades médias e pequenas no processo de globalização: apontamentos bibliográficos. Em publicação: **América Latina: cidade, campo e turismo.** San Pablo: CLACSO, Consejo Latinoamericano de Ciencias Sociales, 2006.
- GONÇALVES, R. C.; LAVIERI, M. B. F.; LAVIERI, J.; RABAY, G. **A questão urbana na Paraíba.** João Pessoa: Ed. Universitária, UFPB, 1999.
- IPEA. IBGE. UNICAMP. **Caracterização e tendências da rede urbana do Brasil: configurações atuais e tendências da rede urbana.** Brasília: IPEA, 2001. Disponível em: www.portalipea.gov.br, Acesso em: mar. 2020.
- INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA. IBGE. **Divisão Regional do Brasil em Regiões Geográficas Imediatas e Intermediárias.** 2017. Disponível em: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv100600.pdf>. Acesso em: 04 jan. 2023.
- INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA. IBGE. **Região de Influência das Cidades 2007.** Disponível em: <https://www.ibge.gov.br/geociencias/cartas-e-mapas/redes-geograficas/15798-regioes-de-influencia-das-cidades.html?edicao=16168&t=acesso-ao-produto>. Acesso em: 04 jan. 2023.
- INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA. IBGE. **Região de Influência das Cidades 2018.** Disponível em: <https://www.ibge.gov.br/geociencias/cartas-e-mapas/redes-geograficas/15798-regioes-de-influencia-das-cidades.html?edicao=28033&t=acesso-ao-produto>. Acesso em: 04 jan. 2023.
- LINS, C. J. C. **Crescimento dos centros urbanos do Nordeste do Brasil no período de 1960-70.** FUNDAJ. Editora Massangana, Recife, 1990.

MAIA, D. S. **Estrutura e dinâmica urbana da cidade média: a cidade de Campina Grande na Paraíba.** João Pessoa: UFPB/PPGG, 2007. (impresso)

SANTOS, M. **A urbanização brasileira.** 4. ed. São Paulo: Hucitec, 1993.

SPÓSITO, Maria Encarnação Beltrão. Cidade Média. In: SPÓSITO, E. S. Glossário de Geografia Humana e Econômica. São Paulo: Editora UNESP, 2017.
