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Emerging Urban Systems in the Benue Basin of Nigeria

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Abstract Urbanisation is widely recognised as one of the major trends of this century that offers great opportunities as well as significant challenges for poverty reduction in both urban and rural areas. In much of sub-Saharan Africa, the development of small and medium-sized towns remains largely linked to the nature of agricultural production systems. They nevertheless perform a number of essential functions from market nodes to providers of services, goods and non-farm employment to their inhabitants and that of the wider surrounding region. This research investigates the emerging urban system of the Benue Basin region of Nigeria. The data were collected on 80 urban functions across 140 settlements in the basin using a checklist, and analysed using principal component analysis and cluster analysis. The result of the Principal component analysis extracted 10 major functions out of the 80 variables that together explained 67.6% of the total variance. These functions are named workshop services; security and banking services; industrial services; education and commercial services; administrative functions; judiciary and retail services; health/social services; agro processing services; primary health services, and tertiary/secondary health services. The factor scores of the 10 major functions were examined to showcase the performances of each of the 140 settlements in terms of the functions they perform. On the basis of identified major urban functions, the cluster analysis grouped the 140 settlements in a five-order hierarchical structure. Gboko town emerged as the dominant settlement in the system with the highest number of urban functions, and is regarded as the 1st order settlement in the hierarchy. The study recommends provision of basic infrastructure in the emerging urban settlements of the Benue basin particularly settlements in the 3rd, 4th and 5th order in the hierarchy to reposition them for rapid socio-econmic growth of the region.

Keywords: *urban system, settlement hierarchy, benue basin, Nigeria*

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1. Introduction

From the dawn of the 20th century, the global society has being experiencing an unprecedented urbanisation trend. This is characterised by not only high population agglomerations and rapid physical expansion of cities but also high rate of transformation of small and medium-sized settlements to new urban systems. Small size urban settlements as the name implies are generally small in size ranging from few hundred people to several thousand with the presence of urban functions particularly in developing countries. These settlements perform a wide range of intermediate functions in the national and global systems of cities. They are lumps and centres in a complex network of production-distribution supply chain of agricultural and manufactured goods, connecting different spatial levels of human settlement at local, regional and national system of cities [1]. They form a vital link in maintaining an efficient network in the system of settlements in a given region and subsequently globally. If small and medium sized towns in any regions are to grow and develop sustainably, greater attention must be paid to investigating, measuring and understanding their structures and key drivers that underpin their development in each region.

This makes researches on functions and operations of systems of small towns very important, as they can provide useful insight into the types of urban development policies, planning actions, infrastructure, investment and resources needed to support their management and development. By studying systems of cities in different geographic regions, much can be learned about them and

in addition ways to improve their management and development can be identified. When these cities fail to perform essential functions to support the efficiency of regional or national supply chains, the effect is expressed in loss of economic opportunities, social disadvantage and poverty especially in rural regions thereby becoming an obstacle to development in the form of distortion and disparities in the regional economic development and poverty. This research is set out to investigate and provide an understanding of the spate of urbanisation and the emerging urban systems in the Benue Basin region of Nigeria.

The history of urbanisation in Nigeria vary greatly between regions, while pre-industrial urban development occurred in much of the Northern and South western regions, the Benue Basin lying in the North Central region of Nigeria suffered massive population depletion during the transatlantic slave trade raids of the 18th century. According to Mabogunje [2], only small village settlements organised along family lines according to agnatic kinship existed. The emergence of larger settlements of urban size in the region according to Okafor & Onokerhoraye [3] can be traced to the penetration of European traders in Africa in about the 19th century. The search for raw materials for their home industries in the wake of the industrial revolution in Europe, and new markets for the mass produced goods necessitated the establishment of distribution and raw material collection depots along the river banks of navigable rivers in the Benue basin region. Thus, European trading depots emerged in the Benue basin at Lokoja, Makurdi, Abinsi, Katsina Ala, Ibi and Jimeta along the Benue River and its major tributary river Katsina Ala. These depots eventually became the points of population agglomeration and the locales of the first towns within the region. Furthermore, colonial settlement development both along the banks of the Benue and Katsina Ala Rivers and the hinterlands of the Benue Basin was later enhanced by the development of colonial infrastructure (such as railways and roads) and the system of colonial administration introduced by the British colonialists. The British colonial administration with its system of indirect rule encouraged the growth of towns around houses of established traditional rulers such that by 1932, several large settlements flourished within the region [4].

In post-colonial Nigeria, political and socio-economic development in the country has led to the emergence and growth of several towns including those within the Benue Basin. These include employment opportunities, availability of amenities, such as health, education, electricity, telecommunications, as well as the creation of states and local government areas among others triggered unprecedented rural-urban migration. However, no research has investigates nor provides an understanding of the spate of urbanisation and the emerging urban systems particularly in the Benue Basin of Nigeria; a vacuum that this paper has addressed.

2. Literature Review

The setting of urban settlements in a region, their spacing and differences in sizes, correlate with their urban functions thereby presenting some regularity [5,6,7,8,9]. The fact that urban settlements are located in space and are linked together through various forms of spatial organisation is what gives rise to the concept of urban systems. According to Faisal [10], the concept of urban system represents the frame within which all urban settlements are organised and interact with each other regardless of their sizes and functions. Each urban settlement in the network plays an important role and contributes to the overall functioning of the urban system. If there is any dislocation in one, the whole system feels the effect. What goes on in one settlement often has repercussions on others in the system [11,12]. Pacione [13] observed that urban settlements are linked together in such a way that any change in the population, economic vitality or employment of one affects the others. Thus the interdependence of urban settlements is a key element in the economic, social and political organisation and development of regions [14]. For any region to experience rapid socio-economic development, it should be planned in line with the structure of its urban system.

According to Friedmann and Wulff [15], an urban settlement is not an island since its definition include it surrounding region. They do not exist in isolation, but are linked with their surrounding areas and larger set of other urban places. This interconnected set of urban settlements in a region forms an urban system. The size or functions of such settlements determines their location within the hierarchy of settlements in the system [5,9]. Knox and Marston [14] opined that every urban settlement is part of one of the interlocking urban system that link regional, national and global-scale human geographies in a complex web of interdependence. According to Fellmann, Getis, Getis and Malinowski [16], the most effective way to recognise how urban system is organised is to consider the urban hierarchy –a ranking of urban settlements based on sets of known criteria such as population size, economic activities or volume of traffic flow. Bryan [17] pointed out that inter-urban flows in an urban system are hierarchically ordered between lower levels and higher levels with higher order places influencing the development of subordinates through the control of political and economic resources. In literature, urban systems are seen as key elements which promote spatially even economic growth and development. This is so because globally, urban settlements are recognised as the driving force for economic development. A well articulated spatially connected system of urban settlements is essential for poverty reduction and provisions of basic infrastructures that enhance all facets of development.

The concept of urban system has evolved over time into a much more comprehensive framework for examining urban settlements in their varied natural and international settings [18]. The works of Christaller [8] and Losch [19] on what has become known as “central place theory” has contributed to the prominence of the concept. Subsequent scholars particularly Golant and Bourne [20], Berry [21], Berry and Horton [12], Berry [22], Davis and Gyuse [23], Abiodum [24], Bourne & Simmons [25], Bourne, Sinclair Dziewonski [26], Olayiwole and Aguda [27], Ortserga [28], Dam and Gyuse [5] and Dam [9] have not only enhanced and refined the notion of system of central places but also contributed to the development of new

concepts such as “dynamic central place theory” in which White [29,30] argued empirically that individual settlements that make up the central places may grow or decline as a result of prevailing forces at each moment.

Beginning with Christaller’s central place theory [8], there has been a continuing emphasis by scholars on the benefits that result from a well articulated network of urban settlements with services and goods for their hinterlands. This perspective according to Bryan [17], has continued to influence the planning of national and or regional development, resulting in intensive studies on various aspects of urban systems particularly in the developed countries such as changes in central places around Calglary [23], the spatial structure of metropolitan areas in Canada [31], the Irish urban system and its dynamics [32], the socio-spatial structure of Austrialia’s metropolitan regions [33]. Globally, settlements within urban system have been subjected to unprecendented forces of change emanating from both national and international sources. These forces according to Bourne [18] include shifts in national economy, international trade patterns, changes in social character and demographic structure of countries, increased migration flows, ethno-cultural diversity and shifts in government policies, programmes and practices. These has made regional studies of urban system very imperative necesitating the need to study the emerging urban system of the Benue basin of Nigeria,

3. Study Area and Methods

This study covers the entire River Benue Basin, which is a vast geographic region covering significant parts of the Central and North Eastern states of Nigeria. The geographical extent of the area spans from latitudes 6° 13´ to 17° 11´N and longitudes 12° 07´ to 16° 27´ E. Figure 1 shows the location of the Benue Basin. It covers parts of 7 adjoining states; however, five states were investigated and these are Kogi, Benue, Nasarawa, Taraba and Adamawa States. The basin spreads across towns like Lokoja, Makurdi, Lafia, Katsina-Ala, Wukari, Jalingo, Numan to Yola. It is drained by the Benue River and its tributaries (Figure 1). Until the middle of the last century the Benue Basin had few settlements that could be considered urban in any sense.

Today there are several rapidly expanding cities, such as Yola-Jimeta, Numan, Jalingo, Gboko, Makurdi, Lafia, and Lokoja, apart from other smaller towns. This research is necessitated by the fact that a significant proportion of the food needs of Nigeria, Africa’s most populous nation, originates within the Benue Basin region. Consequently, the research explores the impacts that rapid urbanisation has had on the structure of urban system in the region.

In order to identify and categories the emerging urban settlements in the Benue Basin, only settlements that are at the verge of becoming urban or have become urban on the basis of available urban functions and services they have acquired were sampled for study. A total of 140 settlements of such were considered in this study and presented in Table 1. The five state capital cities namely Yola, Jalingo, Makurdi, Lafia and Lokoja that have already derived their status of urbanity by both legislation based on the administrative functions and by functional dominance are excluded in the study because they belong to a class of their own.Our concern is on the emerging settlements that have grown over the years in the five states of the Benue basin as a result of increase in population and presence of urban functions hitherto unseen in them.

It must however be noted again that our study is confined within the hydrological basin of River Benue. This means all settlements whose surrounding rivers and streams do not flow to river Benue are excluded from the study. For example in Benue state, though settlements such as Oturkpo, Ugbokolo, Vandeikya, Korinya and Ihugh, *inter- allia* are some of the emerging urban centres, they are nonetheless exempted from the study because their surrounding rivers and streams all drain to other river basins. For instance while rivers around Oturkpo and Ugbokolo flow to Anambra River basin, the rivers around Vandeikya, Korinya and Ihugh drain to the Cross River basin, and for this hydrological reason such settlements were not included in the study.

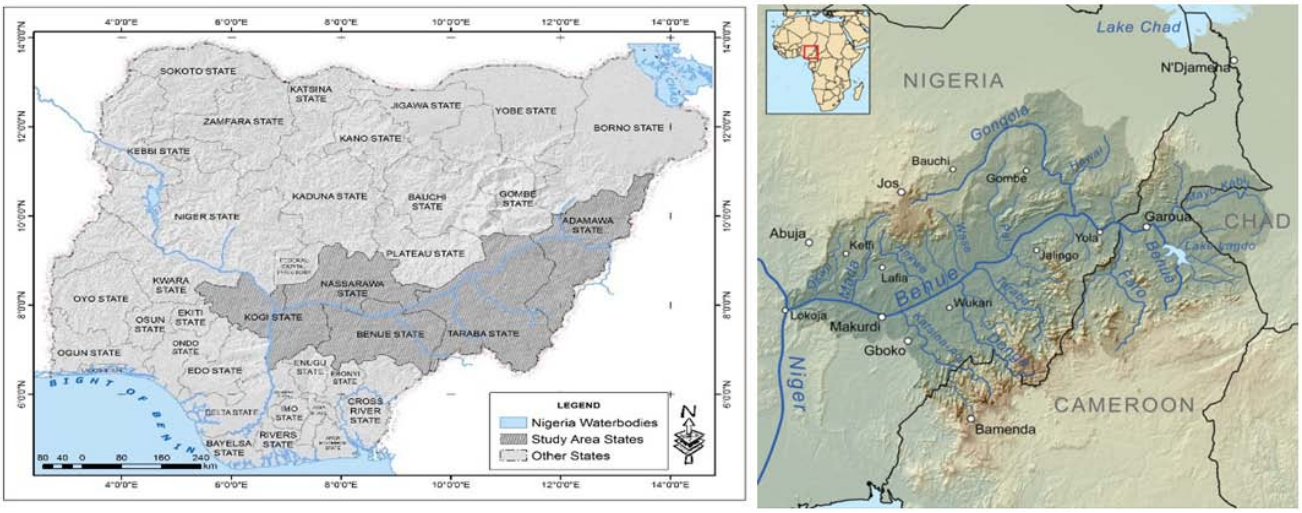

Figure 1. The Five States Within the Basin and the Drainage (Source: URIN, Project, 2017)

Table 1. List of Selected Settlements across the Five States of the Benue Basin

S/N	Settlements	S/N	Settlements	S/N	Settlements	S/N	Settlements	S/N	Settlements
1	Keana	29	Fadamaauna -	57	Mayo Ndaga	85	Ibi	113	Dumne
2	Kadar	30	Ashige	58	Ayangba	86	Sarkin Kudu	114	Jada
3	Awe	31	Gidanmakwuya	59	Lau	87	Danupal	115	Obagaji
4	Tunga	32	Adogi	60	Abbare	88	Donga	116	Ogbokpo
5	Tsohon Geri	33	BakinRijiya	61	Kunini	89	Mararaba Shim	117	Lessel
6	Azara	34	Akurba	62	KarimLamido	90	Chanchanji	118	Ushongo Town
7	Obi	35	Oguma	63	MutumDaya	91	Amadu	119	Buruku Town
8	Gwadanye	36	Sheria	64	Jen	92	Dinya	120	Tyowanye
9	Amawa	37	Abejukolo	65	Bali	93	Ngurore	121	Gbajimba
10	Tudun Ada	38	Ogodu	66	GarbaChede	94	Jambutu	122	Abinsi
11	AngwanTashi	39	Ibado	67	Maihula	95	Lamurde	123	Adikpo
12	Duduguru	40	Wukari	68	Ardo Kola	96	LafiyaLamurde	124	Jato Aka
13	Nas	41	Bantaje	69	JauroYinu	97	Guyuk	125	Gboko
14	Ara	42	GindinDorowa	70	Mayo Marenewo	98	Gerei	126	Mkar
15	Loko	43	Jibu	71	Surkani	99	Njubore	127	Akpagher
16	Udenigida	44	RafinKada	72	Iware	100	JabiLemba	128	Genyi
17	Kauna	45	Chediya	73	Ankpa	101	Shelleng	129	Ugba
18	Toto	46	Chinkai	74	Kurmi	102	Kiri	130	UgondoZua
19	GadaBuke	47	Tsokundi	75	Baissa	103	Kem	131	Anyiin
20	Umasha	48	Takum	76	Gassol	104	Ngyawana	132	Sankera
21	Doma	49	Ussa	77	SabongidaTakai	104	Ngyawana	133	ZakiBiam
22	N. Eggon	50	Rufu	78	MutumBiu	105	Tingno	134	K-Ala Town
23	Mada Station	51	FilwuNyim	79	Tella	107	Mayo Belwa	135	Tor Tonga
24	KagbuWana	52	Kpambo	80	Dan Anacha	108	Densa	136	Wannune
25	Agyaragu	53	Gembu	81	AnguwaSayawa	109	Numan	137	Obarike Ito
26	Asaikyo	54	Mbamga	82	Gashaka	110	Dong	138	Naka
27	Ugah	55	Mai Samari	83	Serti	111	Borrong	139	Aliade Town
28	SabonGida	56	Nguroji	84	Yorro	112	Song	140	Taraku

Source: Authors fieldwork, 2017

Table 2. 80 Selected Central Place Functions used for the study

X	Variables	X	Variables
1	Federal Government Agency Office	41	Local Vigilante Groups
2	State Government Agency Office	42	High Courts
3	Local Government Secretariat	43	Customary Courts of Appeal
4	Local Government Development Area Office	44	Magistrate Courts
5	Local Government Revenue/Tax Office	45	Customary/Sharia Courts
6	Universities	46	Area Courts
7	Colleges of Education	47	Wholesale Warehouses
8	Polytechnics	48	Supermarkets
9	Schools of Nursing	49	Retail Shops
10	School of Health/Lab Technology	50	Daily Markets
11	Secondary Schools	51	Periodic Markets
12	Primary/Islamic Schools	52	Building Material Shops
13	Nursery Schools	53	Bookshops
14	Teaching Hospitals	54	Public Cemetery
15	Federal Medical Centres	55	Public Latrines/Toilets
16	General Hospitals	56	Public Squares/Town Halls
17	Private Hospitals	57	Public Parks/Gardens
18	Comprehensive Health Centres	58	Fire Services
19	Primary Health Clinics	59	Cinema Halls
20	Maternity/Nursing Homes	60	Viewing Centres
21	Pharmacy Shops	61	General Motor Parks/Garages
22	Patent Medicine Stores	62	Hair Dressing/Beauty Shops
23	Mortuaries	63	Barber Shops
24	Commercial Banks	64	Car Wash
25	Mortgage Banks	65	Filling Stations
26	Micro Finance Banks	66	Tailoring Shops
27	Cooperative Societies	67	Carpentry Workshops
28	Local Contribution and Thrift Societies	68	Motor Mechanic Workshops
29	Hotels	69	Electrical/Electronic Workshops
30	Public/Private Guest Houses	70	Laundary/Dry Cleaning Services
31	Major Restaurants	71	Bakeries
32	Local Restaurants	72	Block Making Industries
33	Beer Parlours/Parks	73	Table Water Factories
34	Local Drinking Joints	74	Garri Processing Factories
35	Army Barracks	75	Rice Milling Industries
36	Police Stations	76	Timber Shades
37	Immigration Office	77	Telecom Network Providers
38	Custom Office	78	Radio Stations
39	Road Safety Office	79	Newspaper Stands
40	Civil Defense Corps Office	80	Cyber Café Shops

Source: Authors fieldwork, 2017.

To interrogate the emerging urban systems in the Benue Basin, an inventory of urban functions and services available in each of 140 selected settlements in the region was carried out by field enumerators using a checklist consisting of 80 selected central place functions and services that are characteristics of urban centres. Table 2 contain the 80 selected central place functions.

The variables studied were measured in terms of availability and magnitude (quantity) of the urban functions/services in each of the settlements. The collected data was eventually coded in excel format and subjected first to factor analysis for the purpose of summarising it into fewer major factors that could define the emerging central places in the basin. This was after the factorability of the collected data was ascertained using KMO and Barlette's Test as shown in Table 3.

Table 3. KMO and Bartlett's Test (of factorability of data)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.774
Bartlett's Test of Sphericity	Approx. Chi-Square	13886.313
	Df	3160
	Sig.	.000

Authors Analysis, 2017.

Finally, hierarchical cluster analysis was then applied to categorise the settlements in a hierarchical order using the factor scores while the aggregates factor scores generated specified limits of cluster members.

4. Results and Discussions

The result of principal component analysis extracted 10 major factors out of the 80 variables that together explained 67.6 percent of the central place functions/services that are used for defining an urban area in the study area. Table 4 presented in the appendix 1 shows the variables loaded on each of the 10 major factors that warranted their naming as follows: factor 1= workshop services; factor 2= security and banking services; factor 3= industrial services; factor 4= education and commercial services; factor 5= administrative functions; factor 6= judiciary and retail services; factor 7= health/social services; factor 8= agro processing functions; factor 9= primary health services; factor 10= tertiary and secondary health services.

Based on the information in Table 4, factor 1 (workshop services) accounts for a total eigen value of 25.311 explaining 31.638% of the total variance and loaded by positively by 23 variables. This factor is most important in defining the emerging urban system of the Benue basin. Factor 2 (security and banking services) accounts for a total eigen value of 6.08 explaining 7.6% of the total variance and loaded significantly by 16 variables in the dataset. This factor is regarded as the second most important in the study area. Factor 3 (industrial services) accounts for a total eigen value of 4.829 explaining 6.036% of the total variance and loaded positively by 11 variables in the data set. Factor 4 (education and commercial services) explains 4.873% of the total variance and accounted for a total eigen value of 3.899. it is loaded significantly by 8 variables in the data set. The information in Table 4 also shows that administrative functions (factor 5) accounts for a total eigen value of 3.814 explaining 4.272% of the total variance and loaded positively by 6 variables in the data set. Factor 6 (judiciary and retail services) and factor 7 (health/social services) loaded significantly by 6 variables each in the data sets but accounts differently for total eigen values. Agro processing services (factor 8) accounts for a total eigen value of 2.222 explaining 2.778% of the total variance and loaded positively by 5 variables in the dataset whereas, factor 9 (primary health services) and 10 (ertiary and secondary health services) accounts for a total eigenvalue of 1.885 and 1.803 respectively. They are loaded by the least number of variables in the emerging urban system of the study area. Furthermore, scores of the 10 major factors were then generated to showcase the performances of each of the 140 settlements in terms of the functions they perform and there standing on each function in the study area.

Finally, the 140 settlements were subjected to a hierarchical cluster analysis test for the purpose of classification. The result of the analysis shows a grouping of the settlements into a 5-order hierarchy, arranged in a descending order of importance ranging from first-order referring to settlements with the highest concentration of urban functions and services to fifth-order referring to group of settlements with the least concentration of urban functions in the Benue basin. The categorisation is based on their aggregate factor score coefficients and is presented in Table 5 while the dendogram of the 5-order settlement hierarchy has been presented in appendix 2..

Table 5. Categorization of Settlements in the Benue Basin into a 5-order Hierarchy

Category	1st order	2nd order	3rd order	4th order	5th order
Membership	Gboko town	Wukari, Ayangba, Ankpa, Katsina-Ala	Lau, Mayo Belwa, Jada, Zaki Biam, Adikpo	Keana, kadarko, Awe, Obi, Nasarawa, Doma, Nasarawa Eggon, Mada station, Ashige, Akurba, Oguma, Abejukolo, Takum, Gembu, Jalingo1, Abbare, Jen, Bali, Ardo kola, Kumi, Baissa, Serti, Mararaba shim, Gerei, Densa, Numan, Ogbokpo, Ushongo town, Buruku town, Gbajimba, Ugba, Sankera, Tor Tonga, Wannune, Obarike Ito, Naka, Aliade town	All other 92 settlements not listed in the other clusters
Range	13.001 +	10.001 to 12.999	5.001 to 9.999	0.001 to 4.999	-9.999 to – 0.001
Total	1	4	5	38	92
States status	BN(1)	KG (2), BN(1), TR(1)	BN(2), TR(1), AD(2)	BN(12), TR(14), NA(10), KG(2)	BN (10), NA (24), KG (3), TR (35), AD (20)

Key : BN=Benue; NA=Narasawa; TR=Taraba; KG=Kogi; AD=Adamawa
Source: Authors Analysis, 2017.

According to the findings, there are 5 categories of emerging urban settlements across the five states of the Benue basin region. In the hierarchical arrangement of the emerging urban centres, the settlements with the highest concentration of urban functions belong to category one or 1st order class while settlements with the lowest number of urban functions and services have been classified as category five or 5th order. Membership of any settlement order or category has been defined by the aggregate factor score coefficients (reflecting the quantum of services/ functions they offer) as follows:

1st order = 13.00+
2nd order =10.00 -12.99
3rd order = 5.00 – 9.99
4th order = 0.001- 4.99
5th order = -9.999 – 0.001

Settlements that fall in these respective clusters or categories as summarised in Table 5 are spatially presented in Figure 2 whereas further discussion of the emerging urban system of the study area is done thereafter.

4.1. First Order Settlement

The first order category of settlements has only one settlement and that is Gboko in Benue state. The result shows that Gboko town has the aggregate factor score coefficients of 13.00+ (highest in the system) which implies that it has the greatest number of higher order and lower order urban functions and services.The emergence of Gboko as the first order urban centre could be interpreted from the fact that it enjoyed infrastructural development since the colonial era when it was the administrative headquarters of Tiv Native Authority. Later after independence during the creation of states and local government it was again the administrative centre of Gboko local government area. In all these capacities, urban infrastructure development was intensified over the years by the succeeding administrations such that it became economically vibrant and quite attractive as an investment destination point. Consequently, the Benue Cement Company and other smaller commercial companies and corporate institutions such as commercial banks and micro-finance institutions have established their branch offices in Gboko apart from having state and federal government ministries and agencies. Besides, several institutions of higher learning have been established at Gboko including University of Mkar, two colleges of education, and three polytechnics and college of Agriculture. It also has dozens of public and private secondary schools and primary schools. Again there are several wholesale and retail business outfits in Gboko, along with health institutions including a government general hospital and more than thirty private hospitals and clinics. Therefore, in terms of urban functions, the first order settlement as exemplified by Gboko can compare favorably with some of the cosmopolitan state capital cities in the Benue basin. This therefore means that apart from the 5 major capital cities, Gboko town invariably is the next most important upcoming town in the region.

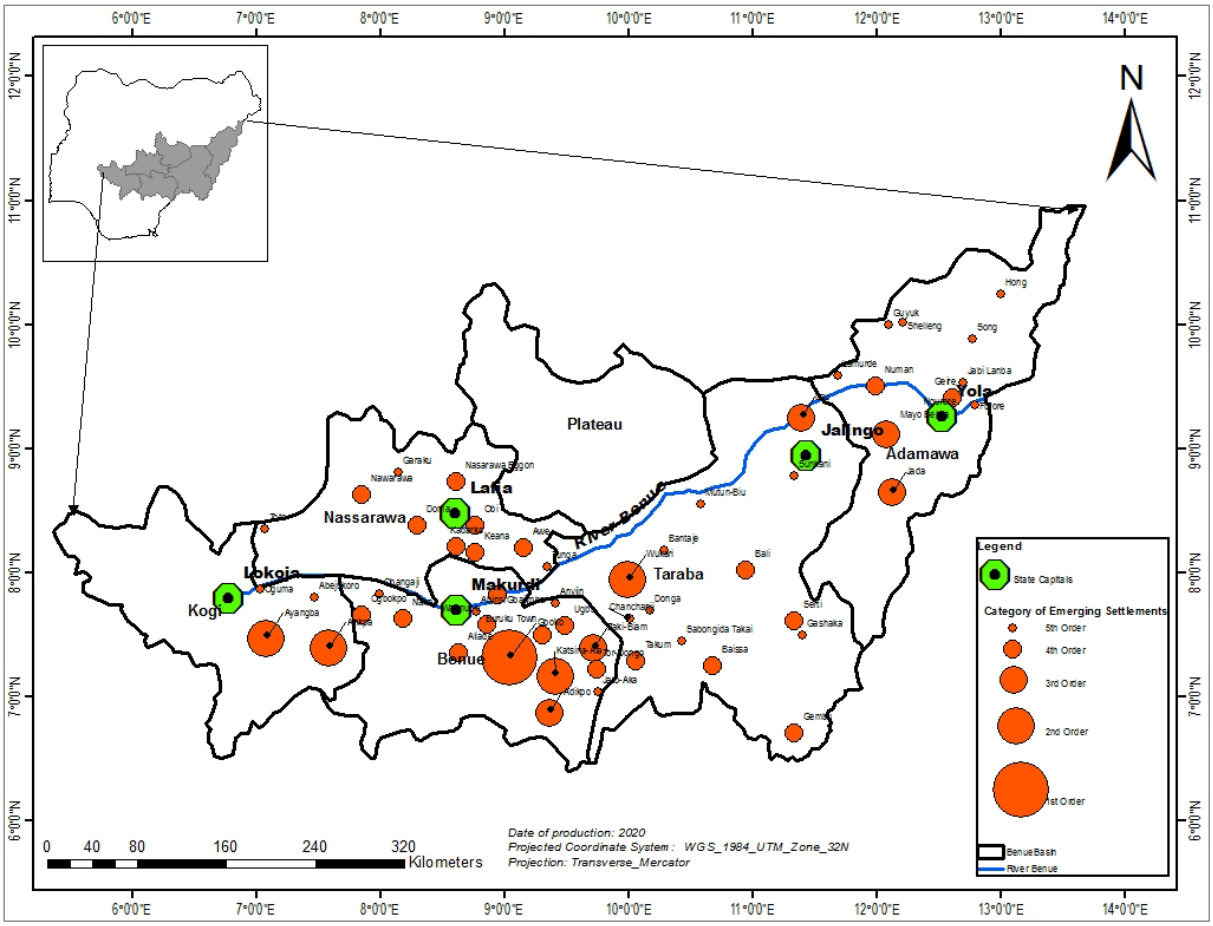

Figure 2. Map of the Benue Basin showing the Spatial Location of the Emerging Urban System (Source: Authors' Analysis, 2017)

4.2. Second Order Settlements

This category consists of four towns. Two of these towns are located in Kogi state, one in Taraba state and another one in Benue state. These towns are Ankpa and Ayangba (Kogi), Wukari (Taraba), and Katsina-Ala (Benue). Apart from Ayangba in Kogi state the other three towns are administrative headquarters of local council authorities created in the middle of the 1970s. These settlements have an aggregate factor score coefficients range of between 10.00 -12.99 which implies that their level of socio-economic development in the settlement system of Benue basin is relatively high, placing them in the second-order category. The settlements under this category have less concentration of urban functions than the first order category. They have limited number of schools, banks, and hospitals. Another unique feature of these settlements is the fact that they have the presence of tertiary institutions. For instance, there is college of eduction in Ankpa and Katsina-Ala while Ayangba has a state university, Wukari has a federal university and one other private university. These institutions have further attracted more development in the settlements.

4.3. Third Order Settlements

This category consists of five settlements that are drawn from Taraba, Adamawa and Benue States. These towns include Lau (Taraba), Mayo- Belwa and Jada (Adamawa), Zaki Biam, and Adikpo (Benue). Apart from Zaki-Biam that is a market town, the other four of these towns are administrative headquarters of local government authorities that were created between the early and Mid 1980s. These settlements have appreciable number of urban functions with aggregate factor score coefficients range of 5.00 – 9.99.

4.4. Fourth Order Settlements

This class of settlements is defined by aggregate factor score coefficients range of 0.001- 4.99, and has 38 member settlements that cut across four states of Kogi, Nasarawa, Taraba and Benue. The highest number of settlements in this category comes from Taraba. This category of settlements have fewer urban facilities and population concentration is equally low compared to the first, second and third order settlements.

4.5. Fifth Order Settlements

This is the lowest class of settlements in the Benue basin with aggregate factor score coefficients range of between -9.999 – 0.001, and has the least number of urban functions /services in the study area. Socio-economic development in these settlements is very low and their conditions are deplorable. There are 92 settlements under this category. Taraba State with a total of 35, has the highest number of settlements under this category, and is followed by Nasrarwa State with 24 settlements. These settlements essentially are developing commodity marketing centres that are at varying stages of growth with little or no government intervention in improving their infrastructural bases. Consequently though some of them have high population agglomerations, the quantity and quality of amenities that would make them attractive for business investment and establishment of certain urban functions are quite low or non-existent. So on the whole, settlements under the fifth order constitute a group of informal settlements that are evolving at major road intersections in the hinterlands or have just been declared as the administrative headquarters of local government council authorities

It must be noted that Taraba State has the highest number of settlements with low infrastructural development as contained in the 4^{th} and 5^{th} order settlement hierarchy of the Benue basin. For a long time development has eluded what is now Taraba State since when it was part of the then Northern Region in the mid 60s, the then North Eastern State in the early 70s and Gongola State in the mid-70s and 80s. At all these times, physical development was concentrated at the centre while much of the peripheral areas such as the settlements in Taraba remained neglected. Rather resources of these hinterlands were even sponged away for the development of the administrative headquarters at Kaduna, Maiduguri and eventually Yola. Again after Taraba state was created in the 1990s, series of social strife in the form of inter – ethnic skirmishes between the major ethnic groups, herdsmen and farmers conflicts/crises and insurgence activities has ravaged the beleaguered state for a long time. All attentions of the state government was directed towards quelling these crises and rehabilitating the victims so much so that little attention was given to infrastructural development in the state. Beside this, political crises of who succeeds the state's incumbent governor after his accident and prolonged absence for over a year around 2012 brought backwardness to socio-economic development of the state as a result of impunity and corrupt activities of government officials during the period of the imbroglio.

On the whole therefore, it can be concluded that apart from a few exceptional cases, growth and development of towns within the Benue basin has been strongly influenced by political restructuring that gave rise to establishment of new administrative headquarters. Such administrative status of the settlements' drew governments' attention towards speedy development of their infrastructural amenities that in turn became the attracting point for population agglomeration and the rational locale for higher order urban functions. Thus the order in the hierarchy by any settlement seems to be a reflection of how early it became an administrative centre of a local council within its domain to have attracted more infrastructure and socio-economic development. The earlier a settlement becomes administrative centre of a local council, all things being equal, the more urban infrastructure it accumulates over the years, the more its population and urban functions / services it offers and the more it becomes urbanized. In this way the emergence of Gboko for instance, as the first order urban centre could be interpreted from the fact that it had accumulated urban infrastructure for socio-economic growth as from the colonial era when it was the administrative headquarters of Tiv Native Authority up to this time that it is the capital of Gboko local government area council. With high amount of urban infrastructure, it became socio-economically

viable and attractive for more businesses and many public and private institutions that render various urban services to the public. It has several commercial banks' offices, many institutions of higher learning, federal and state government offices as well as public and private hospitals among others. The presence of various urban functions and services provided has improved its socio-economic development and coupled with its high population, Gboko town can compare favorably with the major capital cities in the region. In this way the settlements in the other categories in hierarchy that became centres of local administration at later dates after Gboko, have accumulated fewer urban infrastructure and amenities and therefore they offer fewer urban functions and services to attract more businesses and population agglomeration for socio-economic development.

5. Conclusion

This study has discovered 5 categories of urban centres in the system of urban centres in the Benue basin apart from the major state capital cities. The first and second order settlements have already attained the status of fully developed urban centres while the third and fourth are still at various stages of transformation from big rural settlements to medium-sized urban centres. On the other hand, the fifth order settlements in the hierarchy are still predominantly rural in nature given the fact that they are lacking in many central place functions/services. Nevertheless, they are places of relatively high population agglomerations either as newly created centres of local government administrations or they are strategically located commodity markets centres within their respective states connecting rural producers to markets and offering other non-primary functions within relatively easy reach of rural communities in the Benue Basin. Based on the findings, the study recommends provision of basic infrastructure in the emerging urban settlements of the Benue basin particularly settlements in the 3rd, 4th and 5th order in the hierarchy to reposition them for rapid socio-economic growth of the region.

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Disclosure Statement

No conflict of interest was reported by the authors of the study.

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Appendix 1

Rotated Component Matrix

Table 4. Rotated Component Matrix[a] of Principal Component Analysis

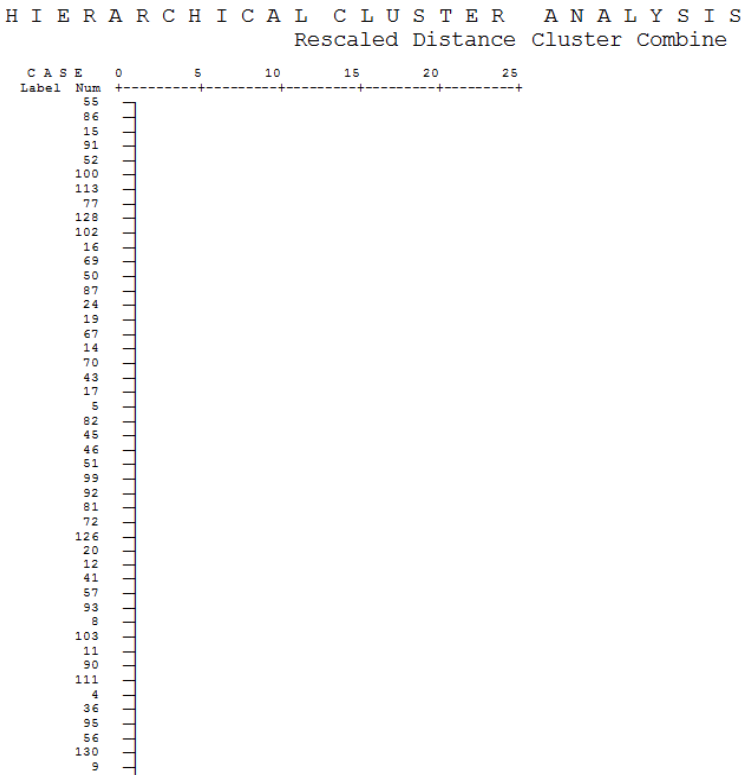
		Component										
		1	2	3	4	5	6	7	8	9	10	**Communalities**
X1	Federal Govt Agency Office					.734						**.626**
X2	State Govt Agency Office					.748						**.769**
X3	Local Govt Secretariat					.824						**.729**
X4	Local Gov Development Area Office								.507			**.590**
X5	Local Govt Revenue/Tax Office					.628						**.674**
X6	Universities				.639							**.689**
X7	Colleges Of Education	.516										**.652**
X8	Polytechnics	.548										**.609**
X9	Schools Of Nursing		.471							-.453		**.731**
X10	School Of Health/Lab Technology											**.061**
X11	Secondary Schools				.536							**.655**
X12	Primary/Islamic Schools											**.227**
X13	Nursery Schools	.771										**.805**
X14	Teaching Hospitals										.808	**.771**
X15	Federal Medical Centres		.586								.675	**.928**
X16	General Hospitals					.634						**.558**
X17	Private Hospitals											**.747**
X18	Comprehensive Health Centres									.528		**.537**
X19	Primary Health Clinics	.539										**.656**
X20	Maternity/Nursing Homes							.497			.516	**.694**
X21	Pharmacy Shops	.865										**.872**
X22	Patent Medicine Stores			.475								**.694**
X23	Mortuaries							.535				**.713**
X24	Commercial Banks		.659									**.882**
X25	Mortgage Banks		.622									**.783**
X26	Micro Finance Banks											**.478**
X27	Cooperative Societies				.641							**.704**
X28	Local Contribution And Thrift Societies								.451			**.576**
X29	Hotels	.457	.717									**.897**
X30	Public/Private Guest Houses		.678					.488				**.864**
X31	Major Restaurants	.499	.736									**.876**
X32	Local Restaurants	.733										**.823**
X33	Beer Parlours/Parks	.754	.513									**.900**
X34	Local Drinking Joints	.929										**.898**
X35	Army Barracks											**.032**
X36	Police Stations		.830									**.833**
X37	Immigration Office											**.413**
X38	Custom Office		.679									**.683**
X39	Road Safety Office		.865									**.830**
X40	Civil Defense Corps Office			.471								**.265**
X41	Local Vigilante Groups		.580									**.765**
X42	High Courts		.507			.481						**.675**
X43	Customary Courts Of Appeal		.535									**.588**
X44	Magistrate Courts											**.592**
X45	Customary/Sharia Courts											**.155**
X46	Area Courts						.537					**.561**
X47	Wholesale Warehouses				.640							**.784**
X48	Supermarkets	.639			.480							**.849**
X49	Retail Shops				.703							**.822**

		Component										
		1	2	3	4	5	6	7	8	9	10	**Communalities**
X50	Daily Markets											**.178**
X51	Periodic Markets						.532					**.303**
X52	Building Material Shops	.528					.550					**.902**
X53	Bookshops			.519								**.858**
X54	Public Cemetery											**.304**
X55	Public Latrines/Toilets			.536								**.619**
X56	Public Squares/Town Halls						.655					**.669**
X57	Public Parks/Gardens							.658				**.587**
X58	Fire Services		.474									**.509**
X59	Cinema Halls							.550				**.513**
X60	Viewing Centres				.518				.510			**.759**
X61	General Motor Parks/Garages			.625								**.503**
X62	Hair Dressing/Beauty Shops	.803										**.921**
X63	Barber Shops	.566					.526					**.909**
X64	Car Wash	.630		.522								**.870**
X65	Filling Stations			.481	.660							**.785**
X66	Tailoring Shops	.888										**.904**
X67	Carpentry Workshops	.698					.451					**.834**
X68	Motor Mechanic Workshops	.964										**.961**
X69	Electrical/Electronic Workshops	.922										**.930**
X70	Laundary/Dry Cleaning Services			.488								**.661**
X71	Bakeries			.825								**.857**
X72	Block Making Industries			.797								**.841**
X73	Table Water Factories			.634								**.756**
X74	Garri Processing Factories								.790			**.673**
X75	Rice Milling Industries	.526							.470			**.732**
X76	Timber Shades	.895										**.860**
X77	Telecom Network Providers	.668										**.579**
X78	Radio Stations											**.428**
X79	Newspaper Stands							.830				**.793**
X80	Cyber Café Shops	.573	.633									**.877**
Eigenvalues		**25.311**	**6.08**	**4.829**	**3.899**	**3.418**	**2.552**	**2.389**	**2.222**	**1.885**	**1.803**	
%		**31.638**	**7.6**	**6.036**	**4.873**	**4.272**	**3.19**	**2.986**	**2.778**	**2.356**	**2.253**	
Cum.%		**31.638**	**39.238**	**45.275**	**50.148**	**54.42**	**57.61**	**60.597**	**63.374**	**65.731**	**67.984**	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 15 iterations.

Appendix 2

Cluster Analysis Dendogram



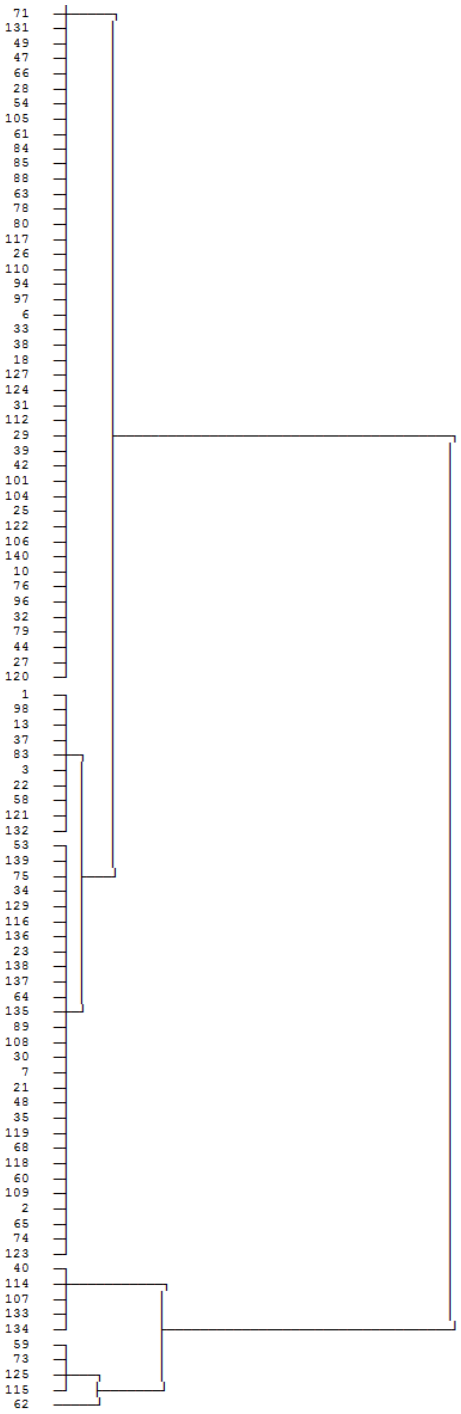


Figure A1. Dendrogram using Average Linkage (Between Groups)