VARIATION IN REGIONAL DEVELOPMENT POTENTIALS OF TOWNS ALONG MAJOR INLAND WATER WAYS OF NIGERIA

[1]Ugwuoke Hillary Ugochukwu, MSc.URP

[2]Prof. Emenike, Augusta Ifeoma, Ph.D
[3]Eke Hyginus Uchechukwu, MSc.URP
[1]Department of Urban and Regional Planning, Faculty of Environmental Technology, Federal University of Technology, Owerri, Imo State, Nigeria.
[2]Department of Architecture, Faculty if Environmental Sciences, Enugu State University of Technology (ESUT), Nigeria.
[3]Department of Urban and Regional Planning, Faculty of Environmental Sciences, Enugu State University of Science and Technology (ESUT), Nigeria.

Abstract:
The extent to which diverse natural resources of any region are harnessed determines the economic development of the region. This research therefore examined the variation in regional development potentials of towns along major inland water ways of Nigeria with a view to harnessing them. The objectives of the study were to: (i) identify the regional development potentials of towns along major inland water ways of Nigeria, (ii) determine the variations in regional development potentials of towns along major inland water ways of Nigeria. The research hypothesis include: there is no significant variation in the regional development potentials of towns along major inland water ways of Nigeria Survey research design method was employed in this study. Data used in this study were collected from both secondary and primary sources. The research-developed questionnaire was validated by a statistician and three lecturers who were all experts in the field. The questions were structured using 5-point likert scale. Reliability of the test instrument was determined using Cranach Alpha which yielded a correlation co-efficient of 0.95. A pilot survey was carried out to test the clarity of the questions on the questionnaire. Principle component analysis (PCA) was used to significantly identify and classify the regional development potentials of towns along major inland water ways of Nigeria. PCA was used to transform the original variables on the regional development potentials of towns along major inland water ways of Nigeria into a more manageable number prior to using Analysis of variance (ANOVA). Analysis of variance (ANOVA) was used to test the hypotheses at 0.05 significant level. The regional development potentials of Akassa (Brass town) in Bayelsa state are usefulness of river water, economic prospect of river water, natural deposits and tourism and recreation. The regional development potentials of Warri in Delta state are usefulness of river water, economic prospect of river water, natural deposits, aquaculture and tourism and recreation. The regional development potentials of Onitsha in Anambra state are usefulness of river water, economic prospect of river water, natural deposits, tourism and recreation and aquaculture. The regional development potentials of Lokoja in Kogi state are usefulness of river water, economic prospect of river water, natural deposits and aquaculture. The regional development potentials of Makurdi in Benue State are usefulness of river water, economic prospect of river water, natural deposits, tourism and recreation and aquaculture. The regional development potentials of Baro (Agaie town) are usefulness of river water, economic prospect of river water, natural deposits, tourism and recreation and aquaculture. There was no significant variation (p>0.05) in regional development potentials of towns along major inland water ways of Nigeria at 0.05 significant level. The general implication of this outcome could be explained that towns along major inland water ways of Nigeria have huge potentials for regional development that is homogeneous in nature. Based on the research findings, the study recommended that regional planning should enjoy the same recognition and impetus as economic development planning in Nigeria.
Keywords: Regional Development; Regional Development Potentials; Variation in Regional Development Potentials; Towns along Major Inland Water Ways of Nigeria.

I. INTRODUCTION

All features forming the competitive advantages in economic geography of territories can be classified into: 'advantages of the 1st nature' comprise of factors that are independent of human activity (natural advantages), such as the natural endowment of the territory, fertility of geographical position and the position of the boundary on the global market and advantages of the 2nd nature comprising manmade activities and society, including the concentration of population and production, the agglomeration effect, human capital, institutes of development and the infrastructure of the territory. This also implies that the favourable location of towns in a region is not wholly determined by the underlying natural geography (advantages of the 1st nature), but can also be influenced by history, self—fulfilling expectations and development institutions [3]Contribution of diverse natural resources to economic development of any region is predicated on the extent to which they have been harnessed for the development of the economy. Majority of the available natural resources in many regions in Nigeria are unexploited hence their limited contributions to the economy. This scenario is associated with the dependence on crude oil and the attendant non-diversification of the Nigerian economy. [1]Few works exists on the variation in regional development potentials of towns along inland water ways in Nigeria but vastly lacking in empirical evidence. It is against this backdrop that this research poised to examine the variation in regional development potentials of towns along major inland water ways of Nigeria.

II. RESEARCH METHODOLOGY

The study adopted the survey research design. Stratified simple random sampling technique was used to select the respondents that were sampled. Using random sampling, three towns each were selected from each of the containers without replacement to represent the six towns that formed six strata for the study using six towns; Akassa (Brass town) in Bayelsa state, Warri in Delta state, Onitsha in Anambra state, Lokoja in Kogi state, Makurdi in Benue and Baro (Agaie town) in Niger state to equally represent the Southern and Northern Nigeria Data was sourced through questionnaire. The questions were structured using 5-point Likert scale as follows: not at all = 1, low = 2, moderate = 3, high = 4 and finally to very high = 5. For the study, moderate was adopted as a mean score. Above average (moderate) is considered significant and below average (moderate) is considered as not significant. A total of 1661 copies of validated questionnaires were administered to towns in major inland water ways of Nigeria. Reliability of the test instrument was determined using Cranach Alpha which yielded a correlation co-efficient of 0.95. A pilot survey was carried out to test the clarity of the questions on the questionnaire. Data from this source was used in testing the hypotheses as well as providing secondary data on variation in regional development potentials of towns along major inland water ways of Nigeria. Direct observation was employed in this study to obtain the variation in regional development potentials of towns along major inland water ways of Nigeria.The sample frame for this study was determined by projecting the 2006 population census figure to 2020 (1,641,011 to 1,993,662) and dividing the projected population of towns in major inland water ways of Nigeria by six which is the average household size. This presented 332,277 households as the sample frame. The main reason for using 2006 population census was because it was the last population census conducted in Nigeria. The sample size for this study was determined using Williams formula [5] which Kerlinger and Lee [2] adopted from population of towns in major inland water ways of Nigeria (sample frame). This formula paved way for calculation of the sample size. This formula was also adopted in determining sample sizes in Okosun's research work [4] where 0.5% was used as the appropriate percentage of population sampled.The stratified simple random sampling technique was used to select the respondents that were sampled. Two containers that represent the Southern and Northern Nigeria were provided. Nineteen towns in major inland water ways of Nigeria were written separately in pieces of papers and were then put in the 2 containers according to their region. Using random sampling, three towns each were selected from each of the containers without replacement to represent the six towns that formed six strata for the study using six towns; Akassa (Brass town) in Bayelsa state, Warri in Delta state, Onitsha in Anambra state, Lokoja in Kogi state, Makurdi in Benue and Baro (Agaie town) in Niger state to equally represent the Southern and Northern Nigeria.Principle component analysis (PCA) was used to significantly identify and classify the regional development potentials of towns in major inland water ways of Nigeria. PCA was used to transform the original variables on the regional development potentials of towns in major inland water ways of Nigeria into a more manageable number prior to using Analysis of variance (ANOVA).With the factor loadings gotten from the PCA results, Analysis of variance (ANOVA) was used to determine the significant variations in the regional development potentials of towns in major inland water ways of Nigeria.

III. RESULTS

The PCA results of the repeated test of hypothesis for each of the six selected towns (Akassa, Warri, Onitsha, Lokoja. Makurdi and Baro) are as follows:

Akassa (Brass town) in Bayelsa State

The PCA result identified and classified regional development potentials of Akassa (Brass town) in Bayelsa state into 4 components. Component 1 was loaded significantly on 6 factors as distinct from other regional development potentials of Akassa (Brass town) in Bayelsa state. These are: hydroelectric power (0.914), irrigation farming (0.948), flood control (0.943), household water use (0.930), industrial water use (0.946) and waste water disposal (0.924) It has Eigen value of 5.675 and explained 31.526 percent of regional development potentials of Akassa (Brass town) in Bayelsa state. Component 1 is an index for measuring usefulness of river water in Akassa (Brass town), Bayelsa state. The defining variable is irrigation farming. (See table 1).

Component 2 was loaded significantly on 5 factors as distinct from other regional development potentials of Akassa (Brass town) in Bayelsa state. These are: trade points (0.703), veritable tool for expanding trade and commerce (0.966), improvement in standard of living (0.966), improved revenue and income for government(0.966) and major trans shipment station across the towns (0.966).It has Eigen value of 4.646 and explained 25.811 percent of regional development potentials of Akassa (Brass town) in Bayelsa state. Component 2 is an index for measuring economic prospect of river water in Akassa (Brass town), Bayelsa state. The defining variable is veritable tool for expanding trade and commerce. (See table 1)..Component 3 was loaded significantly on 5 factors as distinct from other regional development potentials of Akassa (Brass town) in Bayelsa state. These are: fishing (0.745), aquaculture (0.761), mineral deposits (0.911), sand deposits (0.897) and biodiversity preservation (0.872).

It has Eigen value of 4.169 and explained 23.160 percent of regional development potentials of Akassa (Brass town) in Bayelsa state. Component 3 is an index for measuring river natural deposits of Akassa (Brass town) in Bayelsa state. The defining variable is mineral deposits. (See table 1).Component 4 was loaded significantly on 2 factors as distinct from other regional development potentials of Akassa (Brass town) in Bayelsa state. These are: tourism destinations (0.982) and recreation destinations (0.981).It has Eigen value of 2.178 and explained 12.098 percent of regional development potentials of Akassa (Brass town) in Bayelsa state. Component 4 is an index for measuring tourism and recreation in Akassa (Brass town), Bayelsa state. The defining variable is tourism destinations. (See table 1).In overall, regional development potentials of Akassa (Brass town) in Bayelsa state were identified and classified as follows: usefulness of river water, economic prospect of river water, natural deposits and tourism and recreation. They accounted for 92.56 percent of regional development potentials of Akassa (Brass town) in Bayelsa state.

Table 1: Regional Development Potentials of Akassa (Brass town) in Bayelsa state.

Regional Development Potentials of Akassa (Brass town) in Bayelsa State	Component			
	1	2	3	4

Fishing			.745	
Aquaculture			.761	
Hydroelectric power	.914			
Irrigation farming	.948			
Flood control	.943			
Household water use	.930			
Industrial water use	.946			
Waste water disposal	.924			
Tourism destinations				.982
Recreation destinations				.981
Mineral deposits			.911	
Sand deposits			.897	
Biodiversity preservation			.872	
Trade points		.703		
Veritable tool for expanding trade and commerce		.966		
Improvement in standard of living		.966		
Improved revenue and income for government		.966		
Major trans shipment station across the towns		.966		
Eigen Value	5.675	4.646	4.169	2.178
% of Variance	31.526	25.811	23.160	12.098

Sources: Researchers' Field Work 2021.

Warri in Delta state

The PCA result identified and classified regional development potentials of Warri in Delta state into 5 components. Component 1 was loaded significantly on 6 factors as distinct from other regional development potentials of Warri in Delta state. These are: hydroelectric power (0.994), irrigation farming (0.994), flood control (0.988), household water use (0.992), industrial water use (0.992) and waste water disposal (0.991).It has Eigen value of 5.927 and explained 32.927 percent of regional development potentials of Warri in Delta state. Component 1 is an index for measuring usefulness of river water in Warri, Delta state. The defining variable is hydroelectric power. (See table 2).Component 2 was loaded significantly on 4 factors as distinct from other regional development potentials of Warri in Delta state. These are: veritable tool for expanding trade and commerce (0.984), improvement in standard of living (0.985), improved revenue and income for government (0.986) and major trans shipment station across the towns (0.973).It has Eigen value of 3.901 and explained 21.671 percent of regional development potentials of Warri in Delta state. Component 2 is an index for measuring economic prospect of river water in Warri, Delta state. The defining variable is improved revenue and income for government. (See table 2).Component 3 was loaded significantly on 3 factors as distinct from other regional development potentials of Warri in Delta state. These are: mineral deposits (0.992), sand deposits (0.994) and biodiversity preservation (0.993)It has Eigen value of 3.019 and explained 16.774 percent of regional development potentials of Warri in Delta state. Component 3 is an index for measuring river natural deposits of Warri in Delta state. The defining variable is sand deposits. (See table 2).Component 4 was loaded significantly on 2 factors as distinct from other regional development potentials of Warri in Delta state. These are: fishing (0.953) and aquaculture (0.953)It has Eigen value of 2.125 and explained 11.808 percent of regional development potentials of Warri in Delta state. Component 4 is an index for measuring aquaculture in Warri, Delta state. The defining variable is fishing. (See table 2).Component 5 was loaded significantly on 2 factors as distinct from other regional development potentials of Warri in Delta state. These are: tourism destinations (0.917) and recreation destinations (0.918),It has Eigen value of 1.948 and explained 10.822 percent of regional development potentials of Warri in Delta state. Component 5 is an index for measuring tourism and recreation in Warri, Delta state. The defining variable is tourism destinations. (See table 2).In overall, regional development potentials of Warri in Delta state were identified and classified as follows: usefulness of river water, economic prospect of river water, natural deposits, aquaculture and tourism and recreation. They accounted for 94.00 percent of regional development potentials of Warri in Delta state.

Table 2: Regional Development Potentials of Warri in Delta State.

Regional Development Potentials Of Warri In Delta State	Component				
	1	2	3	4	5
Fishing				.953	
Aquaculture				.953	
Hydroelectric power	.994				
Irrigation farming	.994				
Flood control	.988				
Household water use	.992				

Industrial water use	.992				
Waste water disposal	.991				
Tourism destinations					.917
Recreation destinations					.918
Mineral deposits			.992		
Sand deposits			.994		
Biodiversity preservation			.993		
Trade points					
Veritable tool for expanding trade and commerce		.984			
Improvement in standard of living		.985			
Improved revenue and income for government		.986			
Major trans shipment station across the towns		.973			
Eigen Value	5.927	3.901	3.019	2.125	1.948
% of Variance	32.927	21.671	16.774	11.808	10.822

Sources: Researchers' Field Work 2021.

Onitsha in Anambra State

The PCA result identified and classified regional development potentials of Onitsha in Anambra state into 5 components. Component 1 was loaded significantly on 6 factors as distinct from other regional development potentials of Onitsha in Anambra state. These are: hydroelectric power (0.998), irrigation farming (0.991), flood control (0.995), household water use (0.986), industrial water use (0.998) and waste water disposal (0.974).It has Eigen value of 5.890 and explained 32.724 percent of regional development potentials of Onitsha in Anambra state. Component 1 is an index for measuring usefulness of river water in Onitsha, Anambra state. The defining variable is hydroelectric power. (See table 3).Component 2 was loaded significantly on 4 factors as distinct from other regional development potentials of Onitsha in Anambra state. These are: veritable tool for expanding trade and commerce (0.969), improvement in standard of living (0.977), improved revenue and income for government (0.977) and major trans shipment station across the towns (0.977).It has Eigen value of 3.926 and explained 21.811 percent of regional development potentials of Onitsha in Anambra state. Component 2 is an index for measuring economic prospect of river water of Onitsha in Anambra state. The defining variable is improvement in standard of living. (See table 3).Component 3 was loaded significantly on 3 factors as distinct from other regional development potentials of Onitsha in Anambra state. These are: mineral deposits (0.997), sand deposits (0.998) and biodiversity preservation (0.995).It has Eigen value of 2.990 and explained 16.611 percent of regional development potentials of Onitsha in Anambra state. Component 3 is an index for measuring river natural deposits of Onitsha in Anambra state. The defining variable is sand deposits. (See table 3).Component 4 was loaded significantly on 2 factors as distinct from other regional development potentials of Onitsha in Anambra state. These are: tourism destinations (0.987) and recreation destinations (0.987).It has Eigen value of 2.128 and explained 11.822 percent of regional development potentials of Onitsha in Anambra state. Component 4 is an index for measuring tourism and recreation in Onitsha, Anambra state. The defining variable is tourism destinations. (See table 3).Component 5 was loaded significantly on 2 factors as distinct from other regional development potentials of Onitsha in Anambra state. These are: fishing (0.978) and aquaculture (0.976).It has Eigen value of 2.025 and explained 11.251 percent of regional development potentials of Onitsha in Anambra state. Component 5 is an index for measuring aquaculture in Onitsha, Anambra state. The defining variable is fishing. (See table 3).In overall, regional development potentials of Onitsha in Anambra state were identified and classified as follows: usefulness of river water, economic prospect of river water, natural deposits, tourism and recreation and aquaculture. They accounted for 94.23 percent of regional development potentials of Onitsha in Anambra state.

Table 3: Regional Development Potentials of Onitsha in Anambra State.

Regional Development Potentials of Towns along Major Inland Water Ways of Nigeria	Component				
	1	2	3	4	5
Fishing					.978
Aquaculture					.976
Hydroelectric power	.998				
Irrigation farming	.991				
Flood control	.995				
Household water use	.986				
Industrial water use	.998				
Waste water disposal	.974				
Tourism destinations				.987	
Recreation destinations				.987	
Mineral deposits			.997		

Sand deposits			.998		
Biodiversity preservation			.995		
Trade points					
Veritable tool for expanding trade and commerce		.969			
Improvement in standard of living		.977			
Improved revenue and income for government		.977			
Major trans shipment station across the towns		.977			
Eigen Value	5.890	3.926	2.990	2.128	2.025
% of Variance	32.724	21.811	16.611	11.822	11.251

Sources: Researchers' Field Work 2021.

Lokoja in Kogi State.

The PCA result identified and classified regional development potentials of Lokoja in Kogi state into 4 components. Component 1 was loaded significantly on 6 factors as distinct from other regional development potentials of Lokoja in Kogi state. These are: hydroelectric power (0.965), irrigation farming (0.965), flood control (0.965), household water use (0.965), industrial water use (0.965) and waste water disposal (0.965).It has Eigen value of 5.861 and explained 32.562 percent of regional development potentials of Lokoja in Kogi state. Component 1 is an index for measuring usefulness of river water in Lokoja in Kogi state. The defining variable is hydroelectric power. (See table 4).Component 2 was loaded significantly on 4 factors as distinct from other regional development potentials of Lokoja in Kogi state. These are: veritable tool for expanding trade and commerce (0.977), improvement in standard of living (0.988), improved revenue and income for government (0.984) and major trans shipment station across the towns (0.980).It has Eigen value of 4.031 and explained 22.396 percent of regional development potentials of Lokoja in Kogi state. Component 2 is an index for measuring economic prospect of river water in Lokoja, Kogi state. The defining variable is improvement in standard of living. (See table 4).Component 3 was loaded significantly on 3 factors as distinct from other regional development potentials of Lokoja in Kogi state. These are: mineral deposits (0.963), sand deposits (0.963) and biodiversity preservation (0.963). It has Eigen value of 3.307 and explained 18.372 percent of regional development potentials of Lokoja in Kogi state. Component 3 is an index for measuring river natural deposits of Lokoja in Kogi state. The defining variable is mineral deposits. (See table 4).Component 4 was loaded significantly on 2 factors as distinct from other regional development potentials of Lokoja in Kogi state. These are: fishing (0.832) and aquaculture (0.832).It has Eigen value of 3.186 and explained 17.701 percent of regional development potentials of Lokoja in Kogi state. Component 4 is an index for measuring aquaculture in Lokoja, Kogi state. The defining variable is aquaculture. (See table 4).In overall, regional development potentials of Lokoja, Kogi state were identified and classified as follows: usefulness of river water, economic prospect of river water, natural deposits and aquaculture. They accounted for 91.03 percent of regional development potentials of Lokoja, Kogi state.

Table 5.4: Regional Development Potentials of Lokoja in Kogi State.

Regional Development Potentials of Akassa (Brass town) in Bayelsa state	Component			
	1	2	3	4
Fishing				.832
Aquaculture				.832
Hydroelectric power	.965			
Irrigation farming	.965			
Flood control	.965			
Household water use	.965			
Industrial water use	.965			
Waste water disposal	.965			
Tourism destinations				-.932
Recreation destinations				-.932
Mineral deposits			.963	
Sand deposits			.963	
Biodiversity preservation			.963	
Trade points				
Veritable tool for expanding trade and commerce		.977		
Improvement in standard of living		.988		
Improved revenue and income for government		.984		
Major trans shipment station across the towns		.980		

Eigen Value	5.861	4.031	3.307	3.186
% of Variance	32.562	22.396	18.372	17.701

Sources: Researchers' Field Work 2021.

Makurdi in Benue State

The PCA result identified and classified regional development potentials of Makurdi in Benue state into 5 components. Component 1 was loaded significantly on 6 factors as distinct from other regional development potentials of Makurdi in Benue state. These are: hydroelectric power (0.984), irrigation farming (0.984), flood control (0.984), household water use (0.984), industrial water use (0.984) and waste water disposal (0.984).It has Eigen value of 5.881 and explained 32.671 percent of regional development potentials of Makurdi in Benue state. Component 1 is an index for measuring usefulness of river water in Makurdi in Benue state. The defining variable is hydroelectric power. (See table 5).Component 2 was loaded significantly on 4 factors as distinct from other regional development potentials of Makurdi in Benue state. These are: veritable tool for expanding trade and commerce (0.989), improvement in standard of living (0.989), improved revenue and income for government (0.990) and major trans shipment station across the towns (0.973).It has Eigen value of 3.993 and explained 22.182 percent of regional development potentials of Makurdi in Benue state. Component 2 is an index for measuring economic prospect of river water in Makurdi in Benue state. The defining variable is improved revenue and income for government. (See table 5).Component 3 was loaded significantly on 3 factors as distinct from other regional development potentials of Makurdi in Benue state. These are: mineral deposits (0.987), sand deposits (0.987) and biodiversity preservation (0.987).It has Eigen value of 3.101 and explained 17.227 percent of regional development potentials of Makurdi in Benue state. Component 3 is an index for measuring river natural deposits of Makurdi in Benue state. The defining variable is mineral deposits. (See table 5).Component 4 was loaded significantly on 2 factors as distinct from other regional development potentials of Makurdi in Benue state. These are: tourism destinations (0.936) and recreation destinations (0.936).It has Eigen value of 2.235 and explained 12.417 percent of regional development potentials of Makurdi in Benue state. Component 4 is an index for measuring tourism and recreation in Makurdi in Benue state. The defining variable is tourism destinations. (See table 5).Component 5 was loaded significantly on 2 factors as distinct from other regional development potentials of Makurdi in Benue state. These are: fishing (0.879), aquaculture (0.879) and trade points (0.520).It has Eigen value of 1.913 and explained 10.627 percent of regional development potentials of Makurdi in Benue state. Component 5 is an index for measuring aquaculture in Makurdi in Benue state. The defining variable is fishing. (See table 5).In overall, regional development potentials of Makurdi in Benue state were identified and classified as follows: usefulness of river water, economic prospect of river water, natural deposits, tourism and recreation and fishing. They accounted for 95.12 percent of regional development potentials of Makurdi in Benue state.

Table 5: Regional Development Potentials of Makurdi in Benue.

Regional Development Potentials of Towns along Major Inland Water Ways of Nigeria	Component				
	1	2	3	4	5
Fishing					.879
Aquaculture					.879
Hydroelectric power	.984				
Irrigation farming	.984				
Flood control	.984				
Household water use	.984				
Industrial water use	.984				
Waste water disposal	.984				
Tourism destinations				.936	
Recreation destinations				.936	
Mineral deposits			.987		
Sand deposits			.987		
Biodiversity preservation			.987		
Trade points					.520
Veritable tool for expanding trade and commerce		.989			
Improvement in standard of living		.989			
Improved revenue and income for government		.990			
Major trans shipment station across the towns		.973			
Eigen Value	5.881	3.993	3.101	2.235	1.913
% of Variance	32.671	22.182	17.227	12.417	10.627

Sources: Researchers' Field Work 2021.

Baro (Agaie town) in Niger state

The PCA result identified and classified regional development potentials of Baro (Agaie town) in Niger state into 5 components.

Component 1 was loaded significantly on 6 factors as distinct from other regional development potentials of Baro (Agaie town) in Niger state. These are: hydroelectric power (0.998), irrigation farming (0.998), flood control (0.998), household water use (0.998), industrial water use (0.998) and waste water disposal (0.998).
It has Eigen value of 6.183 and explained 34.349 percent of regional development potentials of Baro (Agaie town) in Niger state. Component 1 is an index for measuring usefulness of river water in Baro (Agaie town) in Niger state. The defining variable is hydroelectric power. (See table 6).
Component 2 was loaded significantly on 4 factors as distinct from other regional development potentials of Baro (Agaie town) in Niger state. These are: veritable tool for expanding trade and commerce (0.986), improvement in standard of living (0.986), improved revenue and income for government (0.986) and major trans shipment station across the towns (0.986).
It has Eigen value of 4.093 and explained 22.740 percent of regional development potentials of Baro (Agaie town) in Niger state. Component 2 is an index for measuring economic prospect of river water in Baro (Agaie town) in Niger state. The defining variable is veritable tool for expanding trade and commerce. (See table 6).
Component 3 was loaded significantly on 3 factors as distinct from other regional development potentials of Baro (Agaie town) in Niger state. These are: mineral deposits (0.993), sand deposits (0.993) and biodiversity preservation (0.993).
It has Eigen value of 3.114 and explained 17.300 percent of regional development potentials of Baro (Agaie town) in Niger state. Component 3 is an index for measuring river natural deposits of Baro (Agaie town) in Niger state. The defining variable is mineral deposits. (See table 6).Component 4 was loaded significantly on 2 factors as distinct from other regional development potentials of Baro (Agaie town) in Niger state. These are: fishing (0.967) and aquacultur (0.967).
It has Eigen value of 2.113 and explained 11.739 percent of regional development potentials of Baro (Agaie town) in Niger state. Component 4 is an index for measuring aquaculture in Baro (Agaie town) in Niger state. The defining variable is fishing. (See table 6).Component 5 was loaded significantly on 2 factors as distinct from other regional development potentials of Baro (Agaie town) in Niger state. These are: tourism destinations (0.995) and recreation destinations (0.995).
It has Eigen value of 2.028 and explained 11.266 percent of regional development potentials of Baro (Agaie town) in Niger state. Component 5 is an index for measuring tourism destinations in Baro (Agaie town) in Niger state. The defining variable is tourism destinations. (See table 6).In overall, regional development potentials of Baro (Agaie town) in Niger state were identified and classified as follows: usefulness of river water, economic prospect of river water, natural deposits, aquaculture and tourism and recreation. They accounted for 97.39 percent of regional development potentials of Baro (Agaie town) in Niger state.

Table 6: Regional Development Potentials of Baro (Agaie town) in Niger state.

Regional Development Potentials of Towns along Major Inland Water Ways of Nigeria	Component				
	1	2	3	4	5
Fishing				.967	
Aquaculture				.967	
Hydroelectric power	.998				
Irrigation farming	.998				
Flood control	.998				
Household water use	.998				
Industrial water use	.998				
Waste water disposal	.998				
Tourism destinations					.995
Recreation destinations					.995
Mineral deposits			.993		
Sand deposits			.993		
Biodiversity preservation			.993		
Trade points					
Veritable tool for expanding trade and commerce		.986			
Improvement in standard of living		.986			
Improved revenue and income for government		.986			
Major trans shipment station across the towns		.986			
Eigen Value	6.183	4.093	3.114	2.113	2.028
% of Variance	34.349	22.740	17.300	11.739	11.266

Sources: Researchers' Field Work 2021.

Hypothesis: There is no significant variation in the regional development potentials of towns along major inland water ways of Nigeria.

Results:

Table 7 shows the results of the test of hypothesis which suggest that there was no significant variation in regional development potentials of towns along major inland water ways of Nigeria at 0.05 significant level. ($F = 2.184$, $p>0.05$).

However, the ANOVA multiple comparisons output in table 5.30 shows that the mean differences in regional development potentials between the six towns, were not significant at 0.05 level. (See table 7).

Table 7: ANOVA Result for Regional Development Potentials of Six Selected Towns along Major Inland Water Ways of Nigeria

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.664	5	.333	2.184	.055
Within Groups	75.901	498	.152		
Total	77.566	503			

Sources: Researchers' Field Work 2021.

IV DISCUSSION

For Akassa (Brass town) in Bayelsa state

The PCA result identified and classified regional development potentials of Akassa (Brass town) in Bayelsa state into 4 factors. These factors are usefulness of river water, economic prospect of river water, natural deposits and tourism and recreation. The implications of this result with respect to each of the 4 identified regional development potentials of Akassa (Brass town) in Bayelsa state are as follows:

Usefulness of River Water: This is the first most observed regional development potentials in Akassa (Brass town), Bayelsa state (31.53 percent). It comprised of hydroelectric power, irrigation farming, flood control, household water use, industrial water use and waste water disposal.

Among these 6 identified factors of usefulness of river water, irrigation farming (0.948) was most observed regional development potentials in Akassa (Brass town), Bayelsa state. It was followed in descending order by industrial water use (0.946), flood cntrol (0.943), household water use (0.930), waste water disposal (0.924) and hydroelectric power (0.914).

This is an indication that usefulness of river water (31.53 percent) is a significant regional development potentials in Akassa (Brass town), Bayelsa state.

Economic Prospect of River Water: This is the second most observed regional development potentials in Akassa (Brass town), Bayelsa state (25.81 percent). It comprised of trade points (0.703), veritable tool for expanding trade and commerce (0.966), improvement in standard of living (0.966), improved revenue and income for government (0.966) and major trans shipment station across the towns (0.966)

Among these 5 identified factors of economic prospect of river water, veritable tool for expanding trade and commerce (0.966) was most observed regional development potentials in Akassa (Brass town), Bayelsa state. It was followed in descending order by improvement in standard of living (0.966), improved revenue and income for government (0.966) and major trans shipment station across the towns (0.966) and trade points (0.703).

This is an indication that economic prospect of river water (25.81 percent) is a significant regional development potentials in Akassa (Brass town), Bayelsa state.

Natural Deposits: This is the third most observed regional development potentials in Akassa (Brass town), Bayelsa state (23.16 percent). It comprised of fishing, sand deposits, biodiversity preservation, mineral deposits, sand deposits and biodiversity preservation.

Among these 5 identified factors of natural deposits, mineral deposits (0.911), was most observed regional development potentials in Akassa (Brass town), Bayelsa state. It was followed in descending order by sand deposits (0.897), fishing (0.745), sand deposits (0.897) and biodiversity preservation (0.872).

This is an indication that natural deposits (23.16 percent) are significant regional development potentials in Akassa (Brass town), Bayelsa state.

Tourism and Recreation: This is the least most observed regional development potentials in Akassa (Brass town), Bayelsa state (12.10 percent). It comprised of tourism destinations and recreation destinations.

Among these 2 identified factors of tourism and recreation, tourism destinations (0.982) was most observed regional development potentials in Akassa (Brass town), Bayelsa state. It was followed in descending order by recreation destinations (0.981).

This is an indication that tourism and recreation (12.10 percent) is a significant regional development potentials in Akassa (Brass town), Bayelsa state.

For Warri in Delta state

The PCA result identified and classified regional development potentials of Warri in Delta state into 5 factors. These factors are usefulness of river water, economic prospect of river water, natural deposits, aquaculture and tourism and recreation. The implications of this result with respect to each of the 5 identified regional development potentials of Warri in Delta state are as follows:

Usefulness of River Water: This is the first most observed regional development potentials in Warri, Delta state (32.93 percent). It comprised of hydroelectric power, irrigation farming, flood control, household water use, industrial water use and waste water disposal.Among these 5 identified factors of usefulness of river water, hydroelectric power (0.994) was most observed regional development potentials in Warri, Delta state. It was followed in descending order by irrigation farming (0.994), household water use (0.992), industrial water use (0.992), waste water disposal (0.991) and flood control (0.988).This is an indication that usefulness of river water (32.93 percent) is a significant regional development potentials in Warri, Delta state.

Economic Prospect of River Water: This is the second most observed regional development potentials in Warri, Delta state (21.67 percent). It comprised of veritable tool for expanding trade and commerce, improvement in standard of living, improved

revenue and income for government and major trans shipment station across the towns.Among these 4 identified factors of economic prospect of river water, improved revenue and income for government (0.986) was most observed regional development potentials in Warri, Delta state. It was followed in descending order by improvement in standard of living (0.985), veritable tool for expanding trade and commerce (0.984) and major trans shipment station across the towns (0.973).
This is an indication that economic prospect of river water (21.67 percent) is a significant regional development potentials in Warri, Delta state.
Natural Deposits: This is the third most observed regional development potentials in Warri, Delta state (16.77 percent). It comprised of mineral deposits, sand deposits and biodiversity preservation.
Among these 3 identified factors of natural deposits, sand deposits (0.994) was most observed regional development potentials in Warri, Delta state. It was followed in descending order by biodiversity preservation (0.993) and mineral deposits (0.992).
This is an indication that natural deposits (16.77 percent) is a significant regional development potentials in Warri, Delta state.
Aquaculture: This is the fourth most observed regional development potentials in Warri, Delta state (11.81 percent). It comprised of fishing (0.953) and aquaculture (0.953)
Among these 2 identified factors of aquaculture, fishing (0.953) was most observed regional development potentials in Warri, Delta state. It was followed in descending order by aquaculture (0.953)
This is an indication that aquaculture (11.81 percent) is a significant regional development potentials in Warri, Delta state.
Tourism and Recreation: This is the least observed regional development potentials in Warri, Delta state (10.82 percent). It comprised of tourism destinations and recreation destinations.
Among these 2 identified factors of tourism and recreation, recreation destinations (0.918) was most observed regional development potentials in Warri, Delta state. It was followed in descending order by tourism destinations (0.917).
This is an indication that tourism and recreation (10.82 percent) is a significant regional development potentials in Warri, Delta state.

For Onitsha in Anambra State

The PCA result identified and classified regional development potentials of Onitsha in Anambra state into 5 factors. These factors are usefulness of river water, economic prospect of river water, natural deposits, tourism and recreation and aquaculture. The implications of this result with respect to each of the 5 identified regional development potentials of Onitsha in Anambra state are as follows:
Usefulness of River Water: This is the first most observed regional development potentials in Onitsha, Anambra state (32.72percent). It comprised of hydroelectric power, irrigation farming, flood control, household water use, industrial water use and waste water disposal.
Among these 6 identified factors of usefulness of river water, hydroelectric power (0.998) was most observed regional development potentials in Onitsha, Anambra state. It was followed in descending order by industrial water use (0.998), flood control (0.995), irrigation farming (0.991), household water use (0.986), and waste water disposal (0.974).
This is an indication that usefulness of river water (32.72 percent) is significant regional development potentials in Onitsha, Anambra state.
Economic Prospect of River Water: This is the second most observed regional development potentials in Onitsha, Anambra state (21.81percent). It comprised of veritable tool for expanding trade and commerce, improvement in standard of living, improved revenue and income for government and major trans shipment station across the towns.
Among these 4 identified factors of economic prospect of river water, improvement in standard of living (0.977) was most observed regional development potentials in Onitsha, Anambra state. It was followed in descending order by improved revenue and income for government (0.977) and major trans shipment station across the towns (0.977) and veritable tool for expanding trade and commerce (0.969).
This is an indication that economic prospect of river water (21.81percent) is a significant regional development potentials in Onitsha, Anambra state.
Natural Deposits: This is the third most observed regional development potentials in Onitsha, Anambra state (16.61percent). It comprised of mineral deposits, sand deposits and biodiversity preservation
Among these 3 identified factors of natural deposits, sand deposits (0.998) was most observed regional development potentials in Onitsha, Anambra state. It was followed in descending order by mineral deposits (0.997) and biodiversity preservation (0.995).
This is an indication that natural deposits (16.61percent) are significant regional development potentials in Onitsha, Anambra state.
Tourism and Recreation: This is the fourth most observed regional development potentials in Onitsha, Anambra state (11.82 percent). It comprised of tourism destinations and recreation destinations
Among these 2 identified factors of tourism and recreation, tourism destinations (0.987) was most observed regional development potentials in Onitsha, Anambra state. It was followed in descending order by recreation destinations (0.987).
This is an indication that tourism and recreation (11.82 percent) is a significant regional development potentials in Onitsha, Anambra state.
Aquaculture: This is the least most observed regional development potentials in Onitsha, Anambra state (11.25 percent). It comprised of fishing and aquaculture.
Among these 2 identified factors of aquaculture, fishing (0.978) was most observed regional development potentials in Onitsha, Anambra state. It was followed in descending order by aquaculture (0.976).
This is an indication that aquaculture (11.25 percent) is a significant regional development potentials in Onitsha, Anambra state.

For Lokoja in Kogi State

The PCA result identified and classified regional development potentials of Lokoja in Kogi state into 4 factors. These factors are usefulness of river water, economic prospect of river water, natural deposits and aquaculture. The implications of this result with respect to each of the 4 identified regional development potentials of Lokoja in Kogi state state are as follows:

Usefulness of River Water: This is the first most observed regional development potentials in Lokoja, Kogi state (32.56 percent). It comprised of hydroelectric power, irrigation farming, flood control, household water use, industrial water use and waste water disposal.

Among these 6 identified factors of usefulness of river water, hydroelectric power (0.965) was most observed regional development potentials in Lokoja, Kogi state. It was followed in descending order by irrigation farming (0.965), flood control (0.965), household water use (0.965), industrial water use (0.965) and waste water disposal (0.965).

This is an indication that usefulness of river water (32.56 percent) is significant regional development potentials in Lokoja, Kogi state.

Economic Prospect of River Water: This is the second most observed regional development potentials in Lokoja, Kogi state (22.40 percent). It comprised of veritable tool for expanding trade and commerce, improvement in standard of living, improved revenue and income for government and major trans shipment station across the towns.

Among these 4 identified factors of economic prospect of river water, improvement in standard of living (0.988) was most observed regional development potentials in Lokoja, Kogi state. It was followed in descending order by improved revenue and income for government (0.984), major trans shipment station across the towns (0.980) and veritable tool for expanding trade and commerce (0.977),

This is an indication that economic prospect of river water (22.40 percent) is a significant regional development potentials in Lokoja, Kogi state.

Natural Deposits: This is the third most observed regional development potentials in Lokoja, Kogi state (18.37 percent). It comprised of mineral deposits, sand deposits and biodiversity preservation

Among these 3 identified factors of natural deposits, mineral deposits (0.963) was most observed regional development potentials in Lokoja, Kogi state. It was followed in descending order by sand deposits (0.963) and biodiversity preservation (0.963)

This is an indication that natural deposits (18.37 percent) are significant regional development potentials in Lokoja, Kogi state.

Aquaculture: This is the fourth most observed regional development potentials in Lokoja, Kogi state (17.70 percent). It comprised of fishing and aquaculture

Among these 2 identified factors of aquaculture, fishing (0.832) was most observed regional development potentials in Lokoja, Kogi state. It was followed in descending order by aquaculture (0.832).

This is an indication that aquaculture (17.70 percent) is a significant regional development potentials in Lokoja, Kogi state.

For Makurdi in Benue State

The PCA result identified and classified regional development potentials of Makurdi in Benue State into 5 factors. These factors are usefulness of river water, economic prospect of river water, natural deposits, tourism and recreation and aquaculture. The implications of this result with respect to each of the 5 identified regional development potentials of Makurdi in Benue State are as follows:

Usefulness of River Water: This is the first most observed regional development potentials in Makurdi, Benue state (32.67 percent). It comprised of hydroelectric power, irrigation farming, flood control, household water use, industrial water use and waste water disposal.

Among these 6 identified factors of usefulness of river water, hydroelectric power (0.984) was most observed regional development potentials in Makurdi, Benue state. It was followed in descending order by industrial water use (0.984), flood cntrol (0.984), irrigation farming (0.984), household water use (0.984), and waste water disposal (0.984).This is an indication that usefulness of river water (32.67) percent) is significant regional development potentials in Makurdi, Benue state.

Economic Prospect of River Water: This is the second most observed regional development potentials in Makurdi, Benue state (22.18 percent). It comprised of veritable tool for expanding trade and commerce, improvement in standard of living, improved revenue and income for government and major trans shipment station across the towns.

Among these 4 identified factors of economic prospect of river water, improved revenue and income for government (0.990) was most observed regional development potentials in Makurdi, Benue state. It was followed in descending order by veritable tool for expanding trade and commerce (0.989), improvement in standard of living (0.989), and major trans shipment station across the towns (0.973).

This is an indication that economic prospect of river water (22.18 percent) is a significant regional development potentials in Makurdi, Benue state.

Natural Deposits: This is the third most observed regional development potentials in Makurdi, Benue state (17.22 percent). It comprised of mineral deposits, sand deposits and biodiversity preservation

Among these 3 identified factors of natural deposits, sand deposits (0.987) was most observed regional development potentials in Makurdi, Benue state. It was followed in descending order by mineral deposits (0.987) and biodiversity preservation (0.987)

This is an indication that natural deposits (17.22 percent) are significant regional development potentials in Makurdi, Benue state.

Tourism and Recreation: This is the fourth most observed regional development potentials in Makurdi, Benue state (12.42 percent). It comprised of tourism destinations and recreation destinationsAmong these 2 identified factors of tourism and recreation, tourism destinations (0.936) was most observed regional development potentials in Makurdi, Benue state. It was followed in descending order by recreation destinations (0.936).This is an indication that tourism and recreation (12.42 percent) is significant regional development potentials in Makurdi, Benue state.

Aquaculture: This is the least most observed regional development potentials in Makurdi, Benue state (10.63 percent). It comprised of fishing and aquaculture.

Among these 2 identified factors of aquaculture, fishing (0.879) was most observed regional development potentials in Makurdi, Benue state. It was followed in descending order by aquaculture (0.879).
This is an indication that aquaculture (10.63 percent) is a significant regional development potentials in Makurdi, Benue state.

For Baro (Agaie town) in Niger State

The PCA result identified and classified regional development potentials of Baro (Agaie town) in Niger state into 5 factors. These factors are usefulness of river water, economic prospect of river water, natural deposits, tourism and recreation and aquaculture. The implications of this result with respect to each of the 5 identified regional development potentials of Baro (Agaie town) in Niger state are as follows:

Usefulness of River Water: This is the first most observed regional development potentials in Baro (Agaie town), Niger state (34.35 percent). It comprised of hydroelectric power, irrigation farming, flood control, household water use, industrial water use and waste water disposal.
Among these 6 identified factors of usefulness of river water, hydroelectric power (0.998) was most observed regional development potentials in Baro (Agaie town), Niger state. It was followed in descending order by industrial water use (0.998), flood control (0.998), irrigation farming (0.998), household water use (0.998), and waste water disposal (0.998).
This is an indication that usefulness of river water (34.35 percent) is significant regional development potentials in Baro (Agaie town), Niger state.

Economic Prospect of River Water: This is the second most observed regional development potentials in Baro (Agaie town), Niger state (22.74 percent). It comprised of veritable tool for expanding trade and commerce, improvement in standard of living, improved revenue and income for government and major trans shipment station across the towns.
Among these 4 identified factors of economic prospect of river water, improved revenue and income for government (0.986) was most observed regional development potentials in Baro (Agaie town), Niger state. It was followed in descending order by veritable tool for expanding trade and commerce (0.986), improvement in standard of living (0.986), and major trans shipment station across the towns (0.986).
This is an indication that economic prospect of river water (22.74 percent) is a significant regional development potentials in Baro (Agaie town), Niger state.

Natural Deposits: This is the third most observed regional development potentials in Baro (Agaie town), Niger state (17.30 percent). It comprised of mineral deposits, sand deposits and biodiversity preservation
Among these 3 identified factors of natural deposits, sand deposits (0.993) was most observed regional development potentials in Baro (Agaie town), Niger state. It was followed in descending order by mineral deposits (0.993) and biodiversity preservation (0.993).This is an indication that natural deposits (17.30 percent) are significant regional development potentials in Baro (Agaie town), Niger state.

Aquaculture: This is the fourth most observed regional development potentials in Baro (Agaie town), Niger state (11.74 percent). It comprised of fishing and aquaculture.
Among these 2 identified factors of aquaculture, fishing (0.967) was most observed regional development potentials in Baro (Agaie town), Niger state. It was followed in descending order by aquaculture (0.967). This is an indication that aquaculture (11.74 percent) is a significant regional development potentials in Baro (Agaie town), Niger state.

Tourism and Recreation: This is the least most observed regional development potentials in Baro (Agaie town), Niger state (11.27 percent). It comprised of tourism destinations and recreation destinationsAmong these 2 identified factors of tourism and recreation, tourism destinations (0.995) was most observed regional development potentials in Baro (Agaie town), Niger state. It was followed in descending order by recreation destinations (0.995).This is an indication that tourism and recreation (11.27 percent) is a significant regional development potentials in Baro (Agaie town), Niger state.This has answered research question number one.The results of the test of the hypothesis suggest that there is no significant variation in the regional development potentials of towns along major inland water ways of Nigeria.

This implies that regional development potentials are the same in the six selected towns. The mean difference in regional development potentials between Akassa and Baro (0.17881) was highest score. It was followed in decending order by Akassa and Warri (0.16666), Akassa and Onitsha (0.16024), Akassa and Makurdi (0.11994), Akassa and Lokoja (0.11204), Lokoja and Baro (0.06677), Makurdi and Baro (0.05887), Lokoja and Warri (0.05461), Lokoja and Onitsha (0.04820), Makurdi and Warri (0.04671), Onitsha and Baro (0.01857), Warri and Baro (0.01216), Lokoja and Makurdi (0.00790), Onitsha and Warri (0.00641) and the least mean score, Makurdi and Onitsha (0.04030). However, regional development potentials between each of these towns were homogenous, that is, there was no significant difference in the regional development potentials of towns along major inland water ways of Nigeria.

Table 8: Analysis of Variance Multiple Comparisons Output for Regional Development Potentials of Towns along Major Inland Water Ways.

					95% Confidence Interval	
	(I) River town of residence	(J) River town of residence	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Scheffe	Akassa (Brass town) in Bayelsa state	Warri in Delta state	.16666	.06173	.202	-.0396	.3729
		Onitsha in Anambra state	.16024	.06173	.243	-.0460	.3665
		Lokoja in Kogi state	.11204	.06507	.705	-.1053	.3294
		Makurdi in Benue	.11994	.06173	.583	-.0863	.3262

	Baro (Agaie town) in Niger state	.17881	.06173	.138	-.0274	.3850
Warri in Delta state	Akassa (Brass town) in Bayelsa state	-.16666	.06173	.202	-.3729	.0396
	Onitsha in Anambra state	-.00641	.05820	1.000	-.2008	.1880
	Lokoja in Kogi state	-.05461	.06173	.978	-.2608	.1516
	Makurdi in Benue	-.04671	.05820	.986	-.2411	.1477
	Baro (Agaie town) in Niger state	.01216	.05820	1.000	-.1823	.2066
Onitsha in Anambra state	Akassa (Brass town) in Bayelsa state	-.16024	.06173	.243	-.3665	.0460
	Warri in Delta state	.00641	.05820	1.000	-.1880	.2008
	Lokoja in Kogi state	-.04820	.06173	.987	-.2544	.1580
	Makurdi in Benue	-.04030	.05820	.993	-.2347	.1541
	Baro (Agaie town) in Niger state	.01857	.05820	1.000	-.1759	.2130
Lokoja in Kogi state	Akassa (Brass town) in Bayelsa state	-.11204	.06507	.705	-.3294	.1053
	Warri in Delta state	.05461	.06173	.978	-.1516	.2608
	Onitsha in Anambra state	.04820	.06173	.987	-.1580	.2544
	Makurdi in Benue	.00790	.06173	1.000	-.1983	.2141
	Baro (Agaie town) in Niger state	.06677	.06173	.948	-.1394	.2730
Makurdi in Benue	Akassa (Brass town) in Bayelsa state	-.11994	.06173	.583	-.3262	.0863
	Warri in Delta state	.04671	.05820	.986	-.1477	.2411
	Onitsha in Anambra state	.04030	.05820	.993	-.1541	.2347
	Lokoja in Kogi state	-.00790	.06173	1.000	-.2141	.1983
	Baro (Agaie town) in Niger state	.05887	.05820	.961	-.1356	.2533
Baro (Agaie town) in Niger state	Akassa (Brass town) in Bayelsa state	-.17881	.06173	.138	-.3850	.0274
	Warri in Delta state	-.01216	.05820	1.000	-.2066	.1823
	Onitsha in Anambra state	-.01857	.05820	1.000	-.2130	.1759
	Lokoja in Kogi state	-.06677	.06173	.948	-.2730	.1394
	Makurdi in Benue	-.05887	.05820	.961	-.2533	.1356

Sources: Researchers's Field Work 2021.

Table 9 shows the subsets of the ANOVA analysis. The results indicate that Akassa (0.3461) has the highest mean score of regional development potentials during the study period (0.8370 score). It was followed in descending order by Lokoja (0.2340), Makurdi (0.2261), Onitsha (0.1858), Warri (0.1794) and Baro (0.1672).

Table 9: Subset of ANOVA Analysis for Regional Development Potentials of Towns along Major Inland Water Ways.

			Subset for alpha = 0.05	
	River town of residence	N	1	2
Tukey B[a,b]	Baro (Agaie town) in Niger state	90	.1672	
	Warri in Delta state	90	.1794	.1794
	Onitsha in Anambra state	90	.1858	.1858
	Makurdi in Benue	90	.2261	.2261
	Lokoja in Kogi state	72	.2340	.2340
	Akassa (Brass town) in Bayelsa state	72		.3461
Scheffe[a,b]	Baro (Agaie town) in Niger state	90	.1672	
	Warri in Delta state	90	.1794	
	Onitsha in Anambra state	90	.1858	

Makurdi in Benue	90	.2261	
Lokoja in Kogi state	72	.2340	
Akassa (Brass town) in Bayelsa state	72	.3461	
Sig.		.123	

Sources: Researchers' Field Work 2021.

The general implication of this outcome could be explained that towns along major inland water ways of Nigeria have huge potentials for regional development that is homogeneous in nature.

V. RECOMMENDATIONS

Base on the research findings, this study recommends that huge natural potential of towns along major inland water ways of Nigeria should be harnessed for regional development.

VI. CONCLUSION

No significant variation exists in the regional development potentials of towns along major inland water ways of Nigeria. This implies that regional development potentials are the same in the six selected towns. However, regional development potentials between each of these towns are homogenous.

The general implication of this outcome could be explained that towns along major inland water ways of Nigeria have huge potentials for regional development that is homogeneous in nature.

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VI. Appendixes

Appendix 1: Questionnaire

Dear Respondent,

I we are carrying out an academic research to obtain information on "**Varriation in Regional Development Potentials of Towns in Major Inland Water Ways of Nigeria.**"

Please, kindly answer the questions by ticking the appropriate answer as information you will provide will be treated with utmost confidentiality.

Thanks,

Tick [√] to any selection made and supply other relevant information required.

REGIONAL DEVELOPMENT POTENTIALS OF TOWNS ALONG MAJOR INLAND WATER WAYS

PLEASE TICK THE EXTENT THE FOLLOWING REGIONAL DEVELOPMENT POTENTIALS OF TOWNS ALONG MAJOR INLAND WATER WAYS ARE APPLIED TO YOU.

S/N	Regional Development Potentials of Towns along Major Inland Water Ways	Very High	High	Moderate	Low	Very Low
1.	Fishing					
2.	Aquaculture					
3.	Hydroelectric power					
4.	Irrigation farming					
5.	Flood control					
6.	Household water use					
7.	Industrial water use					
8.	Waste water disposal					
9.	Tourism destinations					
10.	Recreation destinations					
11.	Mineral deposits					
12.	Sand deposits					
13.	Biodiversity preservation					

14.	Trade points					
15.	Veritable tool for expanding trade and commerce					
16.	Improvement in standard of living					
17.	Improved revenue and income for government					
18.	Major trans shipment station across the towns					

APPENDIX 2: RESULT FOR RELIABILITY ANALYSIS (CRANACH ALPHA)

Reliability

[DataSet1] C:\Users\Hilary\Documents\HILLARY UGWUOKE FINAL PhD DATA..sav

Scale: Cranach Alpha

Case Processing Summary

		N	%
Cases	Valid	1955	100.0
	Excluded[a]	0	.0
	Total	1955	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.945	.946	79

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance
Inter-Item Correlations	.183	-.691	1.000	1.691	-1.448	.111

Summary Item Statistics

	N of Items
Inter-Item Correlations	79

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
141.0246	868.289	29.46674	79

APPENDIX 3: PCA RESULT FOR REGIONAL DEVELOPMENT POTENTIALS OF AKASSA (BRASS TOWN) IN BAYELSA STATE.

Factor Analysis

River town of residence = Akassa (Brass town) in Bayelsa state

Descriptive Statistics[a]

	Mean	Std. Deviation	Analysis N
Fishing	1.7936	.81944	218
Aquaculture	1.7752	.76196	218
Hydroelectric power	2.3028	.98845	218
Irrigation farming	2.2706	.96728	218
Flood control	2.2844	.95610	218
Household water use	2.2936	.96771	218
Industrial water use	2.2661	.95659	218
Waste water disposal	2.2982	.95912	218
Tourism destinations	2.1009	.65034	218
Recreation destinations	2.0917	.65874	218
Mineral deposits	1.7248	1.09352	218
Sand deposits	1.6972	1.06477	218
Biodiversity preservation	1.6743	1.04700	218
Trade points	2.3486	1.72205	218

Veritable tool for expanding trade and commerce	2.3440	1.72965	218
Improvement in standard of living	2.3440	1.72965	218
Improved revenue and income for government	2.3440	1.72965	218
Major trans shipment station across the towns	2.3440	1.72965	218

a. River town of residence = Akassa (Brass town) in Bayelsa state

Communalities[a]

	Initial	Extraction
Fishing	1.000	.739
Aquaculture	1.000	.756
Hydroelectric power	1.000	.965
Irrigation farming	1.000	.981
Flood control	1.000	.995
Household water use	1.000	.985
Industrial water use	1.000	.975
Waste water disposal	1.000	.984
Tourism destinations	1.000	.982
Recreation destinations	1.000	.974
Mineral deposits	1.000	.934
Sand deposits	1.000	.912
Biodiversity preservation	1.000	.871
Trade points	1.000	.654
Veritable tool for expanding trade and commerce	1.000	.990
Improvement in standard of living	1.000	.990
Improved revenue and income for government	1.000	.990
Major trans shipment station across the towns	1.000	.990

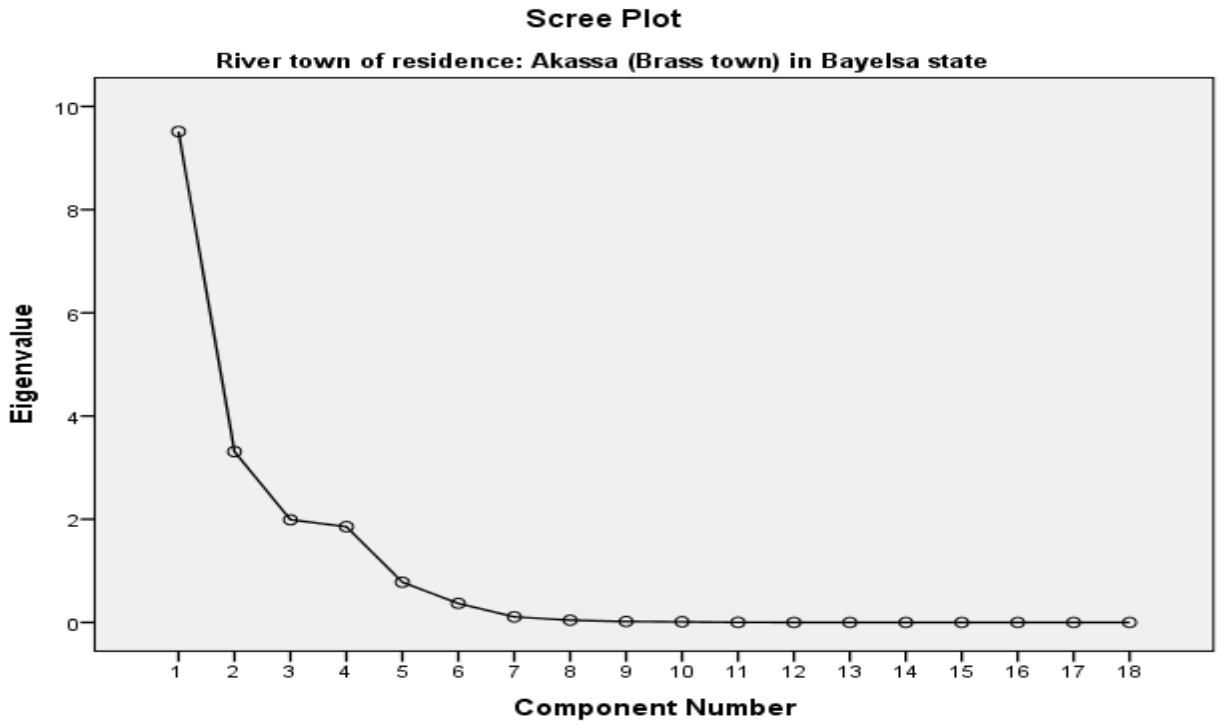
Extraction Method: Principal Component Analysis.
a. River town of residence = Akassa (Brass town) in Bayelsa state

Total Variance Explained[a]

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.513	52.847	52.847	9.513	52.847	52.847	5.675	31.526	31.526
2	3.310	18.389	71.236	3.310	18.389	71.236	4.646	25.811	57.337
3	1.990	11.054	82.290	1.990	11.054	82.290	4.169	23.160	80.497
4	1.855	10.304	92.595	1.855	10.304	92.595	2.178	12.098	92.595
5	.780	4.331	96.926						
6	.368	2.045	98.971						
7	.108	.601	99.573						
8	.043	.241	99.814						
9	.018	.097	99.911						
10	.013	.070	99.981						
11	.002	.013	99.994						
12	.001	.006	100.000						
13	4.902E-15	2.723E-14	100.000						
14	5.186E-16	2.881E-15	100.000						

15	3.190E-16	1.772E-15	100.000						
16	2.622E-16	1.457E-15	100.000						
17	5.180E-17	2.878E-16	100.000						
18	-1.104E-15	-6.134E-15	100.000						

Extraction Method: Principal Component Analysis.
a. River town of residence = Akassa (Brass town) in Bayelsa state



Component Matrix[a,b]

	Component			
	1	2	3	4
Fishing	.693			
Aquaculture	.718			
Hydroelectric power	.865			
Irrigation farming	.831			
Flood control	.858			
Household water use	.864			
Industrial water use	.827			
Waste water disposal	.872			
Tourism destinations				.910
Recreation destinations				.918
Mineral deposits	.760		.564	
Sand deposits	.751		.549	
Biodiversity preservation	.728		.523	
Trade points	.688			
Veritable tool for expanding trade and commerce	.674	.687		
Improvement in standard of living	.674	.687		
Improved revenue and income for government	.674	.687		
Major trans shipment station across the towns	.674	.687		

Extraction Method: Principal Component Analysis.
a. River town of residence = Akassa (Brass town) in Bayelsa state
b. 4 components extracted.

Rotated Component Matrix[a,b]

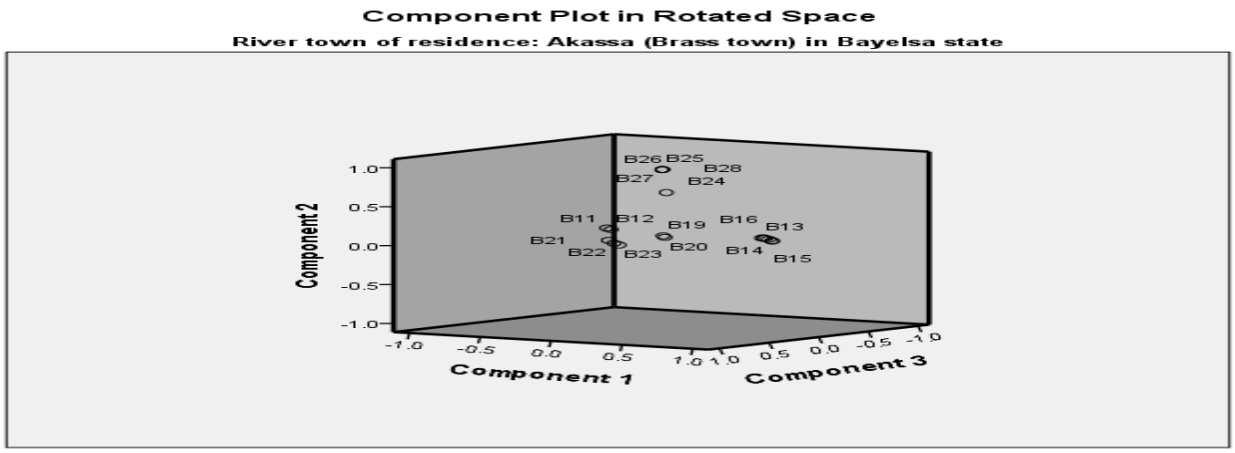
	Component			
	1	2	3	4
Fishing			.745	
Aquaculture			.761	
Hydroelectric power	.914			
Irrigation farming	.948			
Flood control	.943			
Household water use	.930			
Industrial water use	.946			
Waste water disposal	.924			
Tourism destinations				.982
Recreation destinations				.981
Mineral deposits			.911	
Sand deposits			.897	
Biodiversity preservation			.872	
Trade points		.703		
Veritable tool for expanding trade and commerce		.966		
Improvement in standard of living		.966		
Improved revenue and income for government		.966		
Major trans shipment station across the towns		.966		

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a,b]
a. River town of residence = Akassa (Brass town) in Bayelsa state
b. Rotation converged in 6 iterations.

Component Transformation Matrix[a]

Component	1	2	3	4
1	.652	.498	.539	.193
2	-.609	.777	-.036	.152
3	-.451	-.344	.812	.142
4	.032	-.173	-.223	.959

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a]
a. River town of residence = Akassa (Brass town) in Bayelsa state



APPENDIX 4: PCA RESULT FOR REGIONAL DEVELOPMENT POTENTIALS OF WARRI IN DELTA STATE.
River town of residence = Warri in Delta state

Descriptive Statistics[a]

	Mean	Std. Deviation	Analysis N
Fishing	1.6244	.82077	671
Aquaculture	1.6274	.82395	671
Hydroelectric power	2.1118	.63554	671
Irrigation farming	2.1118	.63554	671
Flood control	2.1148	.63500	671
Household water use	2.1088	.63370	671
Industrial water use	2.1073	.63278	671
Waste water disposal	2.1133	.63879	671
Tourism destinations	1.9270	.76238	671
Recreation destinations	1.9240	.75422	671
Mineral deposits	1.5663	.92623	671
Sand deposits	1.5693	.92763	671
Biodiversity preservation	1.5708	.93073	671
Trade points	1.2176	.54940	671
Veritable tool for expanding trade and commerce	1.2250	.56121	671
Improvement in standard of living	1.2295	.58163	671
Improved revenue and income for government	1.2250	.57175	671
Major trans shipment station across the towns	1.2310	.59248	671

a. River town of residence = Warri in Delta state

Communalities[a]

	Initial	Extraction
Fishing	1.000	.953
Aquaculture	1.000	.952
Hydroelectric power	1.000	.999
Irrigation farming	1.000	.999
Flood control	1.000	.989
Household water use	1.000	.995
Industrial water use	1.000	.993
Waste water disposal	1.000	.994
Tourism destinations	1.000	.938
Recreation destinations	1.000	.943
Mineral deposits	1.000	.997
Sand deposits	1.000	1.000
Biodiversity preservation	1.000	.998
Trade points	1.000	.291
Veritable tool for expanding trade and commerce	1.000	.976
Improvement in standard of living	1.000	.976
Improved revenue and income for government	1.000	.977
Major trans shipment station across the towns	1.000	.951

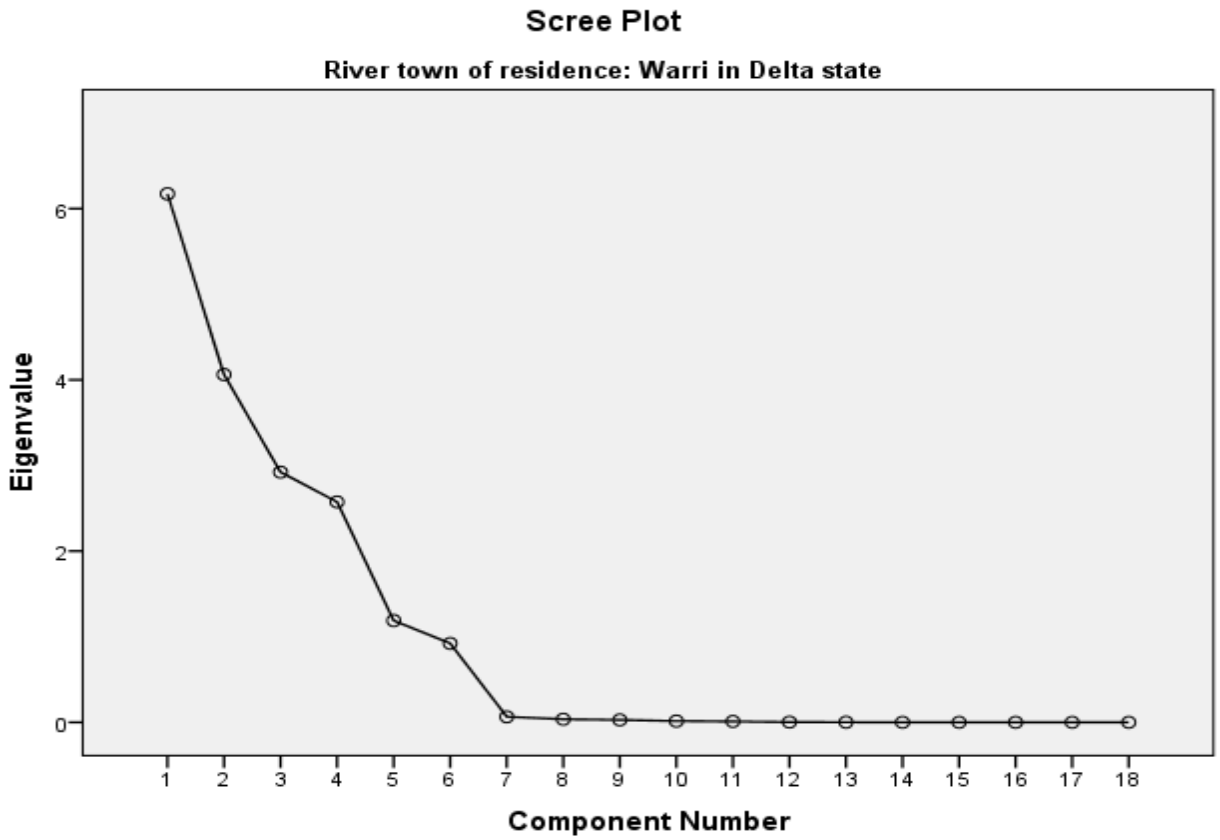
Extraction Method: Principal Component Analysis.
a. River town of residence = Warri in Delta state

Total Variance Explained[a]

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.173	34.296	34.296	6.173	34.296	34.296	5.927	32.927	32.927
2	4.062	22.566	56.862	4.062	22.566	56.862	3.901	21.671	54.598

3	2.923	16.238	73.100	2.923	16.238	73.100	3.019	16.774	71.372
4	2.573	14.297	87.396	2.573	14.297	87.396	2.125	11.808	83.179
5	1.189	6.605	94.002	1.189	6.605	94.002	1.948	10.822	94.002
6	.922	5.122	99.124						
7	.065	.360	99.484						
8	.036	.199	99.684						
9	.028	.157	99.840						
10	.014	.077	99.917						
11	.010	.058	99.975						
12	.003	.018	99.993						
13	.001	.007	100.000						
14	1.488E-14	8.267E-14	100.000						
15	7.591E-15	4.217E-14	100.000						
16	9.122E-31	5.068E-30	100.000						
17	-2.646E-15	-1.470E-14	100.000						
18	-6.147E-15	-3.415E-14	100.000						

Extraction Method: Principal Component Analysis.
a. River town of residence = Warri in Delta state



Component Matrix[a,b]

	Component				
	1	2	3	4	5
Fishing			.700		
Aquaculture			.701		
Hydroelectric power	.986				
Irrigation farming	.986				
Flood control	.981				
Household water use	.983				

Industrial water use	.981				
Waste water disposal	.984				
Tourism destinations			-.500	.670	
Recreation destinations			-.504	.675	
Mineral deposits			.591	.586	
Sand deposits			.598	.588	
Biodiversity preservation			.600	.588	
Trade points					-.515
Veritable tool for expanding trade and commerce		.909			
Improvement in standard of living		.903			
Improved revenue and income for government		.906			
Major trans shipment station across the towns		.892			

Extraction Method: Principal Component Analysis.
a. River town of residence = Warri in Delta state
b. 5 components extracted.

Rotated Component Matrix[a,b]

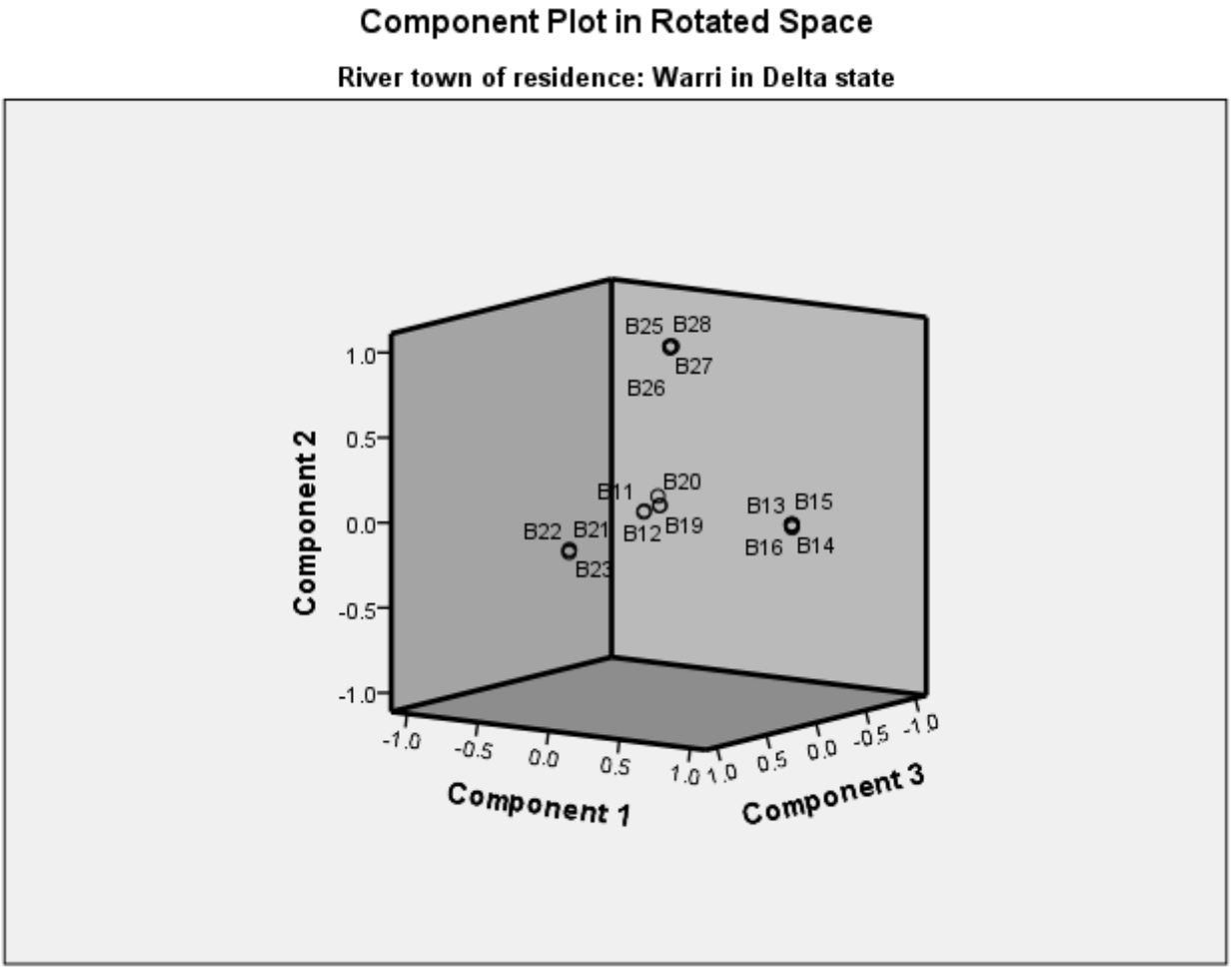
	Component				
	1	2	3	4	5
Fishing				.953	
Aquaculture				.953	
Hydroelectric power	.994				
Irrigation farming	.994				
Flood control	.988				
Household water use	.992				
Industrial water use	.992				
Waste water disposal	.991				
Tourism destinations					.917
Recreation destinations					.918
Mineral deposits			.992		
Sand deposits			.994		
Biodiversity preservation			.993		
Trade points					
Veritable tool for expanding trade and commerce		.984			
Improvement in standard of living		.985			
Improved revenue and income for government		.986			
Major trans shipment station across the towns		.973			

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a,b]
a. River town of residence = Warri in Delta state
b. Rotation converged in 5 iterations.

Component Transformation Matrix[a]

Component	1	2	3	4	5
1	.963	.160	.162	-.095	.104
2	-.088	.895	-.426	-.091	.022
3	-.059	.351	.602	.601	-.387
4	-.245	.219	.629	-.418	.567
5	.025	-.034	-.182	.669	.720

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a]
a. River town of residence = Warri in Delta state



APPENDIX 5: PCA RESULT FOR REGIONAL DEVELOPMENT POTENTIALS OF ONITSHA IN ANAMBRA STATE.

River town of residence = Onitsha in Anambra state

Descriptive Statistics[a]

	Mean	Std. Deviation	Analysis N
Fishing	1.5678	.83019	317
Aquaculture	1.5647	.82279	317
Hydroelectric power	2.2618	.82152	317
Irrigation farming	2.2555	.82351	317
Flood control	2.2650	.82627	317
Household water use	2.2524	.82641	317
Industrial water use	2.2650	.82243	317
Waste water disposal	2.2776	.84862	317
Tourism destinations	2.2114	.85839	317
Recreation destinations	2.2145	.86678	317
Mineral deposits	1.4700	.93958	317
Sand deposits	1.4700	.93620	317
Biodiversity preservation	1.4732	.93967	317
Trade points	1.4196	.86273	317
Veritable tool for expanding trade and commerce	1.4069	.82005	317
Improvement in standard of living	1.3943	.81075	317

Improved revenue and income for government	1.3943	.81075	317
Major trans shipment station across the towns	1.3943	.81075	317

a. River town of residence = Onitsha in Anambra state

Communalities[a]

	Initial	Extraction
Fishing	1.000	.985
Aquaculture	1.000	.984
Hydroelectric power	1.000	.999
Irrigation farming	1.000	.984
Flood control	1.000	.992
Household water use	1.000	.975
Industrial water use	1.000	.998
Waste water disposal	1.000	.952
Tourism destinations	1.000	.977
Recreation destinations	1.000	.977
Mineral deposits	1.000	.997
Sand deposits	1.000	.996
Biodiversity preservation	1.000	.993
Trade points	1.000	.193
Veritable tool for expanding trade and commerce	1.000	.978
Improvement in standard of living	1.000	.993
Improved revenue and income for government	1.000	.993
Major trans shipment station across the towns	1.000	.993

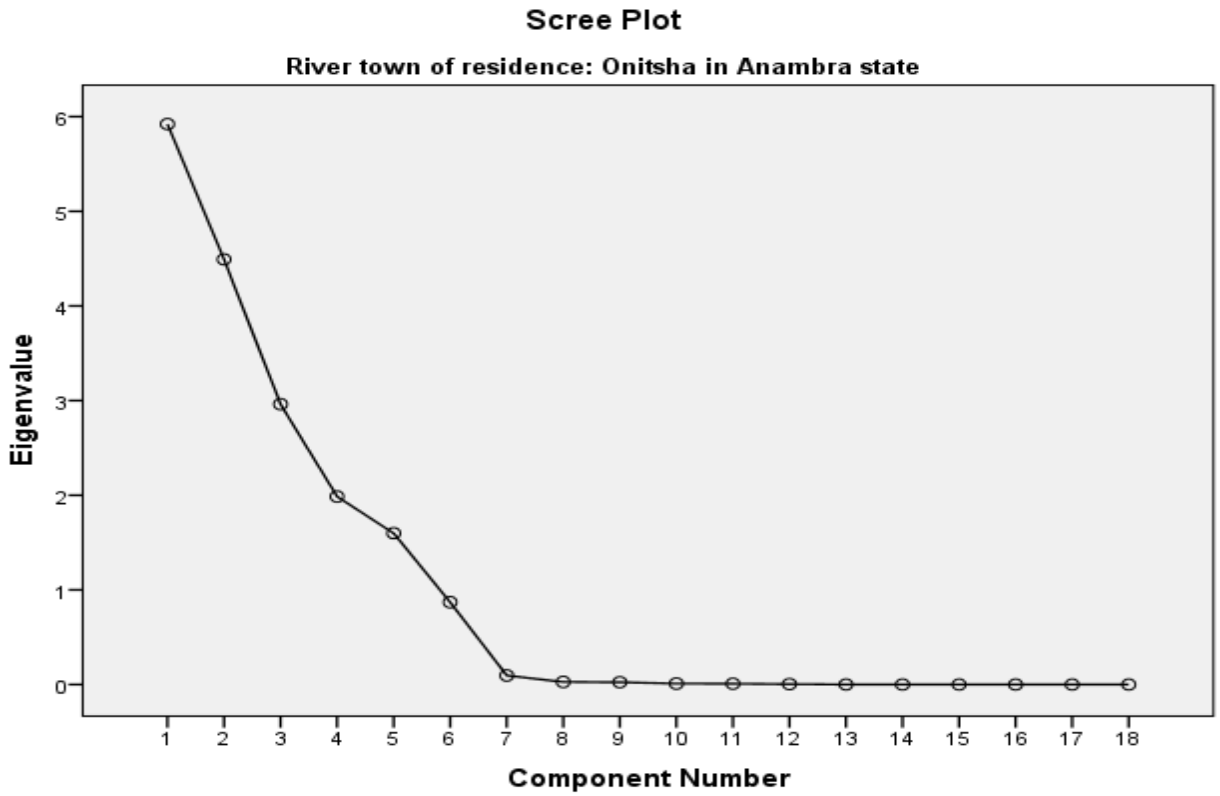
Extraction Method: Principal Component Analysis.
a. River town of residence = Onitsha in Anambra state

Total Variance Explained[a]

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.922	32.898	32.898	5.922	32.898	32.898	5.890	32.724	32.724
2	4.492	24.954	57.852	4.492	24.954	57.852	3.926	21.811	54.535
3	2.962	16.455	74.307	2.962	16.455	74.307	2.990	16.611	71.146
4	1.986	11.033	85.340	1.986	11.033	85.340	2.128	11.822	82.968
5	1.598	8.879	94.219	1.598	8.879	94.219	2.025	11.251	94.219
6	.869	4.829	99.049						
7	.095	.530	99.579						
8	.027	.151	99.730						
9	.024	.135	99.865						
10	.010	.057	99.922						
11	.009	.047	99.970						
12	.005	.027	99.996						
13	.001	.004	100.000						
14	7.092E-15	3.940E-14	100.000						
15	4.336E-15	2.409E-14	100.000						
16	3.149E-16	1.750E-15	100.000						
17	-1.197E-16	-6.649E-16	100.000						

18	-4.329E-15	-2.405E-14	100.000						

Extraction Method: Principal Component Analysis.
a. River town of residence = Onitsha in Anambra state



Component Matrix[a,b]

	Component				
	1	2	3	4	5
Fishing		.503			.823
Aquaculture		.521			.821
Hydroelectric power	.998				
Irrigation farming	.989				
Flood control	.995				
Household water use	.985				
Industrial water use	.998				
Waste water disposal	.974				
Tourism destinations				.954	
Recreation destinations				.954	
Mineral deposits			.974		
Sand deposits			.975		
Biodiversity preservation			.977		
Trade points					
Veritable tool for expanding trade and commerce		.949			
Improvement in standard of living		.958			
Improved revenue and income for government		.958			
Major trans shipment station across the towns		.958			

Extraction Method: Principal Component Analysis.
a. River town of residence = Onitsha in Anambra state
b. 5 components extracted.

Rotated Component Matrix[a,b]

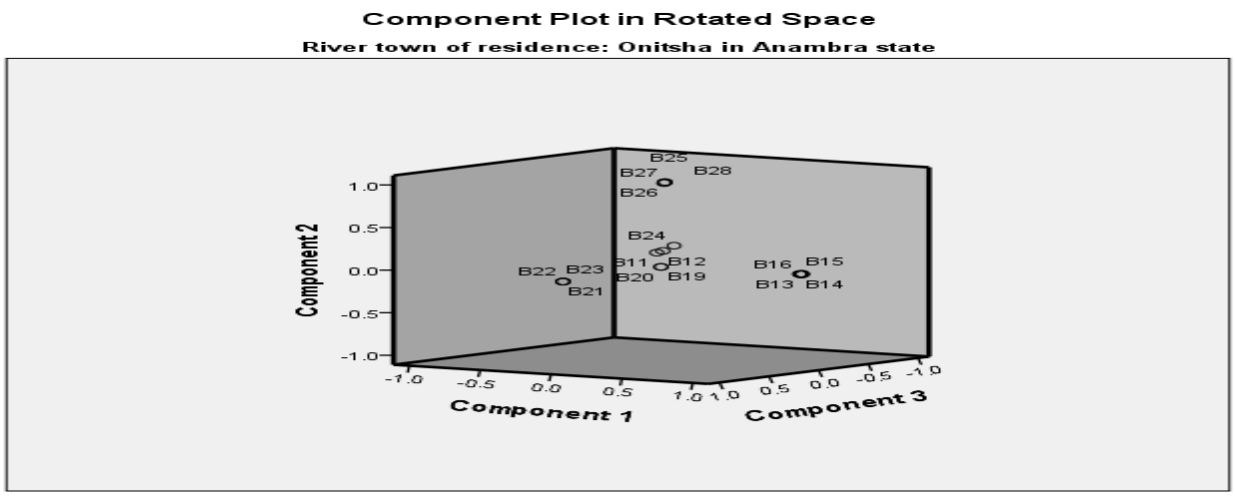
	Component				
	1	2	3	4	5
Fishing					.978
Aquaculture					.976
Hydroelectric power	.998				
Irrigation farming	.991				
Flood control	.995				
Household water use	.986				
Industrial water use	.998				
Waste water disposal	.974				
Tourism destinations				.987	
Recreation destinations				.987	
Mineral deposits			.997		
Sand deposits			.998		
Biodiversity preservation			.995		
Trade points					
Veritable tool for expanding trade and commerce		.969			
Improvement in standard of living		.977			
Improved revenue and income for government		.977			
Major trans shipment station across the towns		.977			

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a,b]
a. River town of residence = Onitsha in Anambra state
b. Rotation converged in 5 iterations.

Component Transformation Matrix[a]

Component	1	2	3	4	5
1	.995	.045	.009	-.091	.012
2	-.062	.889	-.164	-.208	.367
3	-.019	.108	.981	-.037	.154
4	.079	.191	.001	.973	.103
5	.006	-.399	-.099	-.018	.912

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a]
a. River town of residence = Onitsha in Anambra state



APPENDIX 6: PCA RESULT FOR REGIONAL DEVELOPMENT POTENTIALS OF LOKOJA IN KOGI STATE

River town of residence = Lokoja in Kogi state

Descriptive Statistics[a]

	Mean	Std. Deviation	Analysis N
Fishing	1.6423	.71221	355
Aquaculture	1.6423	.71221	355
Hydroelectric power	2.0085	.62657	355
Irrigation farming	2.0085	.62657	355
Flood control	2.0085	.62657	355
Household water use	2.0085	.62657	355
Industrial water use	2.0085	.62657	355
Waste water disposal	2.0085	.62657	355
Tourism destinations	1.7831	.54280	355
Recreation destinations	1.7831	.54280	355
Mineral deposits	1.5944	.89504	355
Sand deposits	1.5944	.89504	355
Biodiversity preservation	1.5944	.89504	355
Trade points	1.3155	.75289	355
Veritable tool for expanding trade and commerce	1.3324	.78254	355
Improvement in standard of living	1.3380	.79801	355
Improved revenue and income for government	1.3324	.79685	355
Major trans shipment station across the towns	1.3437	.82008	355

a. River town of residence = Lokoja in Kogi state

Communalities[a]

	Initial	Extraction
Fishing	1.000	.818
Aquaculture	1.000	.818
Hydroelectric power	1.000	.996
Irrigation farming	1.000	.996
Flood control	1.000	.996
Household water use	1.000	.996
Industrial water use	1.000	.996
Waste water disposal	1.000	.996
Tourism destinations	1.000	.876
Recreation destinations	1.000	.876
Mineral deposits	1.000	.983
Sand deposits	1.000	.983
Biodiversity preservation	1.000	.983
Trade points	1.000	.160
Veritable tool for expanding trade and commerce	1.000	.966
Improvement in standard of living	1.000	.990
Improved revenue and income for government	1.000	.981
Major trans shipment station across the towns	1.000	.974

Extraction Method: Principal Component Analysis.

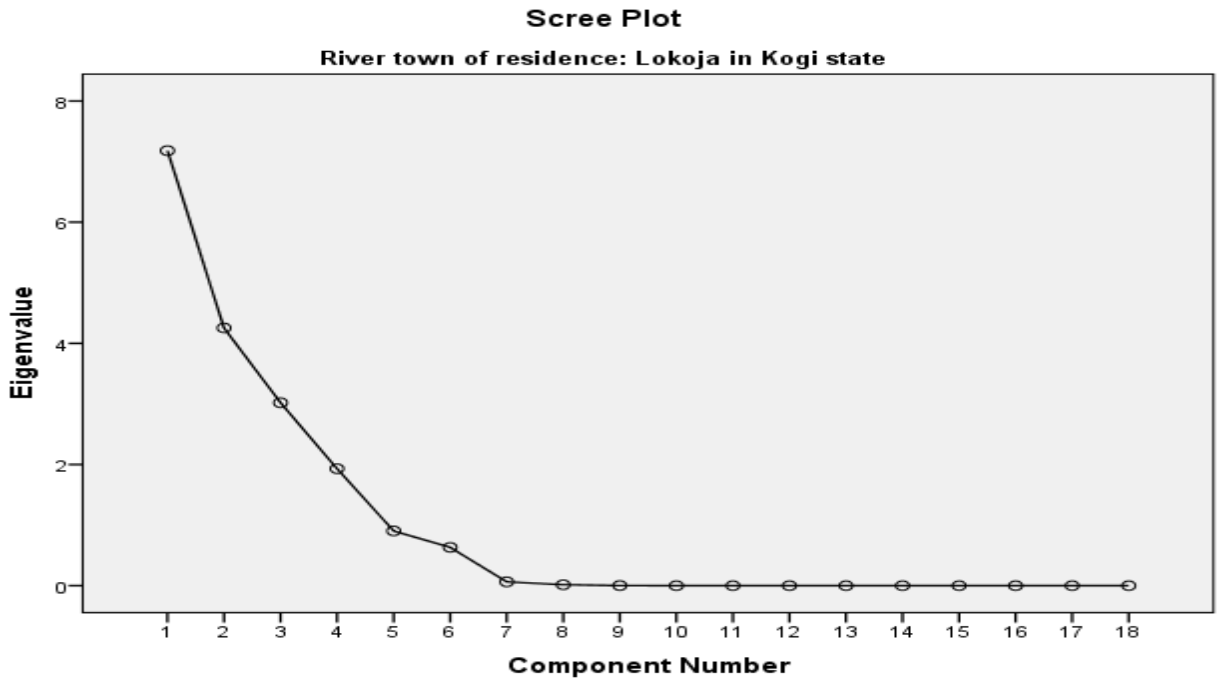
a. River town of residence = Lokoja in Kogi state

Total Variance Explained[a]

Component	Initial Eigenvalues	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings

	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.181	39.892	39.892	7.181	39.892	39.892	5.861	32.562	32.562
2	4.254	23.636	63.528	4.254	23.636	63.528	4.031	22.396	54.958
3	3.020	16.776	80.304	3.020	16.776	80.304	3.307	18.372	73.330
4	1.931	10.726	91.031	1.931	10.726	91.031	3.186	17.701	91.031
5	.903	5.016	96.047						
6	.632	3.511	99.558						
7	.063	.348	99.906						
8	.016	.087	99.993						
9	.001	.007	100.000						
10	4.386E-18	2.436E-17	100.000						
11	1.365E-18	7.584E-18	100.000						
12	2.160E-50	1.200E-49	100.000						
13	4.973E-67	2.763E-66	100.000						
14	-2.559E-83	-1.422E-82	100.000						
15	-4.750E-51	-2.639E-50	100.000						
16	-3.355E-35	-1.864E-34	100.000						
17	-1.314E-34	-7.301E-34	100.000						
18	-1.313E-16	-7.294E-16	100.000						

Extraction Method: Principal Component Analysis.
a. River town of residence = Lokoja in Kogi state



Component Matrix[a,b]

	Component			
	1	2	3	4
Fishing		-.554	.664	
Aquaculture		-.554	.664	
Hydroelectric power	.953			

Irrigation farming	.953			
Flood control	.953			
Household water use	.953			
Industrial water use	.953			
Waste water disposal	.953			
Tourism destinations			-.701	
Recreation destinations			-.701	
Mineral deposits	.560	-.539		.614
Sand deposits	.560	-.539		.614
Biodiversity preservation	.560	-.539		.614
Trade points				
Veritable tool for expanding trade and commerce		.756		
Improvement in standard of living		.778		
Improved revenue and income for government		.771		
Major trans shipment station across the towns		.774		

Extraction Method: Principal Component Analysis.
a. River town of residence = Lokoja in Kogi state
b. 4 components extracted.

Rotated Component Matrix[a,b]

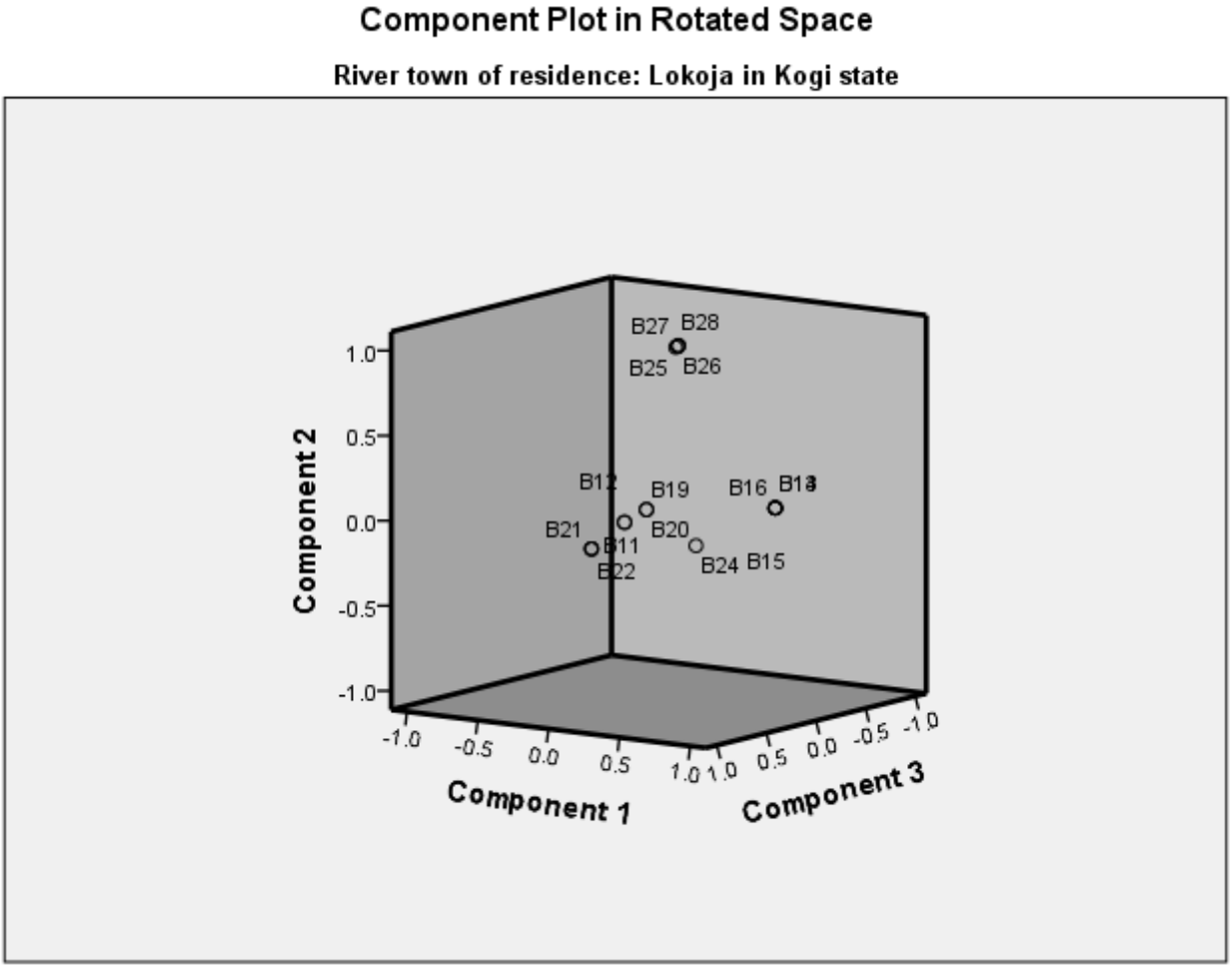
	Component			
	1	2	3	4
Fishing				.832
Aquaculture				.832
Hydroelectric power	.965			
Irrigation farming	.965			
Flood control	.965			
Household water use	.965			
Industrial water use	.965			
Waste water disposal	.965			
Tourism destinations				-.932
Recreation destinations				-.932
Mineral deposits			.963	
Sand deposits			.963	
Biodiversity preservation			.963	
Trade points				
Veritable tool for expanding trade and commerce		.977		
Improvement in standard of living		.988		
Improved revenue and income for government		.984		
Major trans shipment station across the towns		.980		

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a,b]
a. River town of residence = Lokoja in Kogi state
b. Rotation converged in 5 iterations.

Component Transformation Matrix[a]

Component	1	2	3	4
1	.852	.304	.406	.133
2	.026	.753	-.468	-.462
3	-.333	.523	.051	.783
4	-.404	.258	.784	-.395

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a]
a. River town of residence = Lokoja in Kogi state



APPENDIX 7: PCA RESULT FOR REGIONAL DEVELOPMENT POTENTIALS OF MAKURDI IN BENUE

River town of residence = Makurdi in Benue

Descriptive Statistics[a]

	Mean	Std. Deviation	Analysis N
Fishing	1.6880	.85474	234
Aquaculture	1.6880	.85474	234
Hydroelectric power	2.0897	.55246	234
Irrigation farming	2.0897	.55246	234
Flood control	2.0897	.55246	234
Household water use	2.0897	.55246	234
Industrial water use	2.0897	.55246	234
Waste water disposal	2.0897	.55246	234
Tourism destinations	1.8632	.72841	234
Recreation destinations	1.8632	.72841	234
Mineral deposits	1.5812	.89576	234
Sand deposits	1.5812	.89576	234
Biodiversity preservation	1.5812	.89576	234
Trade points	1.1453	.49487	234

Veritable tool for expanding trade and commerce	1.1410	.47398	234
Improvement in standard of living	1.1410	.47398	234
Improved revenue and income for government	1.1368	.45210	234
Major trans shipment station across the towns	1.1453	.50346	234

a. River town of residence = Makurdi in Benue

Communalities[a]

	Initial	Extraction
Fishing	1.000	.921
Aquaculture	1.000	.921
Hydroelectric power	1.000	1.000
Irrigation farming	1.000	1.000
Flood control	1.000	1.000
Household water use	1.000	1.000
Industrial water use	1.000	1.000
Waste water disposal	1.000	1.000
Tourism destinations	1.000	.946
Recreation destinations	1.000	.946
Mineral deposits	1.000	.992
Sand deposits	1.000	.992
Biodiversity preservation	1.000	.992
Trade points	1.000	.433
Veritable tool for expanding trade and commerce	1.000	1.000
Improvement in standard of living	1.000	1.000
Improved revenue and income for government	1.000	.990
Major trans shipment station across the towns	1.000	.992

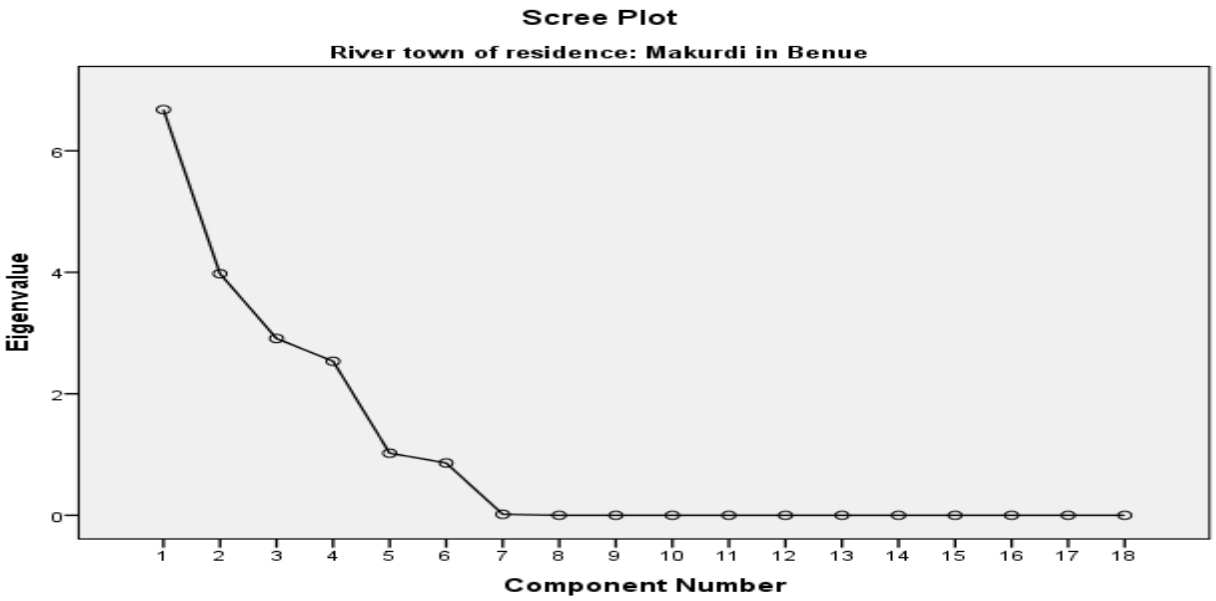
Extraction Method: Principal Component Analysis.
a. River town of residence = Makurdi in Benue

Total Variance Explained[a]

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.678	37.101	37.101	6.678	37.101	37.101	5.881	32.671	32.671
2	3.977	22.094	59.195	3.977	22.094	59.195	3.993	22.182	54.853
3	2.910	16.169	75.365	2.910	16.169	75.365	3.101	17.227	72.080
4	2.535	14.081	89.446	2.535	14.081	89.446	2.235	12.417	84.496
5	1.022	5.677	95.123	1.022	5.677	95.123	1.913	10.627	95.123
6	.861	4.785	99.908						
7	.017	.092	100.000						
8	6.861E-17	3.812E-16	100.000						
9	3.801E-17	2.112E-16	100.000						
10	6.476E-33	3.598E-32	100.000						
11	1.657E-34	9.207E-34	100.000						
12	1.616E-50	8.975E-50	100.000						
13	4.418E-67	2.455E-66	100.000						

14	-1.975E-84	-1.097E-83	100.000						
15	-1.520E-68	-8.445E-68	100.000						
16	-1.351E-49	-7.507E-49	100.000						
17	-1.418E-16	-7.877E-16	100.000						
18	-8.888E-15	-4.938E-14	100.000						

Extraction Method: Principal Component Analysis.
a. River town of residence = Makurdi in Benue



Component Matrix[a,b]

	Component				
	1	2	3	4	5
Fishing			.614	-.623	
Aquaculture			.614	-.623	
Hydroelectric power	.949				
Irrigation farming	.949				
Flood control	.949				
Household water use	.949				
Industrial water use	.949				
Waste water disposal	.949				
Tourism destinations				.734	
Recreation destinations				.734	
Mineral deposits			.734		
Sand deposits			.734		
Biodiversity preservation			.734		
Trade points					.554
Veritable tool for expanding trade and commerce		.858			
Improvement in standard of living		.858			

Improved revenue and income for government		.874			
Major trans shipment station across the towns		.831			

Extraction Method: Principal Component Analysis.
a. River town of residence = Makurdi in Benue
b. 5 components extracted.

Rotated Component Matrix[a,b]

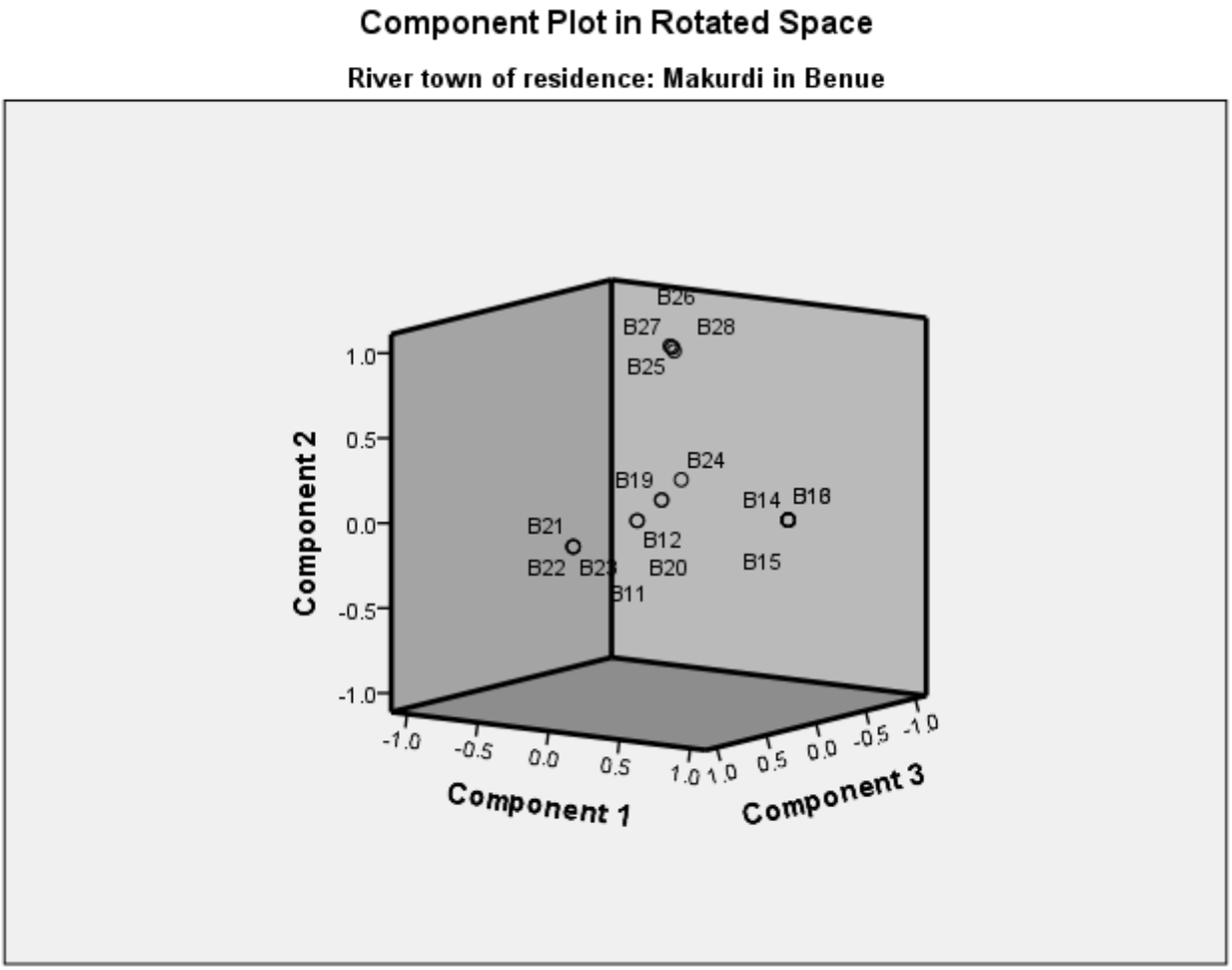
	Component				
	1	2	3	4	5
Fishing					.879
Aquaculture					.879
Hydroelectric power	.984				
Irrigation farming	.984				
Flood control	.984				
Household water use	.984				
Industrial water use	.984				
Waste water disposal	.984				
Tourism destinations				.936	
Recreation destinations				.936	
Mineral deposits			.987		
Sand deposits			.987		
Biodiversity preservation			.987		
Trade points					.520
Veritable tool for expanding trade and commerce		.989			
Improvement in standard of living		.989			
Improved revenue and income for government		.990			
Major trans shipment station across the towns		.973			

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a,b]
a. River town of residence = Makurdi in Benue
b. Rotation converged in 6 iterations.

Component Transformation Matrix[a]

Component	1	2	3	4	5
1	.882	.323	.212	.269	-.024
2	-.269	.856	-.405	.171	-.034
3	-.242	.332	.756	-.160	.483
4	-.298	-.052	.414	.666	-.542
5	-.048	-.221	-.218	.656	.687

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a]
a. River town of residence = Makurdi in Benue



APPENDIX 8: PCA RESULT FOR REGIONAL DEVELOPMENT POTENTIALS OF BARO (AGAIE TOWN) IN NIGER STATE

River town of residence = Baro (Agaie town) in Niger state

Descriptive Statistics[a]

	Mean	Std. Deviation	Analysis N
Fishing	1.4500	.92349	160
Aquaculture	1.4500	.92349	160
Hydroelectric power	2.3500	.85561	160
Irrigation farming	2.3500	.85561	160
Flood control	2.3500	.85561	160
Household water use	2.3500	.85561	160
Industrial water use	2.3500	.85561	160
Waste water disposal	2.3500	.85561	160
Tourism destinations	2.3000	.95693	160
Recreation destinations	2.3000	.95693	160
Mineral deposits	1.5000	1.07575	160
Sand deposits	1.5000	1.07575	160
Biodiversity preservation	1.5000	1.07575	160
Trade points	1.3000	.45970	160
Veritable tool for expanding trade and commerce	1.3000	.45970	160
Improvement in standard of living	1.3000	.45970	160

Improved revenue and income for government	1.3000	.45970	160
Major trans shipment station across the towns	1.3000	.45970	160

a. River town of residence = Baro (Agaie town) in Niger state

Communalities[a]

	Initial	Extraction
Fishing	1.000	.976
Aquaculture	1.000	.976
Hydroelectric power	1.000	.998
Irrigation farming	1.000	.998
Flood control	1.000	.998
Household water use	1.000	.998
Industrial water use	1.000	.998
Waste water disposal	1.000	.998
Tourism destinations	1.000	.996
Recreation destinations	1.000	.996
Mineral deposits	1.000	.996
Sand deposits	1.000	.996
Biodiversity preservation	1.000	.996
Trade points	1.000	.631
Veritable tool for expanding trade and commerce	1.000	.996
Improvement in standard of living	1.000	.996
Improved revenue and income for government	1.000	.996
Major trans shipment station across the towns	1.000	.996

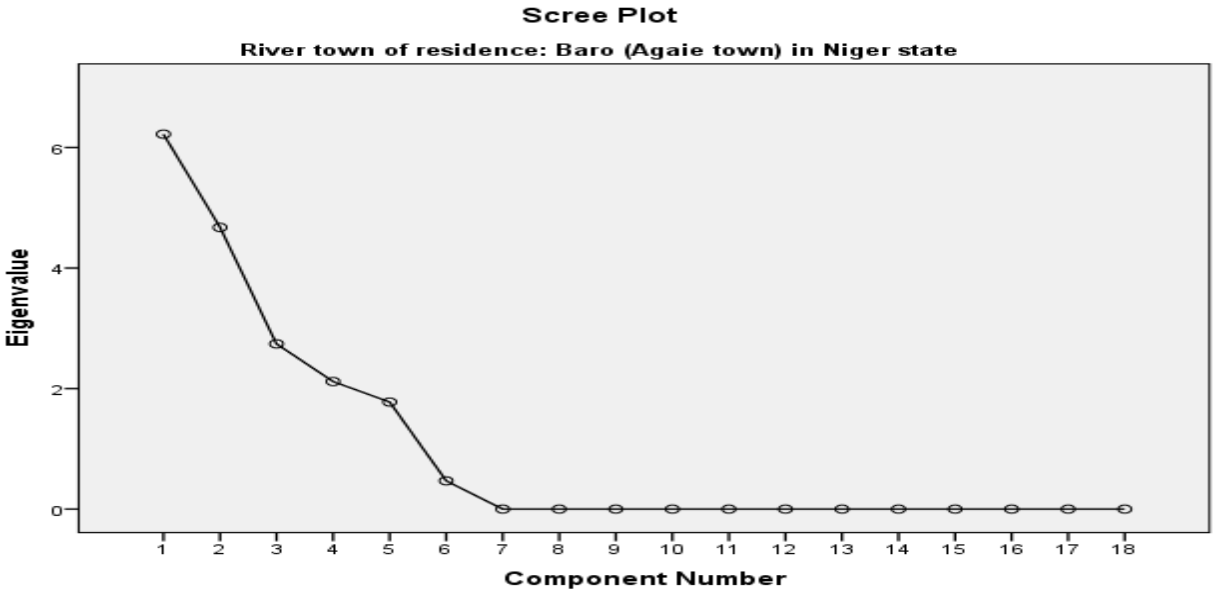
Extraction Method: Principal Component Analysis.
a. River town of residence = Baro (Agaie town) in Niger state

Total Variance Explained[a]

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.222	34.567	34.567	6.222	34.567	34.567	6.183	34.349	34.349
2	4.674	25.966	60.533	4.674	25.966	60.533	4.093	22.740	57.088
3	2.742	15.231	75.764	2.742	15.231	75.764	3.114	17.300	74.388
4	2.117	11.761	87.525	2.117	11.761	87.525	2.113	11.739	86.127
5	1.776	9.869	97.394	1.776	9.869	97.394	2.028	11.266	97.394
6	.469	2.606	100.000						
7	2.563E-16	1.424E-15	100.000						
8	3.839E-17	2.133E-16	100.000						
9	2.488E-17	1.382E-16	100.000						
10	3.145E-33	1.747E-32	100.000						
11	1.187E-48	6.593E-48	100.000						
12	2.899E-49	1.611E-48	100.000						
13	1.379E-65	7.660E-65	100.000						
14	4.227E-82	2.349E-81	100.000						

15	-8.959E-66	-4.977E-65	100.000						
16	-1.734E-32	-9.632E-32	100.000						
17	-1.638E-16	-9.100E-16	100.000						
18	-2.977E-16	-1.654E-15	100.000						

Extraction Method: Principal Component Analysis.
a. River town of residence = Baro (Agaie town) in Niger state



Component Matrix[a,b]

	Component				
	1	2	3	4	5
Fishing				-.584	.633
Aquaculture				-.584	.633
Hydroelectric power	.990				
Irrigation farming	.990				
Flood control	.990				
Household water use	.990				
Industrial water use	.990				
Waste water disposal	.990				
Tourism destinations				.821	.535
Recreation destinations				.821	.535
Mineral deposits		-.546	.814		
Sand deposits		-.546	.814		
Biodiversity preservation		-.546	.814		
Trade points					
Veritable tool for expanding trade and commerce		.909			
Improvement in standard of living		.909			
Improved revenue and income for government		.909			
Major trans shipment station across the towns		.909			

Extraction Method: Principal Component Analysis.
a. River town of residence = Baro (Agaie town) in Niger state
b. 5 components extracted.

Rotated Component Matrix[a,b]

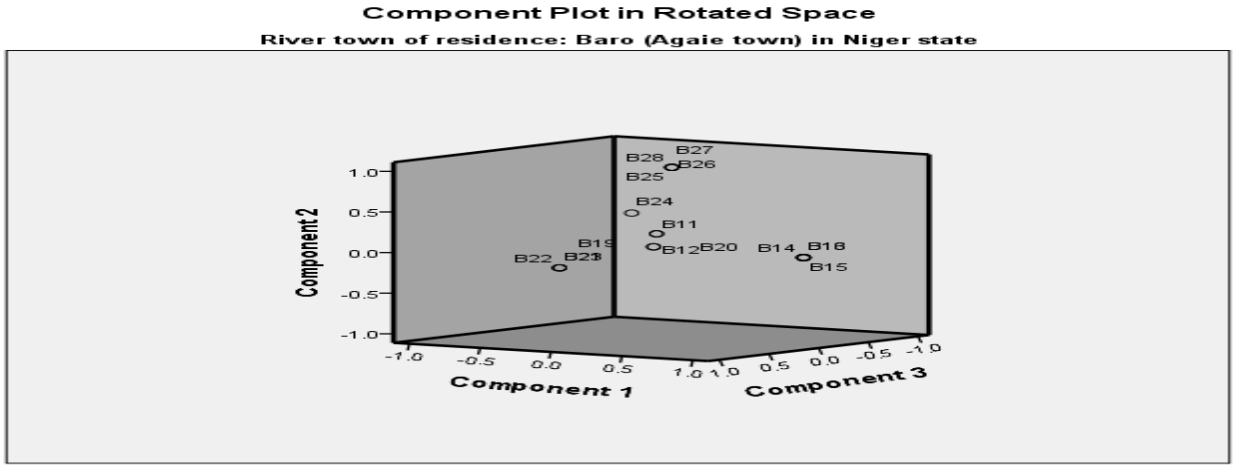
	Component				
	1	2	3	4	5
Fishing				.967	
Aquaculture				.967	
Hydroelectric power	.998				
Irrigation farming	.998				
Flood control	.998				
Household water use	.998				
Industrial water use	.998				
Waste water disposal	.998				
Tourism destinations					.995
Recreation destinations					.995
Mineral deposits			.993		
Sand deposits			.993		
Biodiversity preservation			.993		
Trade points					
Veritable tool for expanding trade and commerce		.986			
Improvement in standard of living		.986			
Improved revenue and income for government		.986			
Major trans shipment station across the towns		.986			

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a,b]
a. River town of residence = Baro (Agaie town) in Niger state
b. Rotation converged in 5 iterations.

Component Transformation Matrix[a]

Component	1	2	3	4	5
1	.990	-.128	.042	-.026	-.043
2	.133	.847	-.460	.225	-.048
3	.028	.399	.862	.275	.149
4	.043	.173	-.035	-.578	.795
5	.017	-.277	-.207	.734	.584

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.[a]
a. River town of residence = Baro (Agaie town) in Niger state



APPENDIX 9: ANOVA RESULT FOR REGIONAL DEVELOPMENT POTENTIALS OF SIX SELECTED TOWNS ALONG MAJOR INLAND WATER WAYS OF NIGERIA

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ONEWAY B BY A
  /MISSING ANALYSIS
  /POSTHOC=BTUKEY SCHEFFE ALPHA(0.05).
```

Oneway

ANOVA

Regional Development Potentials of Towns along Major Inland Water Ways

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.664	5	.333	2.184	.055
Within Groups	75.901	498	.152		
Total	77.566	503			

Multiple Comparisons

Dependent Variable: Regional Development Potentials of Towns along Major Inland Water Ways

	(I) River town of residence	(J) River town of residence	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Scheffe	Akassa (Brass town) in Bayelsa state	Warri in Delta state	.16666	.06173	.202	-.0396	.3729
		Onitsha in Anambra state	.16024	.06173	.243	-.0460	.3665
		Lokoja in Kogi state	.11204	.06507	.705	-.1053	.3294
		Makurdi in Benue	.11994	.06173	.583	-.0863	.3262
		Baro (Agaie town) in Niger state	.17881	.06173	.138	-.0274	.3850
	Warri in Delta state	Akassa (Brass town) in Bayelsa state	-.16666	.06173	.202	-.3729	.0396
		Onitsha in Anambra state	-.00641	.05820	1.000	-.2008	.1880
		Lokoja in Kogi state	-.05461	.06173	.978	-.2608	.1516
		Makurdi in Benue	-.04671	.05820	.986	-.2411	.1477
		Baro (Agaie town) in Niger state	.01216	.05820	1.000	-.1823	.2066
	Onitsha in Anambra state	Akassa (Brass town) in Bayelsa state	-.16024	.06173	.243	-.3665	.0460
		Warri in Delta state	.00641	.05820	1.000	-.1880	.2008
		Lokoja in Kogi state	-.04820	.06173	.987	-.2544	.1580
		Makurdi in Benue	-.04030	.05820	.993	-.2347	.1541
		Baro (Agaie town) in Niger state	.01857	.05820	1.000	-.1759	.2130
	Lokoja in Kogi state	Akassa (Brass town) in Bayelsa state	-.11204	.06507	.705	-.3294	.1053
		Warri in Delta state	.05461	.06173	.978	-.1516	.2608
		Onitsha in Anambra state	.04820	.06173	.987	-.1580	.2544
		Makurdi in Benue	.00790	.06173	1.000	-.1983	.2141
		Baro (Agaie town) in Niger state	.06677	.06173	.948	-.1394	.2730
	Makurdi in Benue	Akassa (Brass town) in Bayelsa state	-.11994	.06173	.583	-.3262	.0863
		Warri in Delta state	.04671	.05820	.986	-.1477	.2411
		Onitsha in Anambra state	.04030	.05820	.993	-.1541	.2347
		Lokoja in Kogi state	-.00790	.06173	1.000	-.2141	.1983
		Baro (Agaie town) in Niger state	.05887	.05820	.961	-.1356	.2533
	Baro (Agaie town) in Niger state	Akassa (Brass town) in Bayelsa state	-.17881	.06173	.138	-.3850	.0274
		Warri in Delta state	-.01216	.05820	1.000	-.2066	.1823

	Onitsha in Anambra state	-.01857	.05820	1.000	-.2130	.1759
	Lokoja in Kogi state	-.06677	.06173	.948	-.2730	.1394
	Makurdi in Benue	-.05887	.05820	.961	-.2533	.1356

Regional Development Potentials of Towns along Major Inland Water Ways

			Subset for alpha = 0.05	
	River town of residence	N	1	2
Tukey B[a,b]	Baro (Agaie town) in Niger state	90	.1672	
	Warri in Delta state	90	.1794	.1794
	Onitsha in Anambra state	90	.1858	.1858
	Makurdi in Benue	90	.2261	.2261
	Lokoja in Kogi state	72	.2340	.2340
	Akassa (Brass town) in Bayelsa state	72		.3461
Scheffe[a,b]	Baro (Agaie town) in Niger state	90	.1672	
	Warri in Delta state	90	.1794	
	Onitsha in Anambra state	90	.1858	
	Makurdi in Benue	90	.2261	
	Lokoja in Kogi state	72	.2340	
	Akassa (Brass town) in Bayelsa state	72	.3461	
	Sig.		.123	

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 83.077.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.