

## **POST RESETTLEMENT PATTERN OF SOCIO-ECONOMIC CHANGE AND RURAL DEVELOPMENT IN JEBBA VILLAGES, NIGERIA**

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### **ABSTRACT**

The construction of Jebba Dam in the 1980s had resulted in the displacement of about 6,000 rural dwellers from 42 villages who were later resettled into 21 planned settlements in the hinterland. The introduction of social infrastructures in the new resettled village was supposed to bring improved living conditions among the resettlers in new locations as against conditions in their former settlements. This study is a survey of the households' present situation as a means of assessing their living conditions. 30% of the rural household heads were interviewed through the use of questionnaires in order to measure changes that have taken place in their new settlements as well as in their living conditions. The process of factor analysis has revealed that there have been various aspects of rural change depicted by socioeconomic patterns differentiated at variance by settlements. It has also been established that that disparity exists on the resettlement impacts among the villages in their new locations. While some are advantaged in term of accessibility to public goods and services on the basis of their locations, others are relatively disadvantaged. Although the relocation activities and Jebba lake creation brought about improved opportunities in fishery, employment access roads, etc., effort should be made to monitor and maintain the resources to enhance sustainability.

**Keywords:** Evacuees, Compensation, Infrastructure, Innovation, Development, Adjustment

### **INTRODUCTION**

The increase in the number of hydroelectric power dams all over the world in the last three decades necessitated the need to resettle large numbers of rural populations living along the shoreline of rivers. Examples of Kainji scheme in Nigeria and Volta in Ghana in the late 1960s, served as a technological attainment as the residents were successfully resettled in new locations (Oyedipe, 1983, Olawepo, 1997, 2008;).

Past resettlement studies confirmed that most evacuees of resettled villages were often deprived and their situations, for the most part, became worse economically and socially as the affected populations were poor and powerless. Authorities

eventually disrupted traditional functions, and crucial human and socio-economic resources through forceful acquisition of the land. There are lots of criticisms levied against resettlement. Nowadays, resettlement and construction planning are usually projected to pave over inconveniences by the provision of houses, infrastructure, and improved living conditions for the evacuees. Despite this, scholarly studies have indicated the residents' acceptability is poor, even when innovative inputs are encouraged (Abumere, 1981; Lightfoot, 1979; Roder, 1991, and Olawepo, 2000;

The construction of Jebba Dam in Nigeria in the early 1980s resulted in an inundation of around 950 hectares of land stretching from New Bussa to Jebba. All of the settlements along the shoreline, 102m below sea level were submerged, and resettled into new planned communities farther inland. Past studies on resettlement in developing countries further show the resultant institutions and socio-economic changes of the resettled become discernible, with disparities in the level of post resettlement change for the rural communities. In view of the significance of induced changes, nearness to natural environment, levels of adjustment, and accessibility to public goods and services, it seems reasonable to suggest that a major contributor to such disparity is the difference between the input variables of resettlement within the area. Many studies support resettlement as a panacea for rural development, especially when participatory development is considered at the onset of resettlement planning and implementation programmes. Others opined that the legacies of dam construction could not meet the realization and the loss of cultural affiliations to the displaced peoples' land (Adalemo, 1973; Alamu, Adedeji, & Adelu, 2004; Olawepo, 2000, 2008; Roder, 1992).

Preston (1982) and Richling (1985) worked in Namazaka Cree, but saw relocation as a new form of isolation. Similar resettlement took place in Volta (Ghana), Zambezi (Zambia), and Kainji (Nigeria) in the 1960s and 1980s, respectively. Apart from those, in Nigeria four different dam constructions resulting in compensation and resettlement took place in Siroro, Jebba, Tiga and the Mambila plateau in the decades following to produce hydro electric power (these and others are widely discussed and studied by Olawepo, 1997, 1998, 2000, and 2004, accordingly). Past studies on resettlement elsewhere also pointed to the failure or success of such schemes on the basis of adjustment to social change. For instance, reports on the Gezira (Sudan), Bakolori, Tiga, and Kiri schemes in Nigeria indicated that compulsory acquisition, compensations, and subsequent resettlement were not welcome initially by the affected people (Alamu et al., 2004, p. 25; Olawepo, 1998, 2000). Olawepo (1999, p. 118) reported that there is a positive relationship between resettlement input variables and socio-economic change in resettled villages, especially where participatory rural appraisal techniques were used prior to resettlement of the rural populace. This would afford them the opportunity to participate in resettlement planning, implementation and evaluation for years after being resettled. Resettlement around the Kainji Dam incorporated the views of the local residents with built-in innovation, the result being the creation of New Bussa town and other major communities. Such communities include Wawa, Nasarawa, Shagunu, Sabo Peggi, and Monai. In the case of New Bussa, it has grown to be one of the most important communities in Nigeria, with various infrastructural development brought in by the resettlement schemes. The infrastructures include tarred roads, electricity, schools and colleges, as well as, standard hospitals. All these amenities were made accessible to the resettled communities and evacuees, and the infrastructural development emphasized, even though Kainji was a forced evacuation. This was improved upon in the case of Jebba scheme, as the Federal Government of Nigeria involved the Niger State Government, Kwara, and representatives of the concerned rural communities to participate in

planning and execution of the resettlement housing, which resulted in the provision of infrastructures to the resettled communities.

Examples of forced resettlement are often reported more in literature than instances of voluntary relocation (Oloba, 2004, p. 54; Scudder & Colson, 1982; Tijani, 2003). In all, they showed positive and negative implications of resettlement and evacuation of people to new locations, especially those that relate to reservoir related resettlement schemes. The aim of this paper is twofold; firstly, to discuss the main features of Jebba resettlement scheme in Nigeria and to examine the spatial patterns of socio-economic and rural change in post resettled villages of Jebba, Nigeria.

### **Post Resettlement Studies and Rural Development**

Post resettlement studies are aimed at evaluating resettlement schemes and how the evacuees have either adjusted or not adjusted to their new environment. From the available literature, it is evident that African resettlement schemes have the provision of Hydro Electricity as the primary purpose of the government, with resettling people involved, a secondary importance. There is however, enough evidence that ad hoc consultation is often held on existing schemes when new ones are being prepared. Yet most mistakes get repeated and the resettled populace is often negatively affected (Adalemo, 1973; Olawepo, 1997, 2006; Oyedipe, 1983).

Adalemo (1973, p. 12) outlined moral and practical justifications of resettlement schemes on the basis of how people adjusted to the innovation of housing infrastructures and new agricultural land. Further accounts of published works on post resettlement and rural transformation had been compiled since early the 1980s (Brightmer, 1983, p. 65). The literature suggests most reservoir related resettlements have been badly planned and inadequately financed, and most evacuees have become at least temporarily, and in many cases permanently worse off, both economically and socially (Adalemo, 1970, p. 22; Olawepo, 2008; Tijani, 2003, p. 48).

The works of Arungbemi (1983), Olawepo (2008), Oloba (2004), and Oyedipe (1986) clearly address various socioeconomic and rural transformations related to resettlement as a result of changes and provisions of modernization effects. Earlier, Roder (1991, p. 5) and Scudder (1972) stated that advocates of resettlement see it as a means of improving the living conditions of the people, especially when innovative changes are intended. In their studies of Goronyo and Kainji schemes in Nigeria, Arungbemi, (1984, p. 4) and Oyedipe (1986, p. 6) identified innovative inputs in resettlement that would bring positive changes with appropriate participatory development involving the people to be resettled. The argument is that where resettlement is used as a tool for rural development in which social infrastructures are produced, there is bound to be a facelift and changes in the pattern of development both on the people and their settlements when compared with the former pattern in old locations. Oyedipe, (1986) and Olawepo (2008) reported that at Kariba, innovations included new irrigation farmlands for those in Zimbabwe, while in Zambia there were new medical facilities.

The Kainji resettlement scheme in Nigeria has most literature available than any other resettlement in Africa. The works of Adeniyi (1976), Olawepo, (1997, 2000, 2004, Oyedipe (1983, 1986), Roder, (1991) are among others who focused on this

scheme. Olawepo (1997, p. 73) opined that Kainji scheme was one of the most successful efforts of resettlement in developing countries. High adjustment levels helped declare this project a success. Apart from the provided social infrastructures, settlement growth and socialization were established. Several years after resettlement, secondary innovative development crept in gradually. Brightmer (1983) reported that apart from little displacement effects, there were positive changes in socio-economic and physical structures, as well as, income and landscape development. Such changes included, the growth of communities, increased population, building of public institutions, improved standard of living, and promotion of inter community relations among others.

Among the more important issues are how this affects the family's abilities to meet society's minimum standard for quality of life, and the extent to which the family can fulfill its needs and desire. The work of Wallace (1980) in Tiga resettlement, however, showed the effects of compulsory relocation have on rural dwellers whose homes or landed property are expropriated, resulting in negative effects several years after resettlement. The study further revealed that initially there appeared to be a quite high level of satisfaction and rural change. However in the long run, some of the resettlers became disillusioned. The relocation altered socio-economic, community and the ways of life for the people. The infrastructure provided not only collapsed, but a large proportion of the people deserted the villages and settled elsewhere. This was what led Olawepo (2004) to aver that:

Resettlement per-se will not solve social economic problems unless accompanied by means of development and provision of other supporting services which help to raise productivity and afford a high standard of living for the resettled people. This should also involve a sort of participatory development in the part of the people being planned for before implementation and even continuity after resettlement. (p. 48)

Elsewhere, studies revealed that despite the positive effects of resettlement, negative effects cannot be ignored. It is often followed by dislocation of occupation, loss of property and cultural affiliation. The basic question still remain: can the legacies of resettlement and modernization involved replace or pay for loss of cultural and family affiliations? The answer may be left for future researchers to answer. One thing is sure, in as much as resettlement is inevitable, it can be successful if less force is involved and more effective participation is allowed, right from the proposal stage to actual implementation. This would also need to be followed by proper evaluation, continuity of development actions, and monitoring several years after completion. This will forestall break down of infrastructure and will enhance effective maintenance of structure.

### **Jebba Resettlement Scheme**

The construction of Jebba Dam between 1983 and 1986 led to the construction of a large water reservoir behind the dam to generate electricity. This has also led to the submersion of 42 rural settlements, subsequently resettled into 21 planned communities, otherwise referred to as Jebba Villages within the Jebba Lake Basin. Jebba Lake Basin is located between Latitudes  $4^{\circ} 02'$  and  $4^{\circ} 05'$  as shown in Figure 1. The dam is located approximately 3 km from Jebba town, while the reservoir backing up the dam (Jebba Lake) forms back water up to Kainji, with an area of about 270 km<sup>2</sup>. The largest of the affected settlements are Gbajibo, Bukah, and Kainti, where the economy remained traditional in spite of the modernization

effect of the scheme. Some of the other settlements are Dada, Tungan Manni Olli, Giriji, Leaba, Awuru, Mazhi, Kalema, Ly'afu, Kumigi, Chegu, and Salkawa, among others. In all, only Awuru, Bukah, and Gbajibo had a population of 1,000 or above, showing that the settlements involved are all rural. A comprehensive list of the affected settlements is shown in Figure 1. The work of Arungbemi, (1983b) and Olawepo, (2004:119) showed that there are five indigenous ethnic groups and three non indigenous ethnic groups in the reservoir area. They are Lopawa, Bussawa, Hausa and Kambri, with Nupe forming the largest group. The non indigenous ethnic groups are Yoruba, Urchobo, and Gwari. These groups of settlers are mostly farmers and itinerary fishermen who settled at the shore of the Niger many years prior to inundation. The resettlement policy that followed was cash compensation on land, economic trees, as well as, other landed property. Construction of alternative houses with built-in social facilities in choiced locations was also introduced. Thus far as of 1986, all the settlers were resettled in their new locations through the process of amalgamation of settlements (Olawepo, 1997, p. 125). In all, 1,374 main housing structures (including schools, worship places, clinics and market stalls) were built and distributed according to the population of the rural communities.

### **RESEARCH METHODOLOGY**

The choice of data selection was guided by two major facts. The first relates to the provision policy measure affecting this specific scheme, while the other relates to aspects of socio-economic measures and values. Twenty two variables were identified to measure rural and socio-economic changes with strict association of resettlement issues, listed in Table 1 below. The process of data collection was a random sampling of about 30% of heads of household involved in the resettlement scheme among the total 2,245 household heads. Thus far, 679 people were examined through the use of questionnaire administration. This involved visits to the affected villages for a period of four months. Secondary sources were also utilized, especially of published information on Jebba resettlement issues. For the purpose of discussion, simple tabulation and cross tabulation, as well as, Factor Analysis were employed to explain the findings and pattern differentiation of rural and socio-economic change on the landscape.

**Table 1: Rural and Socio-Economic Change Variable List**

Variable	Definition
1	Number of people earning above wealth index (as percentage of total)
2	Number of people with increased income overtime (as percentage of total)
3	Number of children enrolled in primary school per population
4	Number of residents with occupational change after resettlement (as percentage of total population)
5	Number of people that perceived there has been development after resettlement
6	Population influx/change per settlement
7	Number of houses with electricity per settlement
8	Number of houses with modern facilities (kitchen/toilet/store)
9	Rural residential density
10	Number of residents with access to medical facilities after resettlement
11	Number of families patronizing health centers after resettlement
12	Settlement mobility score (availability of vehicles/frequency of movement)
13	Average water use/bucket per day from boreholes per settlement
14	Number of households within the reach of bore holes
15	Number of households with increased farm yield/land yield
16	Number of households with increased fish yield
17	Percentage change in draw down farming/irrigation output
18	Adjustment score per settlement
19	Number of crime report/Neighbor conflict per population
20	Average live stock size/increase per settlement
21	Number of household with satisfied resettlement preference

## RESULT AND DISCUSSION

### General Characteristics of Respondents

The resettlement of villages and people from the original Jebba communities to new locations is expected to have a generalized impact on spatial development and the socio-economic life of the evacuees. The dynamism of rural change is either due directly to innovative input or infrastructure development after relocation, or indirectly from resettlement and dislocation of communities.

Tables 2 and 3 show the demographics and personal characteristics of the respondents. In all, 667 (98.23%) of our respondents are males, while only 12 (1.7%) are females, and both groups are married household heads. Out of this, 202 (42.98%) of them are below 45 in age, while the remaining 477 (57.12%) are above 45 years.

**Table 2: Age Distribution of Respondents**

Age	No	%	Cumulative %
18-25	27	3.97	3.97
26-35	63	9.27	13.24
36-45	202	29.74	42.98
46-60	252	37.11	80.09
61-70	105	15.46	95.55
Above 70	30	4.41	100

Source: Authors' Research

Distribution by ethnicity also shows that 79.23% of our respondents are of Nupe oriin, while the remaining 26.91% are of mixed ethnicity of Yoruba, Bussawa, Kamberi, or Hausa. Similarly, 73.37% are Muslims, 12.37% are Christians, while 8.39% believe in a traditional system of worship. The implication of these distributions is that the majority of the household heads who were involved in the scheme are mature people who are farmers, fishermen, or artisans. Most of them can still recollect vividly all the issues relating to the resettlement activities around Jebba Lake Basin over the years.

### **Resettlement Housing and Rural Infrastructures**

A look at the resettlement scheme showed the provision of modern houses was one of the main policies of resettlement at Jebba, most importantly to resettle the communities in safe locations farther away from the shore of the Niger. In total, 1,374 houses were built during the resettlement scheme in the 21 resettled villages around the Jebba Lake Basin. This ranged from 4 in Dada and 42 in Kalema, to 313 and 388 in Bukah and Gbajibo, respectively. In all, it was observed that Gbajibo and Bukah are the largest of the settlements with the highest population, consequently having the highest number of houses. It was also observed that the housing distribution was based on the number of people who owned houses in the former location, and an additional 25% buildings were provided per settlement. About 55% of the houses in Gbajibo, 25% in Leaba and 20% in Salkawa have kitchen, painted walls and pit latrines. Similarly, the rural residential density ranges from 2.4 in Salkawa to 6.5 and 8.25 in Tugan Manni Olli and Tugan Giriiji, respectively. The analysis of the occupancy ratio at Gbalibo is 5.0, Bukah is 4.81, while in Kumigi the occupancy rate is 2.23. This appears to be high when compared to the old houses in the former villages. For example, at old Gbajibo, Arungbemi (1983, p. 203) reported that occupancy rate per household was 1.20. This is a sign of inadequacies in the number of buildings constructed for the new settlements.

New infrastructures like electricity, roofing sheets (as opposed to thatched roofs), pit hole latrines and paint now exist in most of the resettled villages. About 73.20% of the occupants indicated that they were well satisfied with the quality and structure of the houses and infrastructures in the new villages, 19.44% of them were not satisfied, while the remaining 7.36% were indifferent. Despite this favorable appraisal by our respondents, about 51.6% of them complained that the size of the 'Zaure' (lobby) is not large enough and no inner door was created to enable them to enter the residential room through the 'Zaure.'

The relocates in Gbajibo and Awuru villages also complained that they have a smaller number of rooms at their present settlements. The same complaints were given at Tugan Giriji, Dada, Futawa, Kumigi and Chegu.

### **Features of Socio-economic and Rural Development**

In order to associate relevant features of socio-economic and rural patterns, factor analysis with varimax (orthogonal) rotation was applied to the 21x21 data matrix carrying entries of the performance of the 21 resettled villages on each of the socio-economic and rural change variables selected. Altogether, five factors with Eigen values greater than one were extracted, which together account for 80.59% of the total variance in the original 21 variables.

Table 3 indicates the relative importance of Factors with Eigen values greater than 1, while Table 4 on the shows the rotated pattern of socio-economic and rural development indices.

**Table 3: Relative Importance of Factors with Eigen Values Greater Than 1**

<b>Factors</b>	<b>Eigen Values</b>	<b>% of Total</b>	<b>Cumulative %</b>
1	5.501751	26.19	26.19
2	4.142560	19.72	45.91
3	3.457304	16.46	62.37
4	2.091357	9.95	72.32
5	1.737242	8.27	80.59

Source: Computer output



**Table 4: \*Rotated Factors -Socio-economic and Rural Development Variable List**

Variables	Communality	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	0.7013	<u>0.83600</u>	-0.00566	-0.02365	-0.00195	-0.04211
2	0.7950	0.42816	0.17915	-0.10634	<u>0.71980</u>	-0.2396
3	0.8171	0.18488	<u>0.80935</u>	0.31010	0.24175	0.13221
4	0.8122	0.01570	0.01570	0.13416	<u>0.84901</u>	0.07520
5	0.8234	0.4350	<u>0.60462</u>	0.10701	-0.34243	-0.16870
6	0.7899	<u>0.78653</u>	0.18535	0.31697	<u>0.60731</u>	-0.04836
7	0.8474	<u>0.65867</u>	0.34522	0.48091	0.24985	0.02595
8	0.8822	<u>0.84845</u>	0.36035	0.12495	0.18330	0.12869
9	0.9034	-0.08332	-0.28113	0.13358	0.13890	<u>0.88209</u>
10	0.8680	0.45056	<u>0.72263</u>	0.14998	0.18563	0.29263
11	0.7647	0.14068	<u>0.84211</u>	0.13542	-0.00505	-0.13208
12	0.6825	0.5579	0.13917	0.51341	-0.22501	<u>0.62340</u>
13	0.8745	<u>0.82045</u>	0.38065	0.17494	-0.08408	-0.10525
14	0.7466	0.48036	<u>0.66503</u>	-0.47412	-0.24863	-0.03429
15	0.7494	0.03605	0.30034	<u>0.65835</u>	0.06460	<u>0.80847</u>
16	0.8272	0.18157	-0.05653	<u>0.88858</u>	0.11961	0.34185
17	0.8480	0.16812	0.30371	<u>0.083055</u>	-0.17057	0.09410
18	0.8929	<u>0.64945</u>	0.45772	-0.87552	<u>0.80178</u>	-0.04597
19	0.8302	0.53636	<u>0.72086</u>	0.50122	-0.07548	0.11975
20	0.6637	-0.14749	0.04553	<u>0.64407</u>	-0.32623	<u>0.77930</u>
21	0.6637	0.43654	0.07519	<u>0.74290</u>	0.01158	0.06784
% variance	-	26.19	19.72	16.46	9.95	8.27
cum %		26.19	45.91	62.37	72.32	80.59

Source: Computer output \*the underlined figures are the highly positive values that explain the significant correlations

Factor 1, accounting for 26.19% of the total variance, turns out to be an indicator of the *general level of social satisfaction and positive adjustment*. This summarizes the social dimension associated with wealth index (variable 1), perception of development (variable 5), increased population change (variable 6), number of houses with electricity (variable 7), number of houses with modern facilities (variable 8), quality of water usage (variable 13), and favorable adjustment to social change (variable 18).

Factor 2 on the other hand, accounts for 19.27% of the total variance. This factor loaded heavily in a positive direction on primary school enrollment (variable 3), perception on development (variable 5), accessibility to medical facilities (variable

10), attendance of health centers (variable 11), number of households within reach of bore holes (variable 14), and number of crime report/neighbor conflict per population (variable 19). This factor can easily be identified as *general level of social welfare equity*. It is interesting to note that the variable of neighborhood conflicts loads heavily on this factor, reflecting the close association of population size, infrastructural development with conflict rate and co existence among various communities.

Factor 3 accounting for 16.40% of the total variance can be referred to as *the aggregate measure of agrarian change* due to high and positive loading it has from agricultural productivity (variable 15), increased fish output (variable 16), improved irrigation output (variable 17), increased number of livestock (variable 20), and general satisfaction about resettlement (variable 21). Similarly Factor 4 explains 9.95% of the total variance and has significant positive loadings from improved income (variable 2), occupational change (variable 4), population influx per settlement (variable 6), and high adjustment level (variable 18). This factor is easily identified as *dimension of income and entrepreneurial change*. Factor 5 also accounts for 8.27% of the total variance in the factor pattern and it has high loadings from settlement mobility score (variable 12), increased farm yield (variable 15), rural residential density (variable 9), and increased number of livestock (variable 20). This is termed the *dimension of improved rural peasantry*.

### **Spatial Pattern of Socio-economic and Rural Development**

The factor scores in Table 5 indicate the pattern of local and inter-settlement variation in socio-economic and rural development in the lake basin. In respect of Factor 1 (*general level of social satisfaction and positive adjustment*), this pattern reveals a high achievement in Gbajibo, Bukah, and Kainti settlements. This factor serves as an indicator of a minimum level of modernization enjoyed by the evacuees in these settlements. Local disparities in socio-economic and rural development are clearly discerned in this factor score. These are seen in the settlements with large populations, earth roads, markets and population influx after resettlement, mainly affecting Gbajibo, Kainti, Bukah, and Awuru. Moderate scores (changes) are also noticed in Sabo-peggi, Dada, Yankede, Kumigi, Kalema, Salkawa and Ly'aafu. The rest of the areas are termed least advantaged, in terms of social satisfaction and positive adjustment. They include Chegu, Futawa, Tugan Giriji, Tugan Manni Olli, and Mazhi. The proportion of social infrastructure provided here are scanty when compared to others.

The spread of Factor 2 (*general level of social welfare equity*) is high in places like Awuru, Kainti, Gbajibo, Futawa, Bukah, and Nasarawa. Secondary peaks are also found in Leaba-Awuru, Yankede, Dokko, Awuru Bank, and Chegu. The provision of electricity, health center, portable water supply, and earth roads around these major settlements significantly contributed to high scores in these settlements. The presence of these amenities is a measure of socio-economic and rural development. However, low or negative score patterns are found in those settlements that have scanty or not any infrastructural development. They are termed exceedingly low advantaged, in terms of social welfare equity. They include Dada, Tugan Giriji, Mazhi, Ly'aafu, Salkawa, and Kalema.

**Table 5: Varimax Rotated Factor Scores Depicting Socio-economic and Rural Development**

S/N	Settlement	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	Dada	0.51560	-0.93958	-0.38403	0.00384	1.77399
2	Futawa	-0.57612	<u>0.88953</u>	0.16346	0.02538	0.15886
3	Gbajibo	<u>2.03715</u>	<u>1.98654</u>	<u>1.45975</u>	<u>1.26274</u>	0.00439
4	Bukah	<u>2.30699</u>	<u>1.81617</u>	<u>1.34911</u>	<u>1.08078</u>	0.14697
5	Sabo Peggi	0.44160	<u>0.71438</u>	<u>0.77170</u>	-1.03853	<u>1.39104</u>
6	Nasarawa	-0.17263	<u>1.79291</u>	<u>0.87953</u>	-0.35027	<u>-0.06734</u>
7	Chegu	-0.66368	0.45553	-0.41152	-0.87007	-1.10971
8	Dokko	-0.40460	0.51925	-0.91618	<u>1.22058</u>	-0.15247
9	Yankede	0.22018	0.34628	-1.07406	-1.14636	-0.13887
10	Tugan Giriji	-1.02733	-0.56580	-0.01804	0.69413	<u>1.16322</u>
11	Leaba	-0.98628	0.48485	-0.95136	<u>1.82035</u>	<u>1.01006</u>
12	Awuru Bank	-0.68655	0.78795	0.14567	-0.45599	-0.59441
13	Awuru Town	0.10417	<u>1.45632</u>	0.03140	0.45807	-0.32347
14	T. Manni Olli	-1.27410	0.12218	<u>0.98084</u>	0.30446	0.15570
15	Leaba –Awuru	-1.16877	0.53209	0.22823	<u>1.16809</u>	-0.554583
16	Kainti	<u>1.49044</u>	<u>1.04231</u>	-1.94404	<u>0.95666</u>	0.96352
17	Kumigi	0.05780	0.10871	<u>1.08111</u>	-0.54668	-1.57103
18	Mazhi	-1.00179	-1.08992	<u>0.86237</u>	-0.44194	<u>1.46430</u>
19	Ly'aafu	-0.07215	-1.66301	<u>0.94259</u>	-0.61881	<u>0.83464</u>
20	Salkawa	0.18021	-1.58867	<u>0.73916</u>	-0.79603	<u>1.53152</u>
21	Kalema	0.53556	-1.51388	-1.75680	-0.32408	<u>1.36249</u>

Source: Computer output from the original variables

Scores on Factor 3 (*the aggregate measure of agrarian change*) are found to be highly loaded in settlements that are sources of influx in population after resettlement, and mostly lakeside settlements with new agricultural markets. They are also close to areas of identifiable resource inputs (irrigation centers, the dam, and research institute). In this regard, settlements like Gbajibo, Bukah, Nasarawa, Sabo-Peggi, and Kumigi benefit from irrigation centers at Muwo and the National Institute for Fresh Water Research, New Bussa. Other settlements with remarkable agrarian change are Tugan-Manni Olli, Mazhi, Ly'aafu, and Salkawa. The majority of people in these villages were involved in farming, fishing, and local irrigation in their former settlements and locations. The case of lower productivity in places like Kainti, Kalema, and Tugan-Giriji might be related to the purported rocky structures of their new locations and distant locations to farming input centers. On the other hand, settlements having low factor score patterns are less advantaged in term of measure of agrarian change. They include Leaba, Dokko, Chegu, and Kainti. Moderate scores are found in places like Awuru Bank, Awuru 2, Leaba Awuru, and Kumigi.

In the case of Factor 4 (*dimension of income and entrepreneurial change*), high scores are found in Gbajibo, Bukah, Tugan Giriji, Leaba, Kainti, and Leaba Awuru. These are areas where occupational dislocation is at the highest level. The implication is that more people were unable to retain their traditional occupations that existed in the former locations as a result of exposure to better income yielding occupations. Similarly, larger markets and better opportunities like pottery, weaving and artisans were enhanced in the new locations. A small proportion of the population was also employed by the Power Holding Corporation of Nigeria (PHCN) at Jebba and New Bussa as Junior staff within their catchments. On the other hand, low scores of socio-economic and rural development are depicted in the remaining twelve settlements with high, but negative scores. In some cases the evacuees retained their former occupations, but their levels of income were not much improved as a result of decrease from farm yield and fishing. This was the main complaint of the residents Kalema, Futawa, and Dokko. Here agricultural lands were reported to be rocky and less fertile, and the relocated settlements were farther from the former lakeshore locations.

Scores on Factor 5 (*dimension of improved rural peasantry*) represents spatial patterns of rural population structure. The settlements with high scores on this factor also have high residential density, less number of social infrastructure, and were remotely located. They include Ly'aaful, Tugan Giriji, Salkawa, Kainti, Dada, and Leaba. Also, each of these settlements is noted for its popular markets, where agricultural and fishing goods are sold. In contrast with other factors, the absence or inadequate provision of a combination of other developmental innovations in these settlements tend to threaten the socio-economic and rural development of a good number. Eleven remaining settlements either have moderate scores or high negative values.

## **IMPLICATIONS OF ANALYSIS AND CONCLUSION**

It has been established that Factor Analysis has been useful in showing different patterns of socio-economic and rural development at the post resettlement days in Jebba resettled villages. Thus far, the initial 21 variables have been reduced into five orthogonal factors, which described the pattern of changes relating to resettlement over time. These factors are general level of social satisfaction and positive adjustment, general level of social welfare equity, aggregate measure of agrarian change, dimension of income and entrepreneurial change, and dimension of improved rural peasantry.

This pattern differentiation allows for inter-settlement comparison and post resettlement impact evaluation. The implication is that areas less advantaged in terms of socio-economic and rural development can be easily identified for possible attention when policy planning is being implemented. It has also enabled depiction of significant factors that account for variation in the development after resettlement. Factor analysis can thus be used to depict aerial differentiation for planning purposes in future resettlement schemes, especially those relating to hydroelectric power projects in Nigeria and elsewhere in Africa.

Similarly, it has been established that disparity exists on resettlement inputs, which subsequently puts some settlements at better advantaged positions in relation to social infrastructures. Relatively bigger settlements like Gbajibo, Bukah, Awuru, and Kainti have more than enough shared facilities vis-a-viz socio-economic and rural development resulting from resettlement innovative inputs. Finally, advantaged and disadvantaged settlements vary from one factor or another. Evidence

from this study suggests that the spatial unit, which is most developed for a given factor, tends to a 'better off' status for other factors. Government should, however, maintain the welfare provision through the local governments to enable these villages to enjoy continuous sustainable development. Although the relocation activities and Jebba lake creation brought about improved opportunities in fishery, employment access roads, etc., effort should be made to monitor and maintain the resources to enhance sustainability.

In conclusion, what happened in Jebba villages thus represents a giant step in socio-economic and rural development, and if it is properly monitored, resettlement will enhance sustainable development. The living conditions of the resettlers will improve and the legacy of the dam construction will not depreciate, while the resources of the people and settlements' status will be sustained not at the expense of the future generations, but building a sustainable background for growth.

## REFERENCES

- Abumere, S. I. (1981). The peoples' choice: Resettlement, preferences of displaced persons for Nigeria's new federal capital territory. *Ekistics*, 48(29), 476-480.
- Adalemo, I. A. (1973). The marketing of onions and cowpeas in the Kainji Lake Basin. *Kainji Lake Studies*, 2: 121-156.
- Adeniyi, E.O. (1976) Down Stream Impacts of the Kainji Dam, *Kainji Lake Studies*,2:169-178
- Alamu, S. O., Adedeji, R. B., & Adelu, T. (2004). Fishermen's assessment of infrastructures for rural development in Tiga Lake, Kano State, Nigeria. *Geo-Studies Forum*, 2(1), 60-74.
- Arungbemi, K. M. (1983). A pre-impoundment socioeconomic survey and some development in resettlement activities around Jebba Reservoir. *KLRI Annual Report*, 2, 12-16.
- Arungbemi, K. M. (1983b) Population Displacement and Resettlement in Jebba Reservoir Area, *Pre impoundment Studies of Jebba Lake Basin, KLRI, New Bussa, P1-34*
- Brightmer, M.I (1983) Man Made Lakes and Human Health in Africa, with special Reference to Lake Kainji, Nigeria, *unpublished M.Sc. Dissertation*, Department of Geography, University of London, p1-73
- Lightfoot, R. (1979). Planning reservoir related resettlement programme in N.E. Thailand. *Journal of Tropical Geography*, 48, 47-57.
- Olawepo, R. A. (1997). *Resettlement and rural development: The dynamics of rural change in the resettled villages of Jebba Lake Basin* (Doctoral Thesis). Department of Geography, University of Ilorin, Nigeria.
- Olawepo, R. A. (1999). Resettlement and rural development: Current assets and welfare of evacuees in the resettled villages of Jebba Lake Basin. *Geo-Research*, 1(2), 54-64.
- Olawepo, R. A. (2000). Participatory rural resettlement planning: The Jebba Scheme experience in Nigeria. *Geo-Studies Forum*, 1(1, 2), 100-109.
- Olawepo, R. A. (2003). Managing the Nigerian rural environment for sustainable development through participatory rural appraisal. *Ilorin Journal of Business and Social Sciences*, 8(1, 2), 32-39.
- Olawepo, R. A. (2004). Spatio-economic impact of community banks in participatory development: An example from Kwara State, Nigeria. *Geo-Studies Forum*, 2(1), 40-51.

Olawepo R. A. (2008). Using participatory rural appraisal to explore fishing in Badagry Villages, Nigeria. *The Environmentalist*, 28(2), 108-122.

Oloba, A.O. (2004). The impact of dam construction on socioeconomic development: A case study of Jebba (Bachelors of Science Research). Department of Geography, University of Ilorin, Nigeria.

Oyedipe, F. P. A. (1983). Adjustment to resettlement: A study of the resettled people in Kainji Lake Basin. University of Ibadan Press, 1-167.

Oyedipe, F. P. A. (1986). Innovative potentials at Kainji Lake Basin for fadama farming. *KLRI Monograph*, 1-56.

Preston, R. (1982). The politics of community relocation: An Eastern Cree example. *Culture*, 2(3), 37-49.

Richling, B. (1985). Stuck upon the rocks, resettlement and community development in Hopedale, Labrador. *Human Organization*, 44, 348-353.

Roder, W. (1991). Development of Jebba Lake. *NIFRI Monograph*, 1-19. New Bussa, Nigeria.

Scudder, T. (1972) Ecological Bottlenecks and Development of the Kariba Lake Basin, in Farver, M.T. and Milton, J. (eds) *The Careless Technology*, Mt. Missouri, P1-200.

Scudder, T. & Colson, E. (1982). From welfare to development: A conceptual framework for the analysis of dislocated people. In S. Hanson & A. Oliver-Smith (Eds.), *Voluntary Migration and Resettlement* (pp. 267-287). New York: Longmans.

Tijani, F. I. (2003.) *The impacts of resettlement on socioeconomic development: A case study of Gbajibo and Bukah Resettlement* (Bachelor of Science Research). Department of Geography, University of Ilorin, Nigeria.

Wallace, T. (1980). Agric projects in Northern Nigeria. *Review of African Political Economy*, 17, 59-70.

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Figure 1: Map of Jebba Lake Bas in Showing Resettled Villages

