

Full Length Research Paper

The socio-economic impact of the Lake Chad resettlement scheme, Nigeria

E. D. Oruonye

Department of Geography, Taraba State University, P. M. B. 1167, Jalingo, Taraba State, Nigeria.
E-mail: emmyodan@yahoo.uk. Tel: 07039271480, 08025250182.

Accepted 31 January, 2011

This study was undertaken with the objective of assessing the socio-economic impacts that have taken place since the arrival of different batches of settlers following the resettlement scheme. These impacts include damages exerted on the natural environment, accessibility to sites, provision of infrastructural facilities and the overall success/failure of the resettlement programme. The study employed descriptive survey method including both quantitative and qualitative data collecting instruments. The checklist method of impact assessment was employed in this study. The high number of people who indicated that they did not observed any socio-economic impact of the resettlement scheme on the environment is a reflection of the low level of awareness of the people about environmental impacts of such projects. This study recommends the implementation of existing framework of SEIA in order to ensure that local people and other interests are effectively represented in the process of resettlement scheme.

Key words: Lake Chad, impact assessment, socio-economic, scheme and resettlement.

INTRODUCTION

The prolonged drought in the Sudan Sahelian zone of West Africa has resulted in the proliferation of permanent, semi-permanent and mobile settlements all over the floors of Lake Chad (Ijere, 1997). Increasing aridity has also resulted in herders of different nationalities moving to the Lake floor in the dry season for pasture and water. Migration to these areas has brought about interaction of people of different nationalities resulting in conflicts. Conflict resulting from scramble over diminishing fishing grounds and emerging farmlands are now commonplace. The Nigerian - Chad war of 1983 and current dispute over territory in the Lake area between Nigeria and Chad and between Nigeria and Cameroon are all fallouts from the drying up of the Lake. The current dispute between Nigeria and Cameroon led to the intervention of the International Court of Justice (ICJ) in 2002. The International Court of Justice (ICJ) ruling on the boundary dispute between Nigeria and Cameroon led to the ceding of 33 villages to Cameroon in the Lake Chad region (Omidan, 2005; Bolori, 2005)

The decision of the Federal Government to resettle returnees affected by the International Court of Justice (ICJ) rulings on the boundary dispute between Nigeria and Cameroon in some selected communities along the

Lake Chad area, (fragile environment) is bound to have a lasting impact on the environment (physically and socio-economically). This study examines the socio-economic impact of the resettlement scheme on the fragile environment of the Lake Chad area of Nigeria.

The concept of socio-economic impact studies provides a general framework for the assessment of a development project in order to determine its likely ecological and socio-economic consequences and also determine any possible alternative (Ibrahim, 1997). Socio-economic impact involves analysis of potential impacts of new projects on local communities and wider society, and the development of strategies to manage these impacts. Socio-economic impact studies can be carried out as a separate study, but often delivered through an integrated environmental and socio-economic impact studies. Socio-economic impact assessments are usually carried out to assist policy makers in making decisions that promote long-term sustainability, including economic prosperity, a healthy community, and social well-being. A socio-economic impact examines how a proposed development will change the lives of current and future residents of a community. Because socio-economic impact is designed to estimate the effects of a proposed development on a

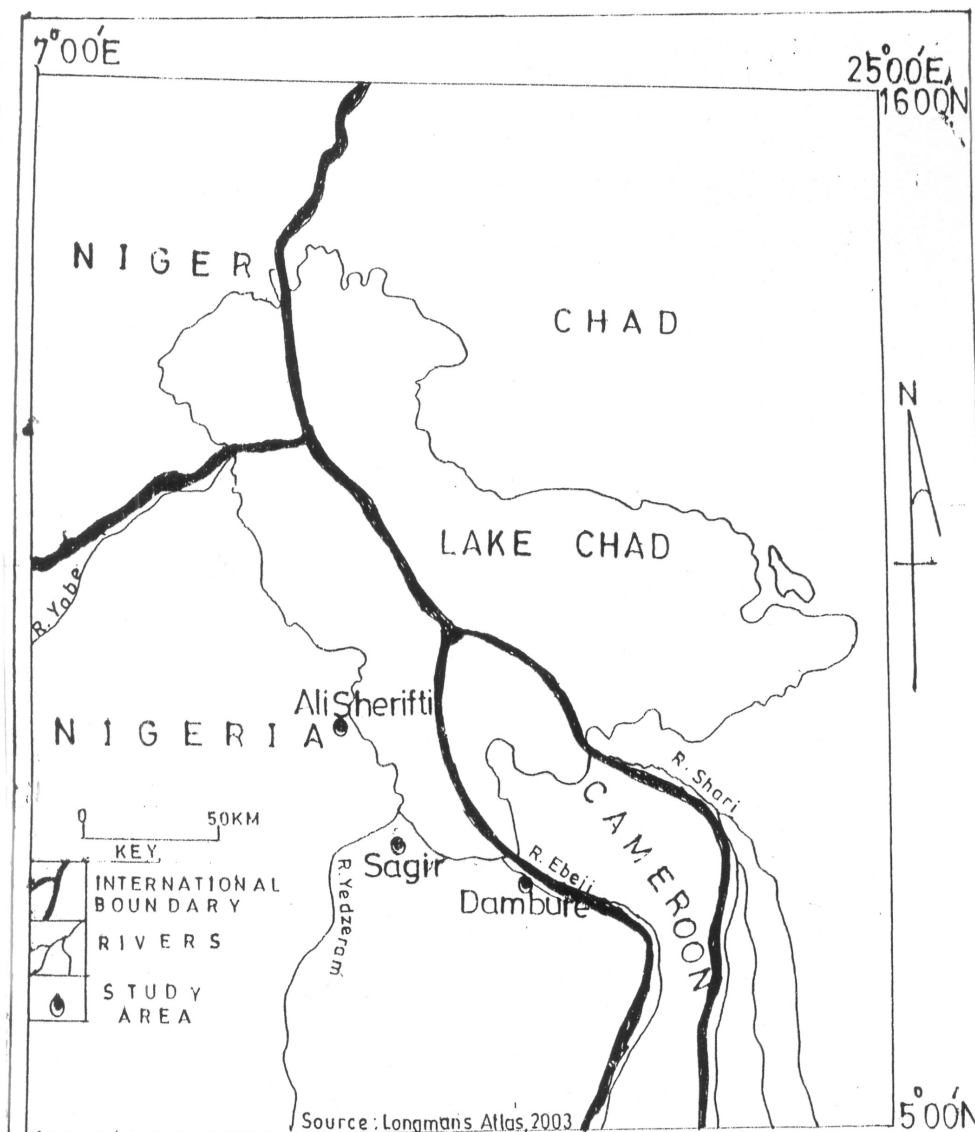


Figure 1. Map of Lake Chad Basin showing resettlement area.

community's social and economic welfare, the process should rely heavily on involving community members who may be affected by the development. Socio-economic impact provides a foundation for assessing the cumulative impacts of a development on community's social and economic resources. Unfortunately, socio-economic impact often takes a back seat to other types of impact assessment such as fiscal and environmental impact analysis because the impacts are often more difficult to measure, and the social impacts associated with a development are generally more subtle than impacts on a community's fiscal balance sheet or local natural resources (Burdge, 1995). This paper examines the socio-economic impact of the resettlement programme and project construction on the immediate environment. Specifically, the study investigates how the people living in the host communities and the resettlers perceive the

socio-economic impact of the resettlement scheme on the immediate environment. The distribution of the resettlement sites are as follows: Dambore and Sagir/Kirta in Ngala LGA and Ali Sherifti in Kukawa LGA, both in Borno State of Nigeria (Figure 1).

MATERIALS AND METHODS

The effect of large regional project such as the Lake Chad resettlement scheme deserves environmental impact assessment (EIA) yet this was not done either before or during the resettlement process. Consequently, there is no previous EIA with which this study being carried out about 5 years after the completion of the project can be compared with. Since there were no EIA before or during the resettlement process, the views of the people currently living in the resettlement areas were obtained using questionnaires and interview schedule.

The checklist method of impact assessment was used in

examining some of the changes that the resettlement scheme has made and will still make in the future on the resettlement areas. First, an exhaustive checklist of impacts that such project (resettlement scheme) can have on land and water resources as well as the checklist impacts that the projects or the exercise can have on human life and welfare was compiled. After developing the items in the checklist, they were carefully examined and a manageable number of important impacts were selected for detailed study. The rest of the impacts which could not be measured given our disposition, such as air and noise pollution were discarded, although, their impact could be measured indirectly through the views of the respondents living in the communities. Judicious scoping enabled us to limit both the number of impacts, and the depth to which the impact was studied. After the corrections, the following major categories or topics were selected for the checklist of possible impacts of the resettlement scheme on the immediate environment. Each category contains a number of relevant items. They are:

1. Socio-economic impact of the resettlement on land and water resources (9 items).
2. Services provided by the resettlement scheme's projects (6 items)
3. Socio-economic impact of the resettlement projects uses on the environment (6 items).
4. Infrastructural facilities attracted to the communities by the resettlement scheme (9 items).

This checklist designed on a 5- point response continuum scale was based on the Likert scale after modification by Okoye (1996) as cited in Onokala (1997). Strong positive impacts are coded 5, positive impact is coded 4, while no impact observed, negative impact observed and strong negative impacts are coded 3, 2 and 1, respectively. The quantification of the impacts enabled the determination of the degree to which each item contributes to the impacts of the resettlement scheme on the environment.

The resettlement areas include Sagir and Dambore in Ngala Local Government Area and Ali Sheriffiti in Kukawa Local Government Area, both in Borno State. Sixty-five questionnaires were administered in each of the three resettlement communities previously mentioned and forty four questionnaires in Kirta village (nearby village hosting the returnees). In all, 239 questionnaires were administered in the study areas. The administration of the questionnaires was randomly done to ensure that every adult has equal chance of being selected (Ibe and Oruonye, 1999). The Pearson's product moment correlation coefficient was used to analyze the relationship between the 4 categories of socio-economic impact of the resettlement scheme on the environment. Principal component analysis (PCA) was later applied to the data to determine the loading of each of the variable on the component. Tables were used in presentation of results.

RESULTS AND DISCUSSION

The study examines the scores of the respondent on the socio-economic impact of the resettlement scheme project on the environment. These socio-economic impacts are in four categories, namely;

Category A

Socio-economic impact of the resettlement scheme on land and water resources is:

1. Socio-economic impact on depletion of land for other uses (A1).
2. Socio-economic impact on damage to agricultural land (A2).
3. Socio-economic impact on damage to existing properties such as houses (A3).
4. Socio-economic impact on damage to economic trees (A4).
5. Socio-economic impact on destruction of hamlets (A5).
6. Socio-economic impact on migration of communities (A6).
7. Socio-economic impact on destruction of existing roads (A7).
8. Socio-economic impact on pollution of sources of drinking water (A8).
9. Socio-economic impact on access to sources of drinking water (A9).

Category B

Services provided by the resettlement scheme's projects (6 items)

1. Medical services (B1).
2. Education service (provision of teachers) (B2).
3. Extension services (B3).
4. Security services (B4)
5. Increase in volume of trading in the affected areas (B5).
6. Increase in volume of traffic (transportation) (B6).

Category C

Socio-economic impact of the resettlement projects uses on the environment (6 items) are:

1. Solid waste generation in the affected areas, as a result of the project (C1).
2. Litter generation by workers and users of the project facilities (C2).
3. Air pollution (C3).
4. Noise pollution (C4).
5. Water coloration (C5)
6. Vegetation exploitation for fuel wood uses (C6).

Category D

Facilities attracted to the communities by the resettlement scheme (9 items).

1. Provision of health facilities (D1).
2. Provision of educational facilities (D2).
3. Provision of marketing facilities (D3).
4. Provision of security (D4).
5. Provision of agricultural development facilities (D5).

Table 1. Average percentage of response option.

Category	A (Strong positive impact)	B (Positive impact)	C (No impact observed)	D (Negative impact observed)	E (Strong negative impact observed)
Factors					
Resource-I	0.1	10.5	49.7	18.1	21.6
Service - II	2.8	96.7	0.5	0.0	0.0
Use - III	0.0	0.0	50.0	2.4	47.6
Facilities-IV	8.3	69.5	21.0	1.2	0.0

Source: Fieldwork 2006.

Table 2. Pearson correlation coefficient of the four factors.

Factors	Q1-resource	Q2- service	Q3- uses
Q2- service	0.0693	-	-
Q3- uses	0.8990	-0.3340	-
Q4- facilities	0.0203	-0.9167	0.4556

Source: Statistic result.

6. Provision of housing (D6).
7. Provision of water supply (D7).
8. Provision of transport network (D8).
9. Provision of mass literacy facilities (D9).

The average scores of each respondent/case on the 5-point response scale was computed for each category on the checklist, this average score was then entered in the appropriate column of the response option (and is presented in Table 1).

The socio-economic impact of the resettlement scheme on land and natural resources (Category A = RESOURCE) and the socio-economic impact of the resettlement project use on the environment (Category C = USE) have majority of the respondents under no impact observed, negative impact or strong negative impacts. On the other hand, services provided by the resettlement scheme (Category B = SERVICE) and the facilities attracted to the resettlement areas (Category D = FACILITIES) have majority of the respondents under positive, strong positive and no impact observed. Under category A, 39.7% of the respondents indicated that the impact of the resettlement scheme on the land and natural resources are either negative (18.1%) or strongly negative (21.6%) while 49.7% of the respondents indicated that no impact was observed. Under category B, 2.8% indicated strong positive impact while the remaining 96.7% indicated strong positive impact and 0.5% are for no impact observed with nothing under the other columns. Under category C, 50% of the respondents could not determine the impact of the resettlement project use on the environment while 50% of the respondents indicated that the impact of the resettlement project use is either negative (2.4%) or strongly negative (47.6%). Category D indicates that facilities attracted to

the resettlement areas show positive impact (69.5%) or strongly positive impact (8.3%) and no impact observed (21%) and negative impact observed (1.2%).

After calculating the Pearson's product moment correlation coefficients between the 4 categories of socio-economic impact of the resettlement scheme on the environment (Table 2), principal component analysis (PCA) was also applied to the data and the results of this analysis are presented in Table 3.

The result of the correlation of these four categories is shown in Table 2. The result shows that there is a very weak relationship between category B (SERVICE) and category A (RESOURCE), $r = 0.0693$. There is a strong positive relationship between category A (RESOURCE) and category C (USE), $r = 0.8990$, a weak negative relationship between category B (SERVICE) and category C (USE), $r = -0.3340$. The result also shows that there is a very weak relationship between category A (RESOURCE) and category D (FACILITIES), $r = 0.0203$. The relationship between category B (SERVICE) and category D (FACILITIES) is strong negative, $r = -0.9167$. The relationship between category C (USE) and category D (FACILITIES) is weak, $r = 0.4556$. Hence categories A and C (RESOURCE and USE) are grouped as factor I, while categories B and D (SERVICE and FACILITIES) are grouped as factor II. Table 3 shows the principal component analysis (PCA) of the socioeconomic impact of the resettlement scheme on the immediate environment and indicates that there are three major factors, which altogether explains 100% of the variation.

Factor 1, which loads highly on category A (RESOURCE) and category C (USES) explain 60% of the variation. The component-defining variable is category A (RESOURCE) and it has the highest loading of 58% on this factor. These two categories had 49.7% for A and 50% for C under the impact could not be determined column of Table 1. Therefore, factor 1 indicates that the socio-economic impact of the resettlement scheme and project use on the environment could not be determined by majority of the respondents most of whom are returnees who were resettled in the areas (Plates 2 and 3). Factor II that loads highly on category B (SERVICE) and category D (FACILITIES) explains 40% of the variation, the component defining variable is category B (SERVICE) which has the absolute loading of

Table 3. Result of the principal component analysis.

Factor	Eigen values	Percentage of variance	Cumulative percentage of variance
1	2.32319	58.1	58.1
2	1.59431	39.9	97.9
3	0.08235	2.1	100.0
4	1.441E-04	0.0	100.0

Source: Statistic result.

**Plate 1.** Nature of Ali Sheriffiti before the resettlement scheme.

39.9% on this factor. The pattern of distribution of these scores on the 5-point Likert scale, show that majority of the respondents are convinced of the obvious advantages of the services provided by the resettlement scheme (SERVICE) and the facilities attracted to the resettlement areas (FACILITIES). Therefore, factor II reflect the socio-economic benefit and factor I, the socio-economic cost of the resettlement scheme on the immediate environment.

These results of the analysis are further discussed following the socio-economic impact of the resettlement scheme on land and water resources in (Category A = RESOURCES) and the socio-economic impact of the infrastructural project use on the environment (Category C = USE) have negative impacts. On the other hand, services provided by the resettlement scheme (B = SERVICE) and the facilities attracted to the resettlement sites (D = FACILITIES) have majority of the respondents under the strong positive impact or positive impact. The

implications of these are now discussed in details starting with the negative impact.

Under category A = RESOURCES, one item access to source of drinking water (A9) has the highest mean value of 3.7 (Table 4). This is explained by the fact that resettlement exercise involves the drilling of boreholes and cement wells to supply water to the people (Plate 1) and as such they see the resettlement as having a positive impact on the environment rather than negative. This is followed by the pollution of source of drinking water (A8), destruction of hamlet (A5), damage to economic trees (A4) and damage to existing properties such as house (A3), which have mean values of 2.97, 2.96 and 2.91 respectively, showing no impact observed.

Destruction of existing access roads and footpaths (A7), effects on migration (A6), depletion of land for other uses (A1) and damage to agricultural land (A2) all have negative impacts or strong negative impacts (mean values between 2.3, 2.143 and 1.143). The people



Plate 2. Dambore Resettlement Camp.



Plate 3. Ali sheriffti camp showing planted trees.

believed that the resettlement exercise have had negative impact on migration because many of the returnees could not cope with the situation on ground and as such have to migrate in search of better fishing grounds or farming areas. They also believed that the resettlement exercise have strong negative impact on damage to

agricultural lands and depletion of land for other uses because many of them lost their land to the construction work and others (especially the returnees) could not even have access to land to build house or cultivate.

Under category C = USE, most of the respondents (50%) could not observe the socio-economic impact of

Table 4. Mean distribution of respondent response.

Category	Impact type	Mean of respondent response
Resources - A	A (1)	1.14
	A (2)	1.14
	A (3)	2.91
	A (4)	2.91
	A (5)	2.96
	A (6)	2.14
	A (7)	2.30
	A (8)	2.97
	A (9)	3.70
Services - B	B (1)	4.50
	B (2)	4.81
	B (3)	3.99
	B (4)	3.80
	B (5)	3.90
	B (6)	3.43
Project uses - C	C (1)	1.04
	C (2)	1.11
	C (3)	2.99
	C (4)	3.0
	C (5)	2.99
	C (6)	2.99
Facilities – (D)	D (1)	5.00
	D (2)	4.68
	D (3)	4.38
	D (4)	3.36
	D (5)	2.98
	D (6)	3.28
	D (7)	4.89
	D (8)	3.43
	D (9)	4.36

the resettlement scheme project use on the environment and for all the items on this category positive impact is non-existent. Evidence of noise pollution (C4), water pollution (coloration) (C5) and air pollution (C3), from the projects with means of 3.0 and 2.986 show strong emphasis on no impact observed which reflect the non-existence of pollution resulting from the resettlement scheme.

Solid wastes from the various projects (C1), litter from workers and users of the projects (C2) and pressure on vegetation (C6) with the least means of 1.043, 1.114 and 1.0, show strong negative impacts on the environment. Therefore the mean value of 2.024 (with a standard deviation of 1.0649 and variance of 1.1339) places the socio-economic impact of the resettlement scheme project use on the environment (Category C = USE) as negative.

Services provided by the resettlement scheme (Category B = SERVICE) is seen as positive by over 96% of the respondent and strongly positive by 3.4% and no impact observed by 0.5% of the remaining respondents. It has no score at all on the two other columns. All the items each have a mean value of 3.986 to 4.114. Therefore all the respondents acknowledge the overwhelming positive impact of the services provided by the resettlement scheme (medical services, adequacy of teachers, extension services, security services, increase in volume of trading in the affected areas, transport service).

Facilities attracted to the resettlement areas (Category D = FACILITIES) also indicate fairly positive impact on the environment. The mean value for all the items in this category ranges from 2.87 to 4.57. The strong positive impact (8.25%) and positive impact (69.5%) are

explained by the fact that all the respondents could easily experience or observe this. Generally, the resettlement scheme attracted many facilities, which are by far, better than some of the ones in the Local Government headquarter (especially the well equipped modern health centers). Others include a modern primary and secondary schools with standard classrooms, hostels and staff quarters, an agricultural development center, boreholes with overhead tanks, viewing centers, police outpost and Immigration office with quarters.

Conclusion

This study has investigated the socio-economic impact of the resettlement scheme project construction and its uses on the immediate environment. The study shows that very little attention has been devoted to the degree of involvement and participation of the returnees and the host communities compared with the comparative focus upon physical infrastructures. The findings from the study also show that even though infrastructures such as schools, health centres, market stores, viewing centres and boreholes were provided in each of the resettlement sites, they were not the immediate needs of the resettled people. The resettled people would have preferred a canal on the Lake Chad to enhance their means of livelihood and transportation, shelter to accommodate them and land for farming. The resettlement therefore has increased pressure on the already fragile environment of the Lake Chad region. Thus, contrary to the expected benefits, enhanced income, higher standard of living, increased employment opportunities through general enhancement of farmers and fishermen's welfare by way of government support, most of the returnees have experienced the worst hardships in their life resulting from poor land fertility, displacement, deception and land deprivation.

RECOMMENDATION

This study recommends the need to implement existing

framework of SEIA in order to ensure that local and other interests are effectively represented in the process. Also there should be a monitoring body which could oversee the conduct of SEIAs and or a special environmental tribunal which could have as part of its Jurisdiction, the power to investigate and review governmental environmental decision on proposed projects. There is need for an SEIA framework which incorporates a defined role for the members of the public, so that their views and opinions are considered by the decision making agency and further strengthened by the provision of a monitoring body or tribunal.

REFERENCES

- Bolori S (2005). Aspects of the Political Challenges of the Lake Chad Basin Commission. *AL-MAHRAM J. Trans-Saharan Studies*. 1&2(1):29-49.
- Burdge RJ (1995). *A Community Guide to Social Impact Assessment*. University of Illinois: Urbana. p. 235.
- Ibe BA, Oruonye ED (1999). Effectiveness of the Agricultural Development Programme (ADP) on the quality of life of the people in the rural areas. *Sahel Analyst*. 4(1):47-59.
- Ibrahim A (1997). *Law and Policy for Environmental Protection and Sustainable development in Nigeria with special reference to Water Resource Development Project*. Unpublished Ph.D. Thesis, Department of Law, University of London.
- Ijere JA (1997). Man-water relationships: The case of Lake Chad. pp. 191-198. In: Daura, M.M. (1997)(ed.) *Issues in Environmental Monitoring in Nigeria*. Nigerian Geographical Assoc. Maiduguri.
- Okoye RO (1996). *Psychometric Properties of Likert Type Attitude Scale Under Varying Positions and Score Values of Neutral Response*. Unpublished Ph.D. Thesis, Department of Education, University of Nigeria, Nsukka.
- Omipidan I (2005) *Echoes of Lake Chad ceding*. Daily Sun Newspaper (Lagos, Nigeria), 9th Feb., p.16.
- Onokala PC (1997). Impact of the Enugu-Onitsha express way in southeastern Nigeria on the socio-economic aspects of its immediate environment. In Daura M.M. (Ed.) *Issues in Environmental Monitoring in Nigeria*. Nigerian Geographical Association, pp. 203-209.