

Cultural changes as conservation efforts in Forestry in selected areas of Egba division of Ogun State, Nigeria

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Abstract

Culture is understood as a conceptual scheme encoding social behaviour. The impact of cultural changes on sustainable resource management is poorly understood. This study assessed participation in cultural changes and the factors contributing to cultural changes to promote conservation in forestry and the impact of changes on the welfare of the respondents in Egba division of Ogun State. Stratified Random Sampling was adopted and questionnaire used to elicit information from 200 respondents. Both descriptive and inferential statistics along with econometric tool of Gini index were used for data analysis and impact of cultural changes in the welfare of the respondents. Ratio scale model known as People Participatory Index (PPI) was used to determine people participation in cultural changes. The result showed gender sensitivity as majority, (56%) of the respondents were male and 44% female. On age, some of the respondents were in age bracket ≥ 61 (27%) with average age of 51 years. Educationally, primary education recorded the highest (43%), and tertiary education (4.5%) had lowest. On participatory level, 25.4% had moderate participation, 47.5% had low participation while 27.2% had high participation index in the changes. The major income recorded a Gini index of 0.375, minor income 0.188 and total income 0.336 showing the pattern of contribution to income inequality. Conclusively, majority of the respondents participated in cultural changes unconsciously for conservation. It is recommended that forest policy should advocate for more participation in changes that promote conservation and forest protection among rural populace who are mostly farmers.

Keywords: Culture, Biological resources, Conservation, Gini index, Inequality.

Introduction

Nigeria is blessed with a large expanse of land and variable vegetation, but this important resource is not sustainably used or managed. Many rural dwellers in the past have treated our forest resources as inexhaustible. Today the story is different. The average rural dweller now realizes that the forest is “finished,” but poverty continues to force people to exploit even the relics of remaining forests. Traditional strategies in the management of natural resources are based on the local knowledge about biological systems (Berkes et al. 2000), but also respond to historical, economic, social, and cultural factors (Caballero 1994; Balée 1998; Hertog and Wiersum 2000; Ruiz-Pérez et al. 2004). Culture, understood as a conceptual scheme encoding social behaviour, mediates human action including decisions on what and how to manage biological resources and transform ecosystems (Boas 1938; Vayda 1983; Yengoyan 1986). However, culture is not static but it is daily constructed in such a way that social behaviour, as well as the social structures that maintain the identity of a human group, may be frequently altered. Cultural practices such as marriage ceremonies, the way in which a house is built, or

the particular way in which a plant resource is used and managed, become relatively distinct cultural traditions as they are passed down through generations. These types of cultural practices are the main units in which cultural change operates (Goodenough 2003). The shared knowledge about resource-management practices may, therefore, be modified as a result of these processes of cultural transformation (Padoch and De Jong 1992; Freeman 2002).

Sustainability science is a new field in search of understanding the fundamental interactions between nature and society (Kates et al. 2004). It has been proposed that only through the development of qualitative and quantitative research, which recognizes the complexity and uncertainties of environmental and social systems, then will the sustainability of biological resource management be successfully evaluated (Swart et al. 2002). From an ecological point of view, studies on sustainability are focused on assessing the long-term maintenance of the system's productivity (Lubchenco et al. 1991), but few studies with this approach have incorporated other factors that could affect such systems (Joyal 1996; Ticktin et al. 2002). The impact of cultural change on sustainable resource management is poorly understood. From a qualitative perspective, cultural change and its effects on resource management have been documented by anthropological studies from the observation of change in resource management through time (Kottak 2004). From the ecological point of view, the effect of cultural change on the sustainability of biological systems has been discussed by a number of scholars (Schmink et al. 1992; Almeida 1996; Rocheleau 1999), but there are no quantitative case studies assessing to what extent transformation or abandonment of management practices resulting from cultural change may affect the sustainability of a resource. This underscores the importance of this study with the following objectives: To describe the socio economic profile of the respondents and cultural changes in the study area, to determine the participation of the people in cultural changes and identify socio economic factors promoting changes in forestry and to determine the impact of changes in the welfare of the respondents.

Methodology

The Study Area

The Study area is Egba division of Ogun State, Nigeria. Ogun State is located within latitude 7° N and 7° 5' N and longitude 3° 3' E and 3° 37' W (Figure 1). It covers a total land area of 16,409.26 km². The State is bounded in the north by Oyo and Osun States, in the east by Ondo State, in the south by Lagos State and Atlantic Ocean. The State also shares an international border with Benin Republic. It has Abeokuta as its capital.

The population of Ogun State according to a recent estimate from the National population commission is 3,751,140 – male 1,864,907; female 1,886,233. Agriculture

is the mainstay of the State's economy and employs a large per cent of the population (NBS 2006).

Ogun State is situated in rainforest zone with annual rainfall of 100 - 150cm (Awojuola 2001; Onakomaiya et al. 1992). The environment is characterized by two distinct seasons. The longer wet season lasts for eight months (March - October) and shorter dry season lasts for four months (November - February). The relative humidity is high all the year around, generally above 80% during the wet season and fluctuates between 60 - 80% during the dry season spanning between March and October. Humidity and the long wet season ensure adequate supply of water and continuous presence of moisture in the air. This trend promotes perennial tree growth. The soils in the area are dominated by clayey loam developed on underlying granite. There are also laterite soils. Egba area has extensive free forest areas with two gazetted forest reserves of 61.19km² land area. Major timber crops include *Tectona grandis* and *Gmelina arborea* with other indigenous species from the free areas (Ogun State today 2001).

Ogun State is one of the States blessed with rich soil that is dominated by swamp forest in the south and forest savanna in the North. The place is endowed with derived savanna vegetation which supports the growth of trees, plantations and crops that include cocoa, kolanut, palm produce, yam, cassava and sugar cane.

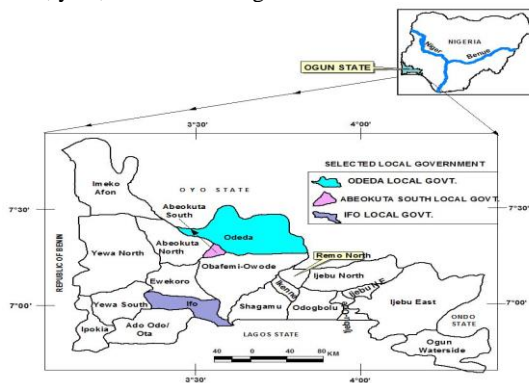


Figure 1: Map of Ogun State showing the study area

Data Collection

The study focused on the cultural changes in forestry. The instrument of data collection was a well-structured questionnaire. The questionnaire was administered with interview guide to the respondents. Stratified sampling technique was adopted for this study with respondents selected in proportion to the population in each local government using a pre-determined sampling frame of 200 respondents. Egba division was divided into six strata. From each stratum respondents were selected from different villages by simple random selection within the six local governments in the study area. The distribution of the respondents is presented in Table 1.

Table 1. Sampling plan of the study area

Location	Number of Respondents
Abeokuta north local government Imalaoko, Olorunda and Idi emi villages	31
Abeokuta south local government Ake, kuto and adatan	25
Odeda local government Alabata village	17
Obafemi-Owode local government Sowo and Adedero village	37
Ewekoro local government Ejio village (Arigbajo)	8
Ifo local government Ososun, Serikikajola, Alaja and Olaoparan villages	82

NB: This research does not involve permission from a regulatory body to collect data.

Data analysis

Data obtained were analyzed with both descriptive and inferential statistics. Descriptive statistics in terms of frequency and percentage distribution were used to analyze the respondents socio-economic profile. Inferential statistics of regression analysis was used to identify factors (socio-economic) contributing to participation in cultural changes to promote conservation. Econometric tool of Gini index was used to show income inequality among the respondents in terms of availability of forest resources in the welfare of the respondents. Ratio scale model was used to determine participation in cultural change.

Procedure for the measurement of People Participation Indices

This was carried out using ratio scale model according to Singh (1991), Bhattacharya and Basnyat (2003). The model is based on simple quantitative index employing mean and percentage with algebraic method. It has 0 as its minimum indicating 'no participation' and arbitrary maximum of 100 indicating maximum possible participation. The scale was constructed by asking the respondents a set question to measure participation. Each of the possible answers to a question is assigned some arbitrary numbers ranging from 0 indicating no participation; 1 indicating full participation. The following rankings were adopted.

- Very low or least people's participation index ranges from 0-25;
- Low people's participation index ranges from 26-50
- Moderate people's participation index ranges from 51-75; and
- High people's participation index ranges from 76-100

Regression analysis

Multiple regression was used to show that participation depends on selected socio-economic factors. Variables considered were gender, age, marital status, household size, residency period in the area, income and religion. Model specification is presented below.

$$Y = f(X_1 + X_2 + X_3 + \dots + X_7 + C) \tag{1}$$

Y = Participation (conservation 1; others 0)
 X = Gender (Male 1; Female 0)
 x₂ = Age (years)
 x₃ = Marital status (Single-1; Married-2; Widow-3; Widower 4)
 x₄ = Household size (Actual number)
 x₅ = How long have you lived in this area (years)
 x₆ = Income (₦)
 x₇ = Religion (Christianity 1; Islam 2; Others 0)
 C = Error term

Gini index

Gini index is standard economic measure of income inequality of income distribution. Values of "0" signify total equality, and value of 1 expresses maximal inequality. The line 45o represents perfect equality of income. Gini-index can range from 0 to 1. If the coefficient is moving closer to 1, it is corresponding to complete inequality and moving closer to 0 is corresponding to complete equality. Higher Gini index will only indicate more unequal distribution of income.

$$G = \sum_{k=1}^m \frac{2}{y} COV [Y_{k1}, F(y)] COV [Y_{k1}, F(y)] \tag{2}$$

Covariance expression

$$COV = \frac{\sum XY \frac{(X-\bar{X})(Y-\bar{Y})}{N}}{N} \quad (3)$$

Where G = Gini index

M= total number of income sources,

K = an income source

Cov = covariance

Y = income

Poverty line determination

Poverty measure is an econometric tool that translates the comparison of the indicator of household well-being and the chosen poverty line into one aggregate number for the populations as a whole or population sub-group. Once the indicator line has been chosen, the various characteristics of the poverty groups (poor and non poor) can be compared to shed light on correlates of poverty. Deaton (1997) provided step by step procedure of choosing the poverty line.

- Sorting income distribution by income level in ascending or descending order
- Choosing the representative moment of the distribution (mean)
- Setting the poverty line; multiplying chosen percentage by the mean
- Calculate the poverty line
- Identification of the poor (Foster et al. 1984)

Results and Discussion

Socio-economic profile of respondents

Table 2 showed socio-economic characteristics of the respondents. Gender distribution showed that majority (56%) of the respondents was male and 44% female. Marital status showed majority (76.5%) married and (6%) single, (10.5%) widow and (7.0%) widower. On family size, majority (51.4%) had 5-8 family size and (3%) had > 12. The age distribution indicates most respondents (27%) were in ≥ 61years and the least (7%) in ≤ 30 years with mean age of 51years. Educationally, (24%) had no formal education and (43%) had primary school certificate. On occupation, majority (66%) of the respondents were farmers, (1.5%) civil servants, (3.5%) students and (16%) artisans. The respondent's income was based on every four day interval market, most of the respondents (42%) had ₦105,001per annum and least (5%) had income of ₦45000-₦60000 annually and mean income was ₦49858.

Table2. Socio-economic profile of respondents in Egba division of Ogun State

Variables	Frequency	Percentage	Mean/ Mode
Gender			
Male	112	56.0	Male
Female	88	44.0	
Total	200	100	
Age			
≤30	14	7	
31-40	37	18.8	
41-50	49	24.5	51yrs
51-60	46	23	
≥60	54	27	
Total	200	100	
Marital status			
Single	12	6	
Married	153	76.5	Married
Widow	21	10.5	
Widower	14	7	
Total	200	100	
Family size			
1-4	62	31	5
5-8	103	51.5	
9-12	29	14.5	
>12	6	3	

Total	200	100	
Level of education			
No formal education	48	24	
Primary	86	43	Primary
Secondary	57	28.5	
Tertiary	9	4.5	
Total	200	100	
Major occupation			
Civil servants	3	1.5	
Artisans	32	16	
Farmers	132	66	Farmers
Traders	27	13.5	
Students	6	3	
Total	200	100	
Major income(₦)			
45000-60000	10	5	
60001-75000	21	10.5	
75001-90000	32	16	₦49858
90001-105000	53	26.5	
≥105001	84	42	
Total	200	100	

Source: Field survey, 2015

Peoples Participatory Index

A summary of the classification of respondents participation in the cultural changes is shown in tables 3 and 4. Some of the respondents (25.4%) had moderate participation index, (27.2%) had high participation index while (47.5%) had low participation index in conservation of forest and wildlife resources. This implies that most of the respondents do not agree with conservation practice but for cultural influence they have to participate in conservation.

Table 3. Summary of Respondents Participation in the Cultural changes

Variables	Low participation %	Moderate participation %	High participation %
Do you participate in Forest management?	71.5	16.5	12.0
Do you participate in forest conservation?	73.0	15.5	11.5
Do you participate in forest protection?	67.5	20.0	12.5
Do you participate in making use of the forest for recreation	1.5	11.5	87.0
Do you advice people to depend less on forest resources?	43.0	49.5	7.5
Do you participate in reducing forest degradation?	67.0	20.0	13.0
Do you participate in exploiting only timber products?	11.0	62.5	26.5
Do you participate in exploiting non forest timber products?	8.5	14.5	77.0
Do you participate in promoting carbon sequestration?	75.5	19.0	5.5
Do you participate in forest extension services?	56.5	24.0	19.5
Mean % PPI	47.5	25.35	27.2

Table 4. Respondents Participation in cultural changes

Level of participation	Frequency	Percentage
Low participation index	95	47.5
Moderate participation	50.7	25.4
High participation	54.4	27.2
Total	200	100

Source: Field survey, 2015

Regression analysis

Table 5 showed regression analysis identifying socio-economic factors promoting participation in cultural changes and forest conservation. Identified factors were age, gender,

marital status, family size, level of education and how long they have lived in the area. The factors were significant at varying alpha levels. The R^2 value of 97.8% showed that the dependent variables (socio economic factors) really influenced participation in cultural changes for forest conservation. The implication is that societal norms and values played significant role in influencing the behaviour of the respondents towards conservation of forest and wildlife resources.

Table 5. Regression analysis of socio- economic factor sinfluencing cultural change

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	5.536	2.004		2.762	.006
Gender	1.409	.617	.027	2.285**	.023
Age	.889	.028	.459	31.178***	.000
Marital status	1.024	.167	.069	6.124***	.000
Family size	1.057	.116	.125	9.136***	.000
Level of education	.701	.412	.021	1.701*	.091
How long have you lived in this area	1.058	.021	.633	50.270***	.000
		.			

Source; Field survey, 2015

***Highly Significant $P < 0.01$; ** Significant $P < 0.05$; *Level of Significance $P < 0.10$

$R^2 = 97.8\%$

Gini index

Table 6 showed the Gini-index of major and minor income. The welfare of the respondents in terms of income inequality arising from the availability of forest resources was determined through gini index. The major income recorded a Gini index of 0.188, the minor income recorded a Gini index of 0.375, and the total income recorded a Gini index of 0.336. Thus, forest income reduces income inequality among the respondents with cultural practices with the value of the gini index far away from 1. This could be explained in terms of the fact that the study was conducted in pure rural setting where difference among the respondents in terms of economic status is not so much pronounced. This is in line with Fisher (2004) that noted reduction in measured income inequality by 12% across three villages in southern Malawi through income from forest resources.

Table 6. Decomposition by income source

	Major	Minor	Total
Gini - index	0.188	0.375	0.336
Mean income from source (i)	(₦)148, 891	(₦)39, 480	(₦)188, 371
Share in the total (income)	0.790	0.209	1

Field survey, 2015

Conclusion

The study has given information on the impact of cultural changes in Egba division of Ogun State. This study revealed that both male and female respondents were involved in cultural changes in forestry. The participation indices of the respondents showed low participation (47.5%) with noticeable changes in forestry. The factors contributing to changes were identified as age, marital status, family size and educational level and residency years in the area. The participation of the people in forest protection contributed to

conservation ensuring sustainable utilization of the resources. Consequently, the Gini index showed that the income inequality is reduced amongst the respondents using forest resources. This shows that cultural changes have imparted positively in the welfare of the respondents using the resources on sustainable basis. Therefore, it is suggested that forest policy should advocate for forest protection and conservation among rural populace who were mostly farmers and forestry extension education should be advocated both in urban and rural areas to promote conservation and sustainable utilization of forest resources.

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