



EVALUATION OF FOREST POLICY IMPLEMENTATION IN TARABA STATE

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Abstract

Forest policy is a direction for forestry development in any state or country. Such forestry developments are state and country specific and may be short-lived if forest policy implementation cannot be guaranteed. Information on forest policy implementation is very crucial to sustainable forest management. However, this information has not been properly documented in Taraba State. Therefore, evaluation of forest policy implementation in Taraba State was investigated. A four stage sampling procedure was used in this study. Three Local Government Areas (LGAs) were randomly selected from each of the existing Agro-ecological zones in Taraba State. Five wards and 30 respondents from each LGA were randomly selected to give a total of 1,350 respondents for this study. A total of 1,350 semi-structured questionnaires were developed, validated and administered with only 1,300 retrieved due to re-location of some respondents. Data generated were analyzed using simple percentages and logistic regression at $\alpha_{0.05}$ the result of the study indicated that, most of the respondents are males, married and are elderly with large household size (Table 1.1). The result on existing forest policy indicated that, there are eleven forest policies in Taraba State (Table 1.2). The result on rating the level of forest policy implementation indicated that it is very low (Table 1.3). The result of logistic analysis showed that, there are five constraints to forest policy implementation in Taraba State (Table 1.4). Based on the major findings above, the followings are recommended; adequate funding, strict forest policy implementation and compliance, recruitment of qualified skilled personnel and staff, effective supervision, co-ordination and control, continuity in policies, provision of functional equipments and patrol vehicles respectively.

Key words: Constraints, Forest, Implementation, Policy and Taraba

Introduction

Forest policy is a plan of action designed to indicate what proportion of a country's land area should be dedicated to Forestry, how the forest area should be developed and how the forest product of the forest should be utilized for public use. Simply put, forest policy encompasses mainly directions or courses of national economic development as adopted and pursued by the national society (Arifalo, 2005; NFP, 2006). It is needed to enable the society to continue to have an un-interrupted access to forest goods and services and if it is not in operation, the forest base will be over exploited to the great disadvantage of the future generation. This is because forest policy provides the frame work for the use and replacement strategy of the forest so that from time to time, the society has access to forest goods and services (Agbeja, 2004; 2010).

According to Anderson (1984), evaluation of forest policy is necessary for determining the effectiveness of a forest policy. Adeyoju (1991) stated that, to implement a forest policy successfully, government authorities must take into account, the receptivity and the demand of those whom the policy will affect. Forest policies that are objectively formulated may not be implemented at all and this explains why forest

policy evaluation becomes necessary. Forest policy evaluation is a tool for measuring the efficiency of forest policies. Taraba State has forest policies guiding operations of its forest, however, the type and level of implementation of the forest policies are not known and documented in Taraba State and hence the need for this study.

Materials and Methods

Taraba State has 16 Local Government Areas and is located between Latitude $6^{\circ} 30'$ & $9^{\circ} 36'N$ and Longitude $9^{\circ} 10'$ & $11^{\circ} 50'E$ (Fig.1). Taraba State has a population of 2,300,736 (NPC, 2006). This population was projected from the 2006 figure provided by NPC to 2022 using the formula;

$$P_n = P_o (1 + r)^n \text{-----} 1$$

Where,

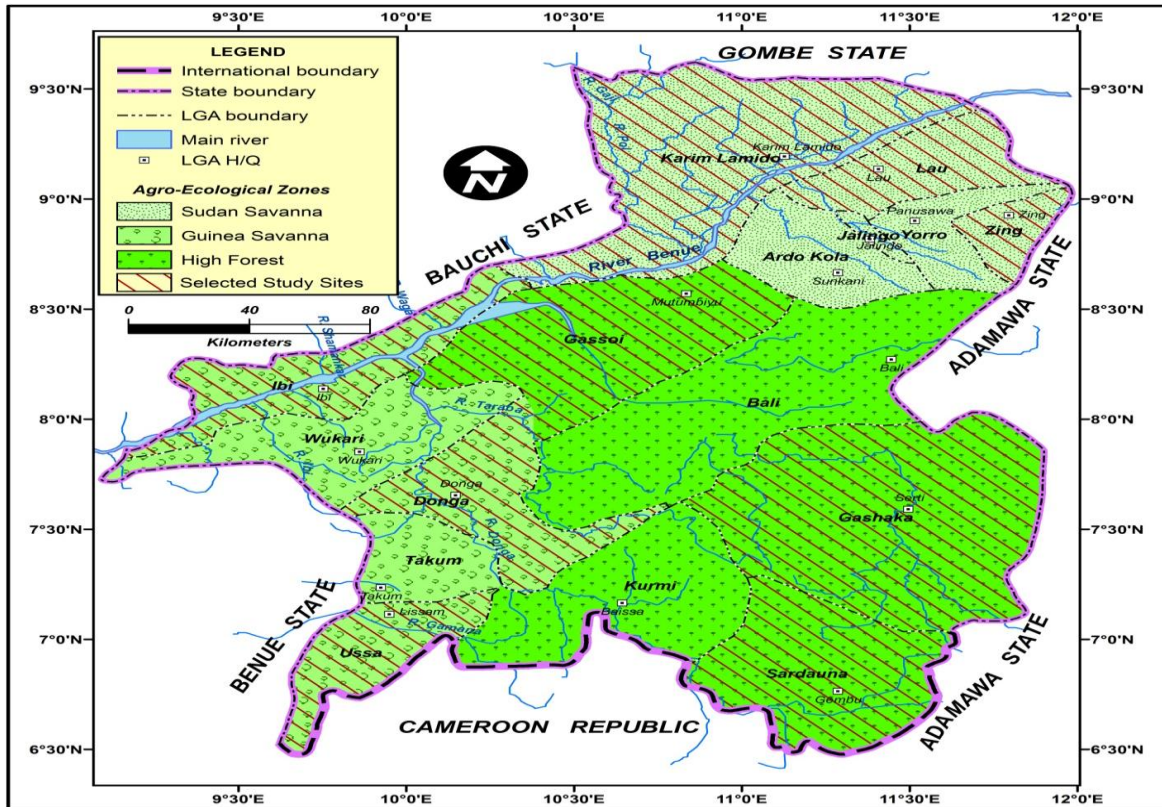
P_n = Projected population of the State.

P_o = Previous population (Population of the State in 2006).

r = National population growth rate of Nigeria (3.5%)

n = Number of years in between.

The population of Taraba State by projection to 2022 using the above formula is approximately 4, 193,09



Source: Zaku. (2013)

Fig. 1: Map of Taraba State showing the study areas

Sampling procedure and sample size

A four stage sampling procedure was used in this study. Three Local Government Areas (LGAs) were randomly selected from each of the existing Agro-ecological zones in Taraba State. Five wards and 30 respondents from each LGA were randomly selected to give a total of 1,350 respondents for this study. A total of 1,350 semi-structured questionnaires were developed, validated and administered with only 1,300 retrieved due to re-location of some respondents. Data generated were analyzed using simple percentages and logistic regression at $\alpha_{0.05}$. The mathematical model for Logistic regression at $\alpha_{0.05}$ is as follows;

The logistic model of a response P between 0 and 1 is given as:

$$\text{Logit}(P) = \text{Log}(P/1-P) = \text{Log}(P) - \text{Log}(1 - P) \text{ -----2}$$

The simplest form of logistic model is expressed as:

$$\text{Logit}(P_i) = a + bX_1 \text{ -----3}$$

Pi = probability of forest policy implementation in Taraba State.

Xi = Vector of predictor or independent variables (Constraints to forest policy implementation in Taraba State).

a and b = regression parameters. Also it can be represented as follows;

$$\text{Logit} \left(\frac{p}{1-p} \right) = Y = \beta_0 + \beta_1 X_1 + B_2 X_2 \dots \dots \dots + B_n X_n \text{ -----4}$$

Where;

B₀, B₁, B₂ B_n= Regression coefficient or model

Parameters

The logistic models are very useful in situations where the dependent or response variable is binary in nature. This implies that, it can have only two possible values (1 and 0). The model therefore describes the relationship between one or more continuous independent variable(s) to the binary dependent variable. The two common binary models are the logistic and the probit models. The logistic model is particularly preferred to the probit model because it provides odds-ratio (Deeks, 1996; Bland and Altman, 2000). Hence, it will clearly indicate the variable(s) i.e. constraints to forest policy implementation in Taraba State.

Result and Discussion

Socio-economic characteristics of the respondents in the study area

The result on Socio-economic characteristics of the respondents on age indicated that, 50(3.8%), 16-30 years; 200(15.4%), 31-45years; 550(42.3%), 46-60years while 500(38.5%) are above 61years. Also, the result on sex of the respondents indicated that, 1,100 (84.6%) are males while 200(15.4%) are females. The result on marital status of the respondents showed that, 300(23.1%) are singles

while 1,000(76.9%) are married. Similarly, the result on educational status shows that, 50(3.8%), Quaranic education; 650(50%), Adult education; 450(34.6%), primary education; 100(7.7%), secondary education; 50(3.8%), tertiary education respectively. The result on household size of the respondents indicated that, 50(3.8%) had no children; 200(15.4%), 1-3 household size; 350(27%), 4-6 household size while 700(53.8%) had household size more than seven respectively (Table 1.1).

Table 1.1: Socio-economic characteristics of the respondents in the study area.

S/N	Variables	No. of Respondents	Percentage
1	Age		
	1 – 15 years	0	0
	16 – 30 years	50	3.8
	31 – 45 years	200	15.4
	46 – 60 years	550	42.3
	61 years and above	500	38.5
	Total	1,300	100
2	Sex		
	Male	1,100	84.6
	Female	200	15.4
	Total	1,300	100
3	Marital Status		
	Single	300	23.1
	Married	1,000	76.9
	Divorce	0	0
	Window	0	0
	Single mother	0	0
	Total	1,300	100
4	Educational Status		
	Quaranic Education	50	3.8
	Adult Education	650	50
	Primary Education	450	34.6
	Secondary Education	100	7.7
	Tertiary Education	50	3.8
	Total	1,300	100
5	Household size		
	0	50	3.8
	1 – 3	200	15.4
	4 – 6	350	27
	7 and above	700	53.8
	Total	1,300	100

Source: Field Survey, (2022)

The highest number recorded on ages of the respondents that are between 46years and above implied that, most of the respondents are elderly and have witnessed successive Government in Taraba State as well as their forest policies. They are therefore in a better position to give information about the forest

Policy of Taraba State. Also, the highest number recorded of sex on males implied that, most of the

respondents are males. Similarly, the highest number recorded of marital status on married implied that, majority of the respondents are married. This means that, most of the respondents are males, elderly and are married; this is an indication that, they are responsible people. Also, the highest number recorded on educational status of adult and primary education implied that, most of the respondents have low education. This may be responsible for the poor implementation of forest policy in the study area. The high number recorded of household size above seven

implied that, majority of the respondents are polygamous and are from farming families and as such would need large house hold size for family labour. The study corroborate Diaw *et al.*, (2002) that, majority of the people that involved in sustainable management of the forest are males, married and are elderly with large household size.

Existing forest policy in Taraba State

The result on existing forest policies in Taraba State indicated that, 230 (17.7%), Compounding of offenses detected on exploitation; 155(11.9%), payment on permit basis for every standing tree felled in free area;

5(0.4%), Out-Turn-Volume (OTV), concession or area basis for exploitation in forest reserve; 160(12.3%), Exploitation based on allocation; 210(16.2%), Revenue generation through exploitation; 115(8.8%), Selective exploitation; 8(0.6%), Rational and controlled harvesting on sustainable basis; 7(0.5%), Protection of endangered wildlife and tree species through special permit rates; 6(0.5%), Regeneration at par with exploitation and 200(15.4%), payment per load system respectively (Table 1.2).

Table 1.2: Existing forest policies in Taraba State

Variables	No. of Respondents	Percentage
Compounding of forest offenses detected on exploitation	230	17.7
Payment on permit basis for every standing tree felled in free areas	359	27.6
Out-turn volume (OTV), Concession or area basis for exploitation in forest reserve	5	0.4
Exploitation based on allocation	160	12.3
Revenue generation through exploitation	210	16.2
Selective exploitation	115	8.8
Rational and controlled harvesting on sustainable basis	8	0.6
Protection of endangered wildlife and tree species through special permit rates	7	0.5
Regeneration at par with exploitation	6	0.5
Payment per load system (500/Load)	200	15.4
Total	1,300	100

Source: Field Survey, (2022)

The result on existing forest policy in Taraba State indicated that, there are ten (10) forest policies in Taraba State. They include; compounding of forest offenses, payment on permit basis for every standing tree felled in free area, out-turn volume, concession or area basis for exploitation in forest reserve, exploitation based on allocation, revenue generation through exploitation, selective exploitation, rational and controlled harvesting on sustainable basis, protection of endangered wildlife and tree species through special permit rates, regeneration at par with exploitation and payment per load system respectively. This implied that, there are the forest policies that are in operation in Taraba State. The highest number recorded of compounding of forest offenses, payment on permit basis for every standing tree felled in free area, exploitation based on allocation, revenue generation through exploitation, selective exploitation and payment per load system implied that, there are the forest policies that are widely used across the agro-ecological zones of Taraba State. Compounding as mentioned by the respondents means to settle a matter by a money payment. Here, forest offenders are made to pay

certain money to serve as deterrent to potential forest offenders and to avoid prosecution in the court of law. Similarly, payment on permit basis for every standing tree felled in free area was also one of the forest policies of Taraba State. Here, one must have permit before he can fell any tree in the free areas. Also existed as a forest policy in Taraba State is out-turn – volume, concession or area basis for exploitation in forest reserve; this policy is used for concessionaire who felled trees from concession areas without the use of permit system.

In this policy, the fees are based on the estimated volume of each log which is calculated using approved tariff table. Concession: Is an agreement between a forest owner and a forest contractor (concessionaire) who is allowed to operate the forest area for a certain period of time e.g. 1 – 5 years, 5 – 10 years or 5 – 25 years over a particular amount of money. Another forest policy in Taraba State is exploitation based on allocation; this policy insists that, logging should only be carried out in plots that have been allocated for exploitation to individuals in the reserve. Normally, payments are made by timber contractors before such plots are allocated to individuals for exploitation. This policy generally helps the government to control the

proportion of forest resources that are to be released for exploitation at every point in time so as to plan for replacement to ensure sustainability of the reserve.

Also in operation as a forest policy is revenue generation through exploitation; This policy insist that, forest trees should be exploited for income and such income be used for the development of the State. This policy is a major source of employment for many people such as timber contractors, tree takers, saw millers, timber lorry drivers, machine operators, log rolling crew, timber clerks and gatherers of non-timber forest products respectively. Another forest policy is selective exploitation; Selective exploration; This is the policy of felling only matured trees in a forest reserve or free areas done to prevent the exploitation undersized trees. Another forestry policy in existence is rational and controlled harvesting on sustainable basis; this is the policy of harvesting of trees over a particular rotation cycle or years e.g. harvesting trees every 10years. This policy is very crucial for sustainable forest management this policy had been abused by successive Government who are interested in the conversion of timber to cash alone and not sustainability of the forest resources. Another forest policy is protection of endangered wildlife and tree species through special permit rate; this policy places high tariffs on endangered wildlife and tree species in order to discourage their exploitation. Also mentioned as a forest policy is regeneration at par with exploitation; the policy insists that, there should be balance between exploitation and regeneration rate in the forest reserve or free area. This means that if one tree is felled in a forest reserve or free area, one tree must be planted in the forest reserve or free area respectively. Also in existence as a forest policy is payment per load system; this policy insists that, timber contractors should be charged based on the quantity of wood their timber Lorries carry. This is because most timber contractors harvest more trees than they have paid for. Despite the existence of 10 forest policies in Taraba State, their implementation level had been low.

This can be seen from Table 1.3. This poor level of forest policy implementation in Taraba State is responsible for the disappearance of many forest resources in the State. The study agreed with the submission of Adeyoju, (1991), Papka, (1999), Faleyimu and Agbeja, (2012) and Adejumo *et al.* (2014) respectively.

Level of Forest policy implementation in Taraba State

The result on level of forest policy implementation in Taraba State indicated that, 1,200(92.3%), 1-35%; 95(7.3 %), 36-75% and 5(0.4%), 76-100% respectively (Table 1.3).

Table 1.3: Level of Forest policy implementation in Taraba State

Variables	No. of Respondents	Percentage
1 – 35%	1,200	92.3
36 – 75%	95	7.3
76 – 100%	5	0.4
Total	1,300	100

Source: Field survey, (2022)

The highest number of respondents recorded for 0-35% level of forest policy implementation implied that, most poachers and illegal harvesters of forest resources work away without being apprehended because of poor forest policy implementation. This means that, the implementation level was low and this could be due to some constraints that needed to be tackled. This agreed with the findings of Smith, (1973), Faleyimu and Agbeja, (2012) and Vidya, (2014) respectively. According to Arifalo (2005), implementation of a policy is a vital stage in a policy development. Without a successful execution, a policy is merely a good idea. Therefore, the success of a policy, which is a programme of action or plan, depends largely on how it is implemented. Investigation into the level of implementation of existing forest policies in Taraba State indicated low level of implementation.. This low level of implementation could be attributed to a number of factors, ranging from non- availability of manpower, equipment, finance, patrol vehicle etc. to mention but a few. Arifalo (2005) also buttressed this with a report that the implementation of forest policy is faced with constraints.

Constraints to forest policy implementation in Taraba State.

The result on logistic regression analysis of constraints to forest policy implementation in Taraba State indicated that, ill-equipped forestry institutions had the highest odds – ratio of 518.35 followed by lack of finance (9.22); political instability (8.41); lack of supervision, co-ordination and control (3.38) and educational status (3.34) respectively While sex (1.12); marital status (0.00); Agro-ecological zone (0.22) and household size (0.01) had the lowest odds-ratios of less than two respectively (Table 4.4). The decision rule is that, all constraints that have odds – ratio with negative values or values lower than two does not constitute a constraint to forest policy implementation in Taraba State. Only constraints that have odds ratios two (2) or greater than two (2) can constitute a constraint to forest policy implementation in Taraba State.

$$C_{FPI} = 33.71 + 2.22LF + 1.65SSP + 1.22 ESCC + 2.13PI + 6.25IEFI + 1.21EDS - 0.68SEX - 41.09MS - 0.71AEZ - 0.63 HHS-----5$$

n = 1,300, final loss = 40.45
 chi – square (∂f , 10) 1275.78 p = 0.000
 odds – ratio (unit change): Constant (33.71); LF(9.22);
 SSP(5.22); ESCC(3.38); PI(8.41); IEFI(518.35);

EDS(3.34); SEX (1.12); MS(-41.09); AEZ(-0.71)
 HHS(0.01)-----6

Table 4.4: Logistic regression analysis of constraint to forest policy implementation (FPI) in Taraba State.

Dependent variable: Constraint to FPI (Presence = 1; Absence = 0)	Coefficient	Odds-ratio
Independent variables		
Whether LF is a constraint to FPI	12.22	9.22*
Whether SSP is a constraint to FPI	11.65	5.22*
Whether ESCC is a constraint to FPI	11.22	3.38*
Whether PI is a constraint to FPI	12.13	8.41*
Whether IEFI is a constraint to FPI	16.25	518.35*
Whether EDS is a constraint to FPI	11.21	3.34*
Whether SEX is a constraint to FPI	0.68	1.12ns
Whether MS is a constraint to FPI	41.09	0.00ns
Whether AEZ is a constraint to FPI	0.71	0.22ns
Whether HHS is a constraint to FPI	0.63	0.01ns
Model $\chi^2(df = 10) = 419.48^*$		

Note p<0.05

ns = Not significant

*= Significant

The constraints to forest implementation in Taraba State showed; lack of finance, shortage of skilled personnel, lack of effective supervision, coordination and control, political instability, ill-equipped forestry institutions and educational status respectively. The estimated coefficient for the mentioned variables were not zero, negative values or less than two (2) but were above two (2). This implied that, the regression parameters in the model were statistically significant. The higher the values of the odds-ratio of the mentioned variables, the more the likelihoods of such variables to constitute themselves as constraints. The possession of high odds-ratio above two (2) implied that, such variables are the constraints to forest policy implementation in Taraba State. This corroborates Deeks (1996) ; Bland and Altman, (2000) that, the logistic model provide information on the consequences of one variable over another(i.e constraints to forest policy implementation in Taraba State). The findings of the study also corroborate Faleyimu and Agbeja, (2012) respectively.

Conclusion

The result of the study indicated that, most of the respondents are males, married and are elderly with large household size. The result on existing forest policy indicated that, there are eleven forest policies in Taraba State. The result on rating the level of forest policy implementation indicated that it is very low. The result of logistic analysis showed that, there are five constraints to forest policy implementation Based on the major findings of the study, the followings are recommended;

1. Provision of adequate funding to enable the forestry sector carry out their mandate
2. strict forest policy implementation and compliance
3. recruitment of qualified skilled personnel and staff to manage and police the forest
4. effective supervision, co-ordination and control by forestry professionals
5. There should be continuity in forest policy implementation irrespective of changes in Government.
6. Government should provide functional equipments and patrol vehicles for management and policing of the forest.

References

Adejumo A. A., Olawuyi, E. B and Kolade R. I 2014. Nature of Illegal Logging Activities and its Economic Implication in Ondo State, Nigeria. *Sudano-Sahelian Landscape and Renewable Natural Resources Development in Nigeria*. (Eds. Ogunsanwo, O.Y., Akinwale, A. O., Azeez, O.I, Adedunle V.A.J and Adewole). In the proceeding of the 37th Annual Conference of Forestry association of Nigeria dueled in Minna, Niger State, 19th -14th Nov. 2014. Pp 780-789

Adeyoju, S. K 1991. Policy Formulation and Execution: Conflicts and Resolutions. An invited Paper for the Advanced Course in Forestry Administration. 04-06. November, 1991. 22p

Agbeja, B. O 2004. The need to link State and Federal

- Forest Policies and Institution in Nigeria. In: Rebuilding African Capacity for Agricultural Developments. The role of tertiary Education. African Network for Agroforestry Education (ANAFE) Kenya. 95-105Pp.
- Agbeja, B.O. 2010. Forest Policy and Forest Products Marketing in Nigeria: Implications for Forestry Sector. Climate Change and Forest Resources Management: The way forward. In: J.C. Onyekwelu V.A.J. Adekunle and D.O. (Eds). Proceedings of the 2nd Biennial Conference of the Forest and Forest Products Society held in Akure (FUTA). 26th -29th April, 2010. P477
- Anderson G. 1984. Economic growth and the environment papers. Shell international Petroleum co. London
- Arifalo, E. I. 2005. Understanding Forest Policy. Paraclete Publishers, Yola-Nigeria (First Edition). P122.
- Bland, J.M. and Altman, D.G. 2000. "The odds ratio" British Medical Journal 230, 1468.
- Deeks, J.1996. Swots corner: What is an odds ratio? Banddoliier books, Vol.3 (3), Issue 25, 6-7.
- Diaw, K, Blay, D. and Adu-Anning, C. 2002. Socio-Economic Survey of Forest fringe communities: Krokosua Hills forest reserve. A Report submitted to the forestry commission of Ghana.
- Faleyimu, O.I and Agbeja B.O. 2012. Constraints to Forest Policy Implementation in the South-West Nigeria: Causes, Consequences and Cure. Journal of Resources & Environmental 2012, 2(2): 37-44, DOI:10.5923/j.re.20120202.06. Pp37-44.
- National Forest Policy (NFP) 2006: pp 1 – 27.
- Papka, P.M. 1999. Formulation of Policy and Legislation in response to emerging concerns in community forestry in Nigeria. In: Obiaga P.C., *et al.* (eds) 26th Annual Conf. Of FAN, Bornu State, 170-178Pp.
- Smith, T. 1973. Policy Implementation Process. Policy Science Volume 4, No. 2 Pp. 197-209.
- Vidya, P.D 2014. A Critical Essay on Compounding of Offenses under Companies Act, 2013. Banking & Insurance Law, Legal articles.