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Administrative Measures to Sustainable Forestry Development in South-West Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author OIF designed the study, performed the statistical analysis, wrote the protocol, wrote the first draft of the manuscript and managed the literature searches. Authors OA and BOA managed the analyses of the study and literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Forest administration is on ways of achieving effectiveness and efficiency in forestry development. The objective of this paper is to examine the administrative measures and their impacts on forestry development in the South-West Nigeria. Primary data needed for this study were collected from all the forest officers in charge of the 31 forestry administrative zones in the six states namely: Ekiti (four); Lagos (five); Ogun (four); Ondo (eight); Osun (six) and Oyo (four) and one forest officer from each of the six state's headquarters. They were interviewed using structured questionnaires to obtain data on forest administration. Thirty-seven forest officers were interviewed in all. Descriptive statistics and Kolmogorov-Smirnov test (D) were used to analyze the data obtained. Result revealed that these administrative measures investigated in the South-West Nigeria are low: provision of up-to-date map of the study areas (48.6%), provision of equipment to run the forest affairs (40.5%), while the following are high: supervision of forest programmes (94.6%) and regular

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annual report (86.5%). Administrative measures investigated have significant relationship (P<0.01) with forestry development. A newly reconstructed and restructured forest sector, built on the pillars of adequate provision of equipment and effective supervision, would play a major role in sustainable forestry development.

Keywords: Administrative measures; sustainable development; policy implementation; forestry.

1. INTRODUCTION

Administration is a large and complex field whose major emphasis is on ways of achieving effectiveness and efficiency in conducting organized human activities. It obviously is a great importance to forest policy implementation. According to [1], Forest Administrations in most Sub- Saharan Africa countries were patterned according to relevant institutional arrangements of the former colonising countries. Thus, from the early 1900s, the Forest Administration in most of the countries was crafted primarily to serve as replicas of "home country" forest civil services. Up to the end of the second world war, Forest Administrations concentrated on implementing policies around delineation, gazettement and management of state forest and wildlife reserves, with emphasis on regulation of forest extraction, hunting and, in East Africa at least, on water catchment protection. Accordingly, the then forest policies and laws of the colonial administration focused on protection of state forest reserves. Immediately following the end of WW II, with increased presence of European "settlers" in some countries, Forest Administrations suddenly became more complex and more proactive in their range of activities. New and more comprehensive forest policies were introduced to cater for more diversified activities, in particular the introduction of forest plantation programmes to meet domestic and industrial wood demands. Forest Administrations also initiated training and research programmes. Upon attaining their independence, most countries attempted reviews of their forest policies in line with the then significantly changed development realities. Thus, from early to late 1960s, many countries launched "home grown" policies and programmes. However, it turned out that the rather hastily promulgated revised policies were no more than poor replicas of the colonial forms, thinly coated with politically correct proclamations.

According to [2], the administration of forest reserves in Nigeria leaves much to be desired especially when one considers governments' decisions and policies on utilization of forest resources in meeting the needs and aspirations of citizens. For the past forty years, the administration of forestry had been monopolized by the state government within the federal structure in Nigeria. The exclusion of the stakeholders such as (local community dwellers, hunters, farmers, timber contractors and other non-timber resources users) in the administration of forests directly or indirectly has led to poor forest governance and the consequent crises in forest reserves in Nigeria.

Yet, development challenges for Forest Administrations have radically changed since independence. In many countries, forest ownership and settlement have become politically explosive, forcing many governments to introduce radical changes in the way forest resources are controlled and managed and, thus, prescribing new roles for Forest Administrations. But many Forest Administrations have yet to fully adjust to such changes and remain sub- optimal in their functions [1]. It is widely recognised that forestry institutions in these countries have weak capacities to fulfill their functions [3].

According to [4], administration is the vital key to development. There is hardly any form of human endeavor that has no need of administration. Indeed it is the role of administration to formulate what needs be done, the skills required and in what quantities, the terms of personnel engagement, and disengagement [4]. Furthermore, it is the goal of administration to ensure high productivity through delineation of activities, roles, responsibilities and their sequence as well as coordination and harmonious relations within and without the organization. To that extent, administration would always be a catalyst for development including sustainable forest management. Only a few countries have been proactive in policy analysis and changes [5]. Sustainable development however requires good governance, goodwill and good planning and quite often requires substantial financial investment [6].

The objective of this paper however, is to examine the administrative measures and their impacts on forestry development in the South-West Nigeria.

2. METHODOLOGY

2.1 Study Area

South West Nigeria which consists of Lagos, Ogun, Oyo, Osun, Ondo and Ekiti states lies between longitude 2° 31 [1] and 6° 00 [1] East and Latitude 6° 21 [1] and 8° 37 [1]N [7] with a total land area of 77,818 km$^{2.}$ It has a projected population of 17.6 Million people as at 1998 and a population density of 226.168 people per km^2 FDF [8]. The study area is bounded by the Republic of Benin in the west, Kwara and Kogi states in the north, Edo and Delta states in the east and Bight of Benin in the south. According to [7], the study area has 85 constituted Forest reserves with a forest area cover of 842,499 hectare while the Free area cover is 1,005,871 hectares [9].

Fig. 1 shows the positions of the study area in the map of Nigeria.

2.2 Climate and Vegetation of Southwest Nigeria

The Southwest Nigeria's climate is tropical in nature and this leads to two major seasons (wet and dry seasons). The temperature ranges between 21℃ and 34℃ while the annual rainfall ranges between 1500 mm and 3000 mm. The wet season is associated with the Southwest monsoon wind from the Atlantic Ocean while the dry season is associated with the northeast trade wind from the Sahara desert. The vegetation cover in the Southwest Nigeria is forest, which is characterized by a large number of woody plants including trees, shrubs, herbs or climbers with a few grasses.

2.3 Data Collection

Primary data were collected from the forest officers. All the forest officers in charge of the 31 forestry administrative zones in the six states of Nigeria namely: Ekiti (four); Lagos (five); Ogun (four); Ondo (eight); Osun (six) and Oyo (four) and one forest officer from each of the six state's headquarters were interviewed using structured questionnaires to obtain data on forest administration (staff, finance, log control, planning and logistics). Thirty-seven forest officers were interviewed in all (Tables 2 and 3).

2.4 Sampling of Forest Officers

One Officer in charge of each administrative zone was selected and one from each of the state headquarters (Tables 1 and 2).

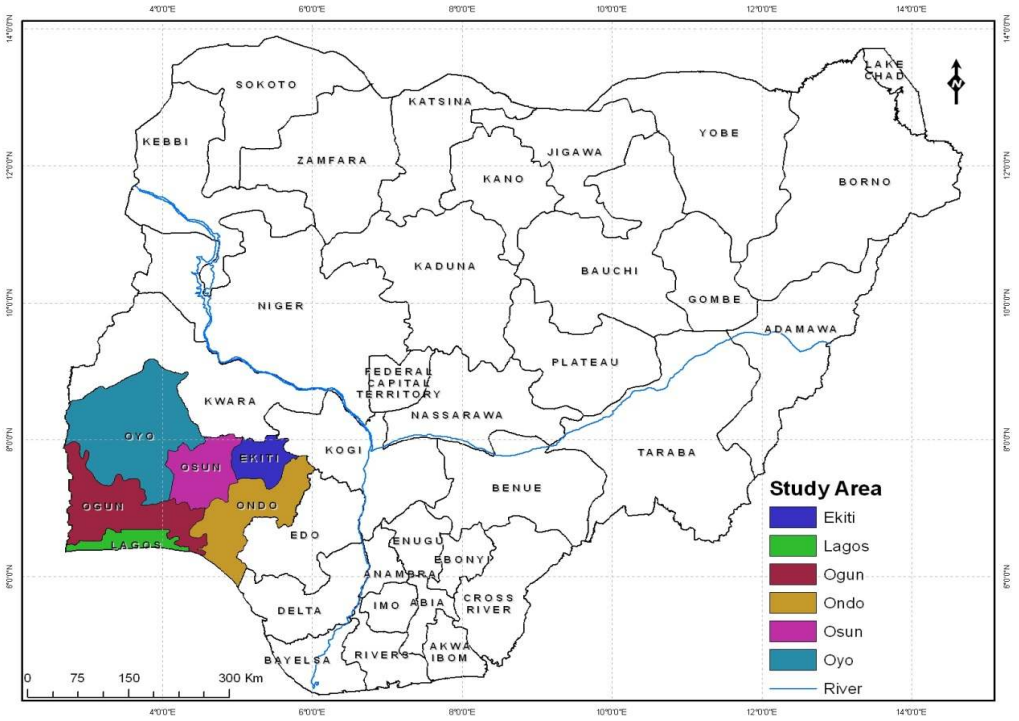

Fig. 1. Map of Nigeria showing the position of the study areas

Table 1. Zonal offices

States	Zones
Ekiti	4 Zones (Ado, Ikere, Ikole Ido and Ekiti)
Lagos	5 Zones (Badagry, Epe, Ikeja, Lagos and Ikorodu)
Ogun	4 Zones (Egba, Yewa, Remo and Ijebu)
Ondo	8 Zones (Akure South, Akure North, Idanre, Ore, Owo, Ikare, Ifon, and Ondo)
Osun	6 Zones (Ife, Ilesa, Ikirun, Osogbo, Iwo and Ede)
Oyo	4 Zones (Ibadan, Oyo,Saki and Ogbomosho)

Field survey: 2005

2.5 Data Analysis

Simple statistical tools such as frequency distribution, tables and percentages were used for the analysis and Kolmogorov- Smirnov two sample tests.

2.6 Kolmogorov- Smirnov Two Sample Test

According to [7], a nonparametric test (Kolmogorov- Smirnov two sample test) is that tests which show difference between two distributions. Its null hypothesis is identity in distribution for the two samples and thus the test is sensitive to differences in location, dispersion, skewness and so forth. This test is quite simple to carry out. It is based on the unsigned differences between the relative frequency distributions of the two samples. Expected critical values can be looked up in a table or evaluated approximately. Comparison between observed and expected values leads to decisions whether the maximum difference between the two cumulative frequency distributions is significant. It has greater power than the chi-square test for goodness of fit [10].

An approximate two-tailed critical value for the test statistic D can be computed as:

$$D\alpha = K\alpha \sqrt{\frac{n_1 + n_2}{n_1 n_2}} \quad (1)$$

$$\text{Where } K\alpha = \sqrt{1/2 - \ln(\alpha/2)} \quad (2)$$

D = test statistic
n_1, n_2 = Sample sizes

n_1 and n_2 represent Yes and No response respectively.

Table 2. Number of zonal forest officers

States	Number of officers
Ekiti	5
Lagos	6
Ogun	5
Ondo	9
Osun	7
Oyo	5
Total	37

Field survey: 2005

3. RESULTS

3.1 Provision of Up-to-date Maps of the Forest Areas as a Measure to Forestry Development

Maps are thoroughly and thoughtfully put in place for execution in order to give the forest services a focus that will enable them to fulfill their forest development objectives. Table 3 showed that 20%, 33.3%, 80%, 77.8%, 42.9%, 20% of the zonal forest officers in Ekiti, Lagos, Ogun, Ondo, Osun, and Oyo States respectively agreed that there is provision of up to date maps of their forest areas while 80%, 66.7%, 20%, 22.2%, 57.1%, 80% in that order disagreed. The pooled result showed 48.6% do not agreed. Kolmolgorov-smirnov analysis (D) revealed that forestry development in the South-West Nigeria have significant relationship with the provision of up to date map of the forest areas ($D=2.52$, $p<0.01$).

3.2 Provision of Adequate Equipment to Run the Forest Affairs as to Measure to Forestry Development

Without field equipment the staff will remain non-functional. Table 4 showed that provision of equipment and tools to run forest affairs in the South-West are inadequate. This has been one of the major problems of forest development in the area. Only 20%, 33.3%, 40%, 44.4%, 28.6%, 40% of the zonal forest officer in Ekiti, Lagos, Ogun, Ondo, Osun, and Oyo States respectively

agreed that there is adequate equipment and tool to run the forest affairs while the 80%,66.7%, 60%, 55.6%,71.4%, 60% in that order disagreed (plate 6). In South-West Nigeria, 40.5% of the officers agreed that the State forestry departments have adequate equipment and tools while 59.5% of the officer totally disagreed. Kolmogorov-smirnov analysis (D) of this results revealed that provision of adequate equipment and tool to run the forest affairs have significant relationship with forestry development (D = 2.26, p<0.01).

3.3 Supervision as a Measure to Forestry Development

Supervision is effort to make specific forestry programs effective and to achieve common policy objectives. If an effort is to be made to carry out a coordinated programme or even a programme involving many staff there should be some means of controlling the individual actions which makeup the programme. Table 5 showed that all the zonal forest officers carry out supervision. The pooled data revealed that 94.5% of the officers agreed while only 5.4% disagreed that they carried out supervision except in Lagos where 66.7% of the officers agreed and 33.3% disagreed. Kolmolgorov-smirnov analysis of this result showed that forestry development have significant relationship with effective supervision of forest programme (D=3.20, p<0.01).

Table 3. Zonal forestry officers' response to provision of up-to-date maps of the forest areas as a measure to Forestry Development

Zonal officers' response

States	Yes		No		Kolmogorov-smirnov analysis (D)	Significance level
	Frequency	Percentage	80	Percentage		
Ekiti	1	20	66.7	80		
Lagos	2	33.3	20	66.7		
Ogun	4	80	22.2	20		
Ondo	7	77.8	57.1	22.2		
Osun	3	42.9	80	57.1		
Oyo	1	20	51.4	80		
South-West	18	48.6	19	51.4	2.52	0.00*

**Significant at 0.01 (p<0.01)*

Table 4. Zonal officers' response to provision of adequate equipment to run the forest affairs as a measure to Forestry Development

Zonal officers' response

States	Yes		No		Kolmogorov-smirnovanalysis (D)	Significance level
	Frequency	Percentage	Frequency	Percentage		
Ekiti	1	20	4	80		
Lagos	2	33.3	4	66.7		
Ogun	2	40	3	60		
Ondo	4	44.4	5	55.6		
Osun	2	28.6	5	71.4		
Oyo	2	40	3	60		
South-West	15	40.5	22	59.5	2.26	0.00*

**Significant at 0.01 (p<0.01)*

Table 5. Zonal forestry officers response to supervision and co-ordination as a measure to Forestry Development

Zonal officers' response

States	Yes		No		Kolmogorov-smirnov analysis (D)	Significance level
	Frequency	Percentage	Frequency	Percentage		
Ekiti	5	100	0	0		
Lagos	4	66.7	2	33.3		
Ogun	5	100	0	0		
Ondo	9	100	0	0		
Osun	7	100	0	0		
Oyo	5	100	0	0		
South-West	35	94.6	2	5.4	3.20	0.00*

**Significant at 0.01 (p<0.01)*

Table 6. Zonal forestry officers response to preparation of regular annual reports on forestry activities as a measure to forestry development

Zonal officers' response

States	Yes		No		Kolmogorov-smirnov analysis (D)	Significance level
	Frequency	Percentage	Frequency	Percentage		
Ekiti	4	80	1	20		
Lagos	6	100	2	33.3		
Ogun	5	100	0	0		
Ondo	6	66.7	3	33.3		
Osun	6	85.7	1	14.3		
Oyo	5	100	0	0		
South-West	32	86.5	5	13.5	3.14	0.00*

**Significant at 0.01 (p<0.01)*

3.4 Regular Annual Report in Forestry Activities as a Measure to Forestry Development

Annual reports are the results of activities carried out in a year. Above Table 6 revealed a general trend where 80%, 100% 100%, 66.7%, 85.7% and 100% corresponding to Ekiti, Lagos, Ogun, Ondo Osun and Oyo State respectively agreed that they prepare regular annual reports. The pooled data from the South-West indicated that 86.5% agreed that they prepare regular annual report of forestry activities while 13.5% disagreed. Further analysis with Komogorov-smirnov test revealed that regular annual report of forestry activities have significant relationship with forestry development (D=3.14, p<0.01).

However, experience from the field revealed that the reports are hardly made available for public consumption.

4. DISCUSSION

4.1 Provision of up–to-date Maps of the Forest Areas

The result revealed that it is only Ogun and Ondo States have up to date maps of the forest areas in the South-Western Nigeria. According to [11], most of the available forest reserves maps are old and out dated in actual fact, many of the people in charge of forest administration in the South-West Nigeria are not sure of the exact extent of their forest reserves. The boundaries are not maintained and most boundary pillars cannot be easily located. There have been series of encroachment into the reserves, including carving out of areas an enclaves for forest communities. These are scarcely reflected on the existing forest reserve maps. Obviously, this lack of up-to-date maps constitutes a serious problem to sustainable forest management. [12] asserts that it is pertinent to carry out fresh ground

survey of the forest reserve boundaries with a view to producing new maps. This will quite be an expensive project, but the end result and usefulness of the new maps will justify such investment. The assistance of donor agencies could be sought in this regard to offset some of the cost. Each state should set up a survey and mapping unit with modern tools and equipment within its forestry department, which would be trained to participate in the survey, and mapping processes. This unit should then be funded to provide updates of the maps from time to time as may be required.

4.2 Provision of Adequate Equipment to Run the Forest Affairs

The research revealed that all the forest service in the southwest lack adequate tools and equipment to work with. According to [4], there is no forest service that is more than 5 percent sufficient in terms of tools and equipment needed to prosecute its mandate. Practically, the vital field gear, nursery equipment, office accommodation and field vehicles exist in bold obsolete contents. Technology and skills keep changing and when they are wholly unavailable as is now the case with the forest services, then, the capability of data gathering, analysis, management, prediction and modeling is at best, a dream line. There is therefore the need to procure the right tools, equipment and logistics in all the state forest services in the South-West Nigeria.

4.3 Supervision of Forest Programmes

This result also revealed that 100% of all the zonal forestry officers except in Lagos agreed that there is good supervision of forestry programmes. It is disheartening to hear of the gross illegal operations been perpetrated in the south-west Nigeria despite this Zonal Officers response. However, information gathered from the fieldwork revealed that those always caught in the act of illegal operations are those that want to 'escape' without 'settlement'. Supervision, coordination and general control, because of the nature of forestry and forest resources, most forest service set up to execute forest policies are large and have activities which are geographically widespread. The zonal forest officer in charge of the zonal forest cannot personally supervise all of the people or individual activities for which he is responsible. In most cases, he cannot even be technically competent to personally supervise programmes involving such diverse skills and knowledge as most forestry programmes do. He therefore has to depend on other people who can be present on the scene of activity or who have the necessary technical knowledge to act for him which are not adequately available. Hence, there is the extensive delegation of responsibility on and authority in the administration of forestry programmes [12].

It is obvious that the only forest policies that can be executed by single individuals are rather trivial ones. Individuals certainly do play significant roles in executing important forest policies, but many other staff must also be involved if the execution is to be really effective. The problem of coordination shows up in two main forms. Coordination of efforts to make specific forestry programs effective and coordination of efforts to achieve common policy objectives. It is not a very long step from coordination to control. If an effort is to be made to carry out a coordinated programme or even a programme involving many staff, which are not adequately available in quality and quantity, there must be some means of controlling the individual actions which makeup the programme. Control thus consists of clearly establishing what each part of the organization is to do and then making sure that it does it.

4.4 Regular Annual Reports

Although the study clearly revealed that most of the zonal officers in the south west always prepare regular annual reports on forestry activities, this report is seldom made available to the public on request, hence the lack of transparency and accountability. The annual report ought to be published to make it possible for all kinds of readers to judge what they have been doing.

5. CONCLUSION

The forestry sub sector should not be expected to perform major economic roles unless the administrative sector is developed, a newly reconstructed and restructured forest sector, built on the pillars of accountability and transparency, would play a major role in sustainable forestry development.

Forest protection is universally recognized as an indispensable task for achievement of environmental health and sustainable development. However, recent experiences across the globe are pointing to the fact that forest protection programme devoid of people's participation amounts to waste of resources on

the part of government, forest depletion and deprivation of the grassroots of the resources within their environment.

It is however, recommended that:

- The government should provide forestry officials with the necessary financial support, equipment, communication and transportation to enable them carry out their work promptly and effectively.
- State forestry departments should formulate policies consistent with the development of their endowed forest resources, cultural and the socio-economic setting rather than adopting over ambitious, ambiguous and inconsistent policies.
- There is obviously a need for a regular evaluation of reports and reporting system in the forest services in the South-West Nigeria.

It is believed that if these suggestions are taken into consideration, a responsive policy on forest governance would emerge and a shared community of understanding among the stakeholders necessary for good governance and administration would lay the foundation for sustainable forest management in Nigeria.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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