ASSESSMENT OF STAKEHOLDERS PARTICIPATION IN FOREST ROADS MAINTENANCE IN A NIGERIAN FOREST ESTATE

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ABSTRACT

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A study was conducted to assess the stakeholders' participation in forest roads maintenance at the Ondo State Afforestation Project (OSAP) in Odigbo Local Government Area of Ondo State. Forest roads maintenance is a tool for sustainable forest management. Using simple random sampling method, respondents were selected from the study population which included staff of the Ondo State Afforestation Project, and residents of the communities within the enclaves in the area such as Ilutitun, Ilege, Lisagbede, Makinde, Ogunlepa I, Ogunlepa II. Results showed that 84.30% of the stakeholders expressed concern about the present condition of the road, 4.30% were not interested on importance attached to road maintenance while 11.40% of the respondents were indifferent. Data obtained from the professional staff of OSAP show that only 20% of the stakeholders actually participated in forest roads maintenance. Although 34.35% of other stakeholders within the forse estate (farmers and timber contractors) claimed to be involved in grading of roads but majority (65.70%) of the stakeholders said they did not participate in road maintenance. The implication of the findings indicate that roads leading to forest areas have not been given adequate attention through stakeholders participation. This has resulted in road degradation thereby causing hardship to smooth transportation of resources and human beings. It is recommended that all stakeholders be encouraged to participate actively in road maintenance in the study area in other to promote sustainable management of forest resources.

Key words: Stakeholders, forest roads, maintenance, participation, Ondo State.

INTRODUCTION

Roads are vital component of civilization and forest roads are essential to forest sustainable management by contributing to provision of jobs, products, tax and other socio-economic benefits. Roads provide access for people to study, enjoy and commune with forested wild lands and to extract array of resources from natural and modified ecosystems. Roads have well-documented short and long term effects on the environment. Few natural resource issues in recent years have attracted as much public scrutiny as the management of forest road system. Forest roads can have adverse impacts on watersheds, especially if poorly maintained (Hermann *et al.*, 2000; Murphy and Wing, 2005). It is a known fact that few marks on the land are more lasting than roads especially in places with high volume of resource base, yet forest roads are essential for forest use and often the back bone of rural transportation networks.

Road effects and uses are usually grouped into two beneficial variables related to access. Some identified access-related benefits include harvest of timber and special forest products, grazing, mining, recreation, fire control, land management, research and monitoring, access to private holdings, restoration, local community critical needs for subsistence and the cultural value of the roads (Hermann *et al.*, 2000). Non access-related benefits include edge habitat, firebreaks, the absence of economic alternatives for land management and the jobs associated with building and maintaining the roads (Grace and Clinton, 2006).

Good road network helps to ease the movement of both timber and non timber forest products/produce from the forest to the market or urban centre. Raw materials and other forest product/produce can be conveniently transported from one location to another and this will be a function of a good forest road network. It will also enhance social interaction and inter-cultural activities, which will aid in the exploitation of the tourism potential of such community. Through proper road network, business activities as well as social interaction between villages located within most forest reserves can be better promoted. The economic and social development of the forest sector is therefore, by and large dependent on the existence of an efficient and good system of transportation, which is a function of a good road network (Wolf, 1994; Peichl, 1998; Tamme, 2001).

While the benefits of durable roads have been appreciated and developed in most advanced countries of the world, there is still a lot to be done to develop good roads in the tropical countries like Nigeria. The present conditions of forest roads in many Nigerian forest estates have discouraged people and potential investors interested in tourism, resource exploitation and research. These are major challenges to forest resources managers because the state of roads could result in spending long hours than normal before such goals can be attained. This study assessed the level of involvement of all the stakeholders in the maintenance of forest roads linking the various communities in the Ondo State Afforestation Project. The specific objective of the study is therefore, to

evaluate the contributions of the various stakeholders in the maintenance of the road and to assess the level of importance that the various stakeholders attached to maintenance of the forest roads.

MATERIALS AND METHODS

Location of the Study Area: The Ondo State Afforestation Project (OSAP) is located in Odigbo Local Government Area of Ondo State, South Western Nigeria. The reserve lies between longitude $04^{0}33^{/}$ East and latitude $06^{0}52^{/}$ North. It lies between Oni River from Omo forest reserve in Ogun State to the West of Oluwa River and Ondo-Ore road to the east. The major seasons are dry and rainy seasons. Annual rainfall varies from about 1,500mm to 1,800mm, most of which falls between March to October. The forest soil is dominantly ferralitic, old and highly weathered. The texture is usually sandy or loamy overlaid with slight clay and iron stone gravel in some areas and usually brown in colour which becomes heavier with depth. (Smyth and Montgomery, 1962). Average altitude is about 100m above sea level, and the topography is undulating with occasional steep slopes and hilly outcrops. The road considered in this study is road leading to the Ondo State Afforestation Project (Plates 1 and 2) covers a distance of about 22 km. It accesses the project headquarters from the Lagos-Benin express way from the Onipetesi junction. The road was constructed in 1980 to provide easy access to the project headquarters. Communities and villages located along this road include Makinde, Epe-Makinde, Ilutitun, Masole, Imorun, Ilege, Mokore, and Karaole.

Data collection and analysis

Primary and secondary data were collected and used for the study. Primary data were obtained through the administration of two sets of questionnaires. The first set was for community dwellers living within the reserve, while the second set was for the senior staff of the project. Random sampling method was used in administering questionnaires to various stakeholders in the study area. A total of hundred questionnaires were randomly administered to various stakeholders (community dwellers) out of which seventy were retrieved. Fifteen questionnaires were also retrieved out of the thirty administered to the professional senior staff of the project. Data collected were subjected to descriptive and inferential statistical analyses

RESULTS AND DISCUSSION

The demographic characteristics of the stakeholders/respondents are presented on Table 1, while the frequency distribution of the respondents' length of residence in their communities is presented on Tables 2 and 3 respectively. About 18.60% of the respondents are in the age group 16 – 25 years; 30.00% are 26 -35 years; 38.60% are 36 – 50 years; and 12.90% above 50 years. 71.40% of the respondents are male, while females constitute 28.60% (Table 1). On the educational status of the respondents; 2.90% have no formal education; 12.90%, are primary school certificate holders; 20.00% acquired secondary education; 48.60% have tertiary education while 15.70% did not indicate their educational qualification. There is a clear indication that majority of the respondents acquired tertiary education certificates with some of them being former staff of the project which had been laid off as a result of slide in the economy which has affected the funding of the project. Forty six respondents (65.70%) of the respondents are civil servants while farmers and traders formed 5.70% each, transport business (1.40%), housewife (1.40%) and pensioners (1.40%); students and artisans formed 11.40% and 7.10% respectively.

Table 2 shows the various communities of the respondents, with Leege community having the highest frequency of 19 which represents 27.10% of the total respondents while the least frequency of 1 was recorded in FOMECU. Table 3 records the range of years that the respondents have spent in their various communities; 37.10% of the respondents have spent between 1 – 5 years while 12.90% have spent 6 – 10 years, 14.30% have spent 11 – 15 years; 20.00% lived for 16 – 20 years and 15.70% above 20 years. Majority of the respondents (85.70%) shared ideas and concerns with people in other communities on how the forest road could be developed and maintained while 8.60% did not. Only 5.70% of the respondents did not indicate whether they were involved in the sharing of ideas as regard forest road maintenance (Table 4).

The various roles played by the road (Plates 1 and 2) linking forest estate communities and urban centre are presented on Table 5. About 65.70% of the respondents indicated that roads play important roles in diffusion of forest goods and services from rural to urban centre; 15.70%, considered its roles in facilitating mobility to and from urban centre; 5.70% said forest roads have improved their standard of living but did not specify how, while 12.90% of the respondent did not state role of the forest roads to rural-urban settlement.

Table 6 shows respondents' choice of settlements and reasons for their preference. About 11.40% of the respondents prefer living in rural settlement because of its low level of criminal activities. 24.30% of the rural settlers attribute their preference to low cost of living while 5.70% cherished the serenity nature of the settlement and 14.30% believe in having direct access to rural fresh fruits and food. On the other hand 34.30% of the respondent would prefer living in urban centres because of availability of social amenities such as good roads

portable water and standard health facilities. This explains that majority of the respondents preferred living in rural settlement because of the low cost of living associated to it amongst other factors.

As shown on Table 7, 34.30% of the respondents reported that they normally contact the institutions in charge of road maintenance whenever roads were in bad condition; 25.70%, said they did not contact any institution, while 40.00% could not remember whether they had in one time or the other contacted road maintenance unit of OSAP on the road matters. Majority (58.60%) of the respondents said they advised road maintenance agency to construct drainage system ob both sides of the roads to prevent their damage during road maintenance activities while 22.80% said their contribution is through the prevention of refuse dump along the road side and also restricted heavy trucks movement on the road during raining season so as to keep the road in good condition. Only 18.60% could not indicate any precautionary measures they took (Table 8). Table 9 shows that 34.30% of the respondents indicated that stakeholders do help in grading forest estate roads, while 65.70% said that stakeholders did not play any role in the management of the road. This indicates that majority of the respondents believe that stakeholders were not concerned about the maintenance of roads in the forest estate.

On the frequency of consultations, 15.70% of the respondents stated that they met once in a year with other stakeholders on how to maintain the forest estate roads; 11.40% said they met biannually; 4.30% consulted quarterly, while 68.60% reported that they did not meet at all on the issue of road maintenance (Table 9). This clearly indicates that other stakeholders have less contribution to the maintenance of forest estate roads. In a related development, 41.40% of the respondents indicated that communities and other stakeholders contributed money to rehabilitate roads whenever they were not in good condition while majority (58.60%) said stakeholders did not contribute to improve the standard of the bad condition of the forest roads. Further enquiry on the specific amount being contributed by these stakeholders revealed that majority of the respondents (91.40%) could not estimate the financial commitment of the stakeholders. This evidence confirms that the stakeholders are not participating in forest road maintenance in the study area.

Chi-square analysis of the results (Table 10) shows that the stakeholders' contribution in the maintenance of the road is not significant ($p<0.05$).

This result is at variance with the findings of Adabiri (2005) who found that stakeholders were the driving force behind road maintenance in Shasha forest reserve of Osun State. Elbakidze *et al.*, (2010) suggest that there should be a strong integration among stakeholders in forest road maintenance to enhance sustainable management of forests estates. Oral interview revealed that some residents in the area have the wrong belief that it is the sole responsibility of the state government through the project to fix and maintain the roads while others claimed they were not carried along on issues bothering on road maintenance within the forest estate. This negative attitude towards forest road maintenance needs to be corrected as stakeholders stand to benefit immensely from close collaboration with the project in road maintenance.

Table 1: Demographic characteristics of the respondents

Variable	Frequency	Percenage (%)
Age		
18 – 25 years	13	18.60
26- 35 years	21	30.00
36 – 50 years	27	38.60
Above 50 years	9	12.90
Gender		
Male	50	71.40
Female	20	28.60
Educational qualification		
No. formal education	2	2.90
Primary Education	9	12.90
Secondary Education	14	20.00
Tertiary Education	34	48.60
No. response	11	15.70
Occupation		
Civil service	46	65.70
Farming	4	5.70
Trading	4	5.70
Transport	1	1.40
Student	8	11.40
Artisan	5	7.10
House wife	1	1.40
Pensioner	1	1.40

Table 2: Host communities of the respondents

Community	Frequency	Percenage (%)
Afforestation	7	10.00
Imorun	14	20.00
Lisagbede	14	20.00
Leege	19	27.10
Fomecu	1	1.40
OSAP	8	11.50
Ilutitun	7	10.00
Total	70	100.0

Table 3: Respondents length of residence in the communities

Years	Frequency	Percenage (%)
1.- 5 years	26	37.10
6 – 10 years	9	12.90
11 – 15 years	10	14.30
16 – 20 years	14	20.00
21 years and above	11	15.70
Total	70	100.00

Table 4: Respondents discussions with neigbhouring communities about the condition of the forest road

Response	Frequency	Percenage (%)
Yes	60	85.70
No	6	8.60
No response	4	5.70
Total	70	100.00

Table 5: Roles of roads linking forest estate communities and urban centre

Roles	Frequency	Percenage (%)
Distribution of goods and services	46	65.70
Facilitate mobility	11	15.70
Improve standard of living	4	5.70
No response	9	12.90
Total	70	100.00

Table 6: Respondents choice of settlements and their reasons

Settlement type	Reasons	Frequency	Percentage
Rural	Low level of crime rate	8	11.40
Rural	Low cost of living	17	24.30
Rural	Availability of fresh fruits and food	10	14.30
Rural	Serenity of nature of the settlement	4	5.70
Urban	Availability of social amenities	12	34.30
Total		70	100.0

Table 7: Respondents consultation with institutions in charge of road maintenance

Response	Frequency	Percenage (%)
Yes	24	34.30
No	18	25.70
Cannot remember	28	40.00
Total	70	100.0

Table 8: Respondents contribution in prevention of activities that cause road damage

Prevention measure	Frequency	Percenage (%)
Advice of drainage construction	41	58.60
Prevention of refuse dumping on the road side	9	12.80
Restriction of heavy trucks to ply the road	7	10.00
No response	13	18.60
Total	70	100.00

Table 9: Stakeholders' involvement in the forest road maintenance

Stakeholders' mode of involvement	Frequency	Percentage (%)
Grading the roads	24	34.30
no involvement	46	65.70
Total	70	100.0
Times of meetings		
Once in a year	11	15.70
Biannually	8	11.40
Quarterly	3	4.30
No meeting	48	68.60
Total	70	100.0
Mode of participation		
Contribution of money	29	41.40
No contribution	41	58.60
Total	70	100.0
Amount Contributed (₦)		
1.1million	1	1.40
2 million	1	1.40
100, 000	1	1.40
400, 000	1	1.40
800, 000	1	1.40
1 million	1	1.40
No response	64	91.40
Total	70	100.00

Table 10: Chi-square analysis of stakeholders participation in forest road maintenance

	Observed N	Expected N
Community dwellers		
Participated	24	35
No participation	46	35
Total	70	70
Professional staff		
Participated	3	7.5
No Participation	12	7.5
Total	15	15

Community dwellers ($X^2 = 6.914$, df = 1 and p value = 0.009)
Professional staff ($X^2 = 5.400$, df = 1 and p value = 0.020)

CONCLUSION AND RECOMMENDATION

Within the scope of this study, it is concluded that residents in the community and villages within the Ondo State Afforestation Project do not contribute and participate in maintenance of forest access roads in the area. It is a known fact that effective forest road management depends on the construction and the maintenance of an appropriate forest road network. Road building is essential to the multiple uses of forest resources. For optimal benefit of the forest to be appreciated, some awareness campaign should be put in place to essentially educate community members, farmers, timber contractors on the critical role of forest road and why their participation is essentially important. This will give them a sense of belonging and kindle interest to ensure effective road maintenance and participation of all the stakeholders. Members of the communities should be represented in various committees regarding construction and maintenance of all forest road structures to prevent constant degradation.

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Plate 1: State of the road linking the Ondo State Afforestation Project (OSAP) in Odigbo Local Government Area of Ondo State during rainy season.

Plate 2: State of the road linking the Ondo State Afforestation Project (OSAP) in Odigbo Local Government Area of Ondo State during dry season