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ASSESMENT OF SOIL CONSERVATION THROUGH AFORESTATION PROGRAMMES

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ABSTRACT

The study was carried out to assess the impact of soil conservation through Aforestation programmes. Ten villages in Bakura local government being the areas that participate in soil conservation through Aforestation programmes was selected. The stratified random sampling was employed to selected the number of household participated in afforestation. The mean age of the respondents were within 33-42 years of the respondents were within the age of 33-42 years accounting for 44%. Male formed the majority with 100% and female the minority with 0.%. Majority of the respondents (92%) in the study area reported that they were married, while (8%) were single. Result showed that, 76.0% of the respondents were having 1 – 5 trees in or within their household premises, 20.0% of the respondents had no any single tree in their household premises 4.0% of the respondents has 6 – 10 trees, while 11 – 15 and 16 and above none have that trees in the study area. Showed that 80.0% of the respondents planted trees in or within their household premises, while only 20.0% of the respondents did not plant any tree. From the general overview of the research, it is obvious that afforestation culture is very low in the area under study. This appear to be the end result of little of no government sponsored enlightenment programme on the importance of afforestation. The study have showed the consequence of treeless condition discovered from the interviewees responses that lack of afforestation has been responsible for the occasional wind disaster in the study area. The study also assesses the relevance of Agro – forestry services in afforestation and soil conservation. It also uncovers the terrible consequences of deforestation which resulted in global warming, as a result vegetation are not available to absorbed carbon sinks which is an essential process for the life of trees and humans. This highlighted the need for the provision of communal nursery beds; establish tree planting campaign organizations by the government.

KEYWORDS

Afforestation, Trees, Soil and Deforestation.

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INTRODUCTION

The effort to reconcile the three objectives of increasing agricultural production reducing poverty and ensuring sustainable use of natural resources has been continuing battle in many developing countries. Many developing countries are confronted with problem of increasing population pressure on already degrading land resources, worsening poverty and

declining per capital food production. With shrinking land frontier increases from agricultural production need to come from improvement in land productivity (Ficher, 1994) However, significant increase in agricultural productivity cannot be attained if the land resources base is degrading.

Hence, sustainable use of the land resources constitutes the key constraint in agricultural growth in these countries. Land degradation, especially in the form of soil erosion, nutrient depletion and soil moisture stress is particularly severe in the high land of east African countries of Ethiopia, Kenya, Tanzania, and Uganda. These high lands have agricultural potential but have been experiencing severe land degradation. Land degradation has been identified severe environmental i n these countries since the early 1970s (H. P. Anderson 1993)[1].

The cause of land degradation in the east African countries can group in to proximate and underling factors. The proximate cost of land degradation include cultivation of steep slops and erodible soil, low vegetation cover of the land soil, burning of dung and crop residues, declining follow periods limited application of organic and inorganic fertilizers, the underlying causes of land degradation include such factors as population pressure poverty, high cost or limited access of farmers to fertilizers, fuel and animal feed, insecure land tenure, limited farmers knowledge of improving integrated soil and water management measures and limited or lack of access to credit.

Several researchers have document that insecure land tenure is an important factor inhibiting farmers investment in soil conservation practice. The sustainable use of land resources constitutes the key constraint in agricultural growth in this country. Land degradation especially in the form of soil erosion, nutrient depletion and soil moisture stress is particularly severe in the high land of the east African countries of Ethiopia, Kenya, Tanzania, and Uganda. Sustainable use of the land resources constitutes the key constraint in agricultural growth in these countries. Land degradation, especially in the form of soil erosion, nutrient depletion and soil moisture stress is particularly severe in the high land of east African countries of Ethiopia, Kenya, Tanzania, and Uganda. These high lands have agricultural potential but have been experiencing severe land degradation. Land degradation has been identified severe environmental impact in several countries according Ogigigigi (2003)[2].

The data generated to this research will be valuable in adopting agricultural incentive from the government to the farmers so as to improve afforestation in Nigeria. Alongside the effort by the government organisation NGOs have also been very active in the aria of soil and water conservation in Ethiopia, about 42-58% of all NGOs operating in Nigeria has been involved in soil and water conservation.

SAMPLING PROCEDURE

The stratified random sampling was employed, to selected the number of household participated in afforestation. Ten villages in Bakura local government being the areas that participate in soil conservation through Aforestation programmes. These include (Dambo, Damri, Dan- Kaiwa, Birnin-Tudu, Yar – Kofoji, Nassarawa, Nagarawa, Dan-manau) areas were randomly selected from the list obtained from Bakura local government. Ten respondents were randomly selected and interviewed from each villages. A total of 100 questionnaires were administered.

Data collection

In order to achieve the objectives of the study both primary and secondary data were collected, the primary data were collected from field survey, structured questionnaires and interview were used to collect data on socio – economic characteristics of the respondents, impact of afforestation on degraded land. Another important instrument used in conduct of this research study was observation. In addition to careful reading from diverse eminent scholar's views on afforestation, the affected study areas was also observed, also the responses from the selected interviewees were studied and analyzed. Secondary data were collected from text books, internet. Observation technique employed in this study enhanced the achievement of the objectives of this research work.

Data analysis

The data collected were subjected to descriptive statistical analysis (frequency and percentages) to analyse socio-economic characteristics of the respondents. Descriptive statistic was also used to analyze impact of forestation on degraded environment.

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents

Table No.1 showed that 44% of the respondents were within the age of 33-42 years, 20% were within the range of 22-32 years,36% of the farmers have attained the age range of 43-52, 14.4% of the farmers were 53-62 years of age, while 63-72, and 73-82 age range constituted 1.6% of the total respondents.

Male formed the majority with 100% and female the minority with 0.%. This indicated that male dominate agricultural work force in the study area. It agrees with Adedoyin *et. al,* (1999)[3] who reported that male dominated the agricultural workforce in Nigeria. The high proportion of males to females may be becouse religion and custom play crucial roles in the livelihoods of the study area. For instance, males who are mostly the household heads, have more access to land and participate more in out door activities than females. Majority of the respondents (92%) in the study area reported that they were married, while (8%) were single. This indicated that majority of the respondents have family responsibilities to cater for which affects their farming activities. It was found that farmers, civil servants, traders as well as artisan were engaged in crop production. The result showed that 46.2% of the respondents had family sizes in the range of 1-6, (32.3%) 7-12 (13.9%) in the range 13-18, while (7.6%) had the range of 19-25 members per household. On the education level, it was reported that 39.6% of the respondents in the study areas had quranic education, 30.3% had primary education, 15.0% had secondary education, 7.5% had adult education, while 6.7% had tertiary education. The study showed that 63.1% of the farmers engaged in crop production, while other livelihood engagements include crafts, trading (36.1%) and animal production (0.98%). Most of the farmers (91.6%) were engaged in subsistence farming, while only few (8.3%) engaged in commercial agriculture. Farm size varied from 1 to 20 hectares, with majority (38.6%) having between 1 and 4 hectares, while 35.5% had between 5 and 8 hectares. About 56.9% of the farmers planted 1 to 40 kg of seed, 17.1% of the farmers had planted between 41 to 80 kg per hectare.

Planting of trees

Table No.2: Showed that 80.0% of the respondents planted trees in or within their household premises, while only 20.0% of the respondents did not plant any due to one reason or the other the research reveals that. People were plating trees but the trees sometimes died.

Number of seedlings planted

The result showed that, 80.0% of the respondents had planted 1 – 5 seedling in or within their household premises, 16.0% of the respondents had not plant any, 4.0% of the respondents planted 6 – 10 seedling, while no body planted 11 – 15 and 16 and above in the study areas.

Number of trees found within in or household premises

The result showed that, 76.0% of the respondents were having 1 – 5 trees in or within their household premises, 20.0% of the respondents had no any single tree in their household premises 4.0% of the respondents has 6 – 10 trees, while 11 – 15 and 16 and above none have that trees in the study area.

Capacity of shelter

The result reveals that, 100.0% of the respondents agreed that, with the little trees they had in their household premises been shelter, and nobody disagreed with a forestation in the study areas.

Victims of wind disaster

Wing disaster, the result showed that, 84.0% of the respondents were victim of wing disaster as a result of lack of a forestation in the study areas, while 16.0% of the respondents were not affected. This showed that, people in the study area were suffering as a result of wind due to absent of vegetation cover, this agreed with Darkoh (1998)[4] that valuable properties including houses, agricultural productsl,

and livestock were lost due to flooding. According to Yakubu and Yakubu (2008)[5] change in climate as a result of increasing tempereture has brought about increasing water bodies in Sokoto state (flood). Annual flood are commonly experienced along the Sokoto Rima river, and farmlands and houses are submerged, this slso lead to tree and agricultural crop failure.

Uses of tree plant

The result reveals that, 96.0% of the respondents made mentioned that, the uses of tree plant or aforestation is prevention of desert encroachment, while only 4.0% said the uses of a forestation were provision of shade. This showed that insufficient soil cover posses problem in aforestation. In Nigeria, Lal *et al,* 1979 observed improvement in afforestation cover crops improve the status of the soil. Observed significant increase in SOC content after 5 years tall fescue and smooth brome grass.

Functional law regulating indiscriminate felling trees

The result showed that, 92.0% o the respondents agreed that, there were functional law regulating indiscriminate felling of trees in the study areas, while 8.0% of the respondents said that they do not know were not any law.

Government effort

The research reveals that, 80.0% of the respondent disagreed with government effort on how to remedy or minimized the insufficiencies of tree plants in Maradun metropolis, while 20.0% said government made effort. By the 1970s, the close functional links and the inter-dependence between environmental conservation and development were unequivocally established (Luoga E. J 1994)[6]. In 1972, the first major world conference on Human Environment was held in Stockholm where heads of states from all over the world came together for the first time to consider the state of the earth. A special agency of the United Nations named as United Nations Environment Program or UNEP was established to deal with the environmental issues. The World Conservation Strategy (WCS) was conceived by the IUCN, WWF and UNEP in 1980 as the means of providing a comprehensive, sector-wise analysis of conservation and resource management issues, to integrate environmental concerns into development process:

Plating of trees and management

The result showed that, 100.0% agreed that planting of trees and management can help to optimize environmental benefit such as watershed, protection, and control of erosion and Stalinization in the environment. None of the respondent disagreed with this. According to (Fiswrg, 1998)[7] Watershed is the term used to describe the geographic area of land that drains water to a shared destination. This drainage pattern includes small streams high in Santa Cruz Mountains that flow into larger tributaries, of the mainstream river before reaching Pacific Ocean. A watershed therefore, is an area of land that drains water sediment and dissolved material to a common outlet (Debary, P A.1994)[8].

Carbon sinks

The result reveals that, 72.0% of the respondents, said carbon sinks has vital role played in an environment, because the carbon sinks remove carbon dioxide (co_2) from the atmosphere, while 28.0% of the respondents said it has no any significant. This agreed with (UNFCC, 2007)[9] Forests act as a major carbon store because carbon dioxide (CO_2) is taken up from the atmosphere and used to produce the carbohydrates, fats, and proteins that make up the tree. When forests are cleared, and the trees are either burnt or rot, this carbon is released as CO_2. This leads to an increase in the atmospheric CO_2 concentration. CO_2 is the major contributor to the greenhouse effect. It is estimated that deforestation contributes one-third of all CO_2 releases caused by people.

Table No.1: Socio – economic characteristic of the respondents (100)

S.No	Variables	Frequency	Proportion (%)
Age (Year)			
1	31 – 35	44	44.0
2	36 – 40	20	20.0
3	41 and above	36	36.0
4	Total	100	100.0
Gender			
5	Male	25	100.0
6	Female	0	0.0
7	Total	25	100.0
Marital Status			
8	Married	23	92.0
9	Single	2	8.0
10	Divorced	0	0.0
11	Widowed	0	0.0
12	Total	25	100.0
Educational attainment			
13	Primary	0	0.0
14	Secondary	3	12.0
15	Post Secondary	14	56.0
16	Qur'anic education	7	28.0
17	Adult classes	1	4.0
18	Total	25	100.0

Source: field survey 2016

Table No.2: Impact of afforestation to environment

Have you ever plant a tree		
Yes	80	80.0
No	20	20.0
Total	100	100.0
Have you planted		
Yes	100	100.0%
No	0	0.0%
Total	100	100.0%
Have you ever been a victim of wind disaster?		
Yes	84	84.0%
No	16	16.0%
Total	100	100.0%
What do you think is the cause of wind disaster?		
Deforestation	80	80.0%
Lack of vegetations	20	20.0%
Total	100	100.0%
What specifically do you think are the uses of tees plant to an environment		
Desert encroachment	94	96.0%
Provision of shade	1	4.0%
Total	100	100.0%

Did the community in your area make any voluntary effort to get tree seedlings		
Yes	64	64.0%
No	36	36.0%
Total	100	100.0%
Has government made any effort on how to remedy or minimize the insufficiencies of tree plants in Maradun Metropolis?		
Yes	20	20.0%
No	80	80.0%
Total	100	100.0%
Did planting of trees and management can help to optimize environment benefit such as watershed protection and control of erosion and Salinization?		
Yes	100	100.0%
No	0	0.0%
Total	100	100.0%
Did the carbon sinks has vital role to play in an environment		
Yes	72	72.0%
No	28	28.0%
Total	100	100.0%

CONCLUSION

The result indicated that; there are insufficiencies of afforestation in Bakura metropolis. Lack of afforestation caused wind disaster to the inhabitants in the study area. The study have showed the consequence of treeless condition discovered from the interviewees responses that lack of afforestation has been responsible for the occasional wind disaster in the study area. The study also assesses the relevance of Agro – forestry services in afforestation and soil conservation. The implication is that farmers need to adjust their management practices to ensure that they make efficient use of the limited rainfall and water resources for planting trees. The communities in the study areas identified rationing of inputs and lack of seed resources as important constraints. Addressing these isssues can significantly help the farmers to tailor their management practices of over coming the challenges of afforestation.

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CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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