AN ASSESSMENT OF TRADITIONAL LAND USE MANAGEMENT PRACTICES AMONG FIVE COMMUNITIES IN DOHO DISTRICT OF KWAMI, GOMBE – NIGERIA

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ABSTRACT

Assessment of traditional land-use management practices was conducted around Kwami local government, Gombe-Nigeria. A well structural questionnaire were administered randomly in five selected villages from Doho district (Alagarno, Bentere Bokki, Jauro Yaya, Jauro Alaji and Wuro Tanni) from the findings it was revealed that majority of the respondents are male and are married with low educational background i.e secondary school, and the main system of farming is mixed farming system, organic manure is the main source of their fertilizer and they are using local hand tools for must of the farming activities. Poverty, land tenure system, water erosion and leaching are the major problems affecting land-use in the study area. It was therefore recommended that Government should try and provide those communities with extension education to enable them to improve their traditional land-use management practices.

Keywords: Among Five, An Assessment, Communities, Land Use, Management Practices

INTRODUCTION

Land use can simply be defined as the type of use through which a piece of land is employed in order to derive optimum benefit for man. Land use involved the arrangement and modification of natural environment or wilderness into built environment such as field, pasture and settlement (FAO 1983). According to FAO,(1983) explained that " land use concern the product and or benefit obtained from the use of the land as well as the land management actions carried out by human to produce optimum utilization for man". Agricultural production has faced so many challenges over the years , more recently significant effect of traditional land use includes urban sprawl, soil erosion, soil degradation (caused by animal trembling), salinization, and desertification. Agricultural practices caused more water pollution than any other single source (Gleissman, 1998). Run off from farm can contain sediment, pesticides, and fertilizers as well as ammonium waste product. The benefit of traditional land-use to agriculture has a central role in providing food, created jobs, earns export income, generate saving and funds for investment and produce primary commodities for expanding local industries (FAO, 2005).

LITERATURE REVIEW

Meaning of Land-Use Cover and Change

Land-use means every human economic and social use of land, such as for agricultural living. Land-use represent the human use of the land for example, small scale agriculture, grazing, wildlife, resources or industrial zones (FAO, 1983).

Land-Use

The way in which land is used especially in farming and city planning, land for different human purposes or economic activities. The typical categories for land-use are dwellings, industrial land-use, transport and recreational uses or nature protection areas (FAO, 1983). Traditional land use refers to the means through which the land management objective is achieved the "how" of land use (e.g cultivation practices such as minimum tillage or direct drilling) some management practices such as stubble disposal, tillage and rotation systems, may be discriminated by characteristics land cover pattern (Baxter and Russell, 1994). According to various sources quoted in Briassenlois (2000), land cover may be describes as the physical chemical, ecological, biological categorization of terrestial surface (e.g grassland, forest or concrete) land cover represents the biological cover for example savannah bload leaves forest, tea or built up areas. Land cover refers to the observed physical surface of the earth, including various combination of vegetation types, soils, exposed rocks, water bodies (Bureau of Rural Science, 2002). Land use changes are the change in biophysical characteristics or attributes of the land. In other words a change from one types of land use to another over time (Bureau of Rural Science, 2002).

Factors Affecting Land Use Cover

New highly productive soya beans technology adopted by EMBRAPA increased productivity and profit ability (Smith *et al*, 1999). The shift from conventional to no till crop systems, the replacement of plantation by annual crops and the introduction of cattle were the most relevant change in land use, hence technology related practices. Deteriorated economic circumstances also motivated there changes since in the 1980's and mid 1990's. There were low output prices, high interest rate and high production cost (Smith *et al*, 1999). Rapid agricultural expansion occurred due to low land price compared to other agricultural region (limited to grains and livestock) technological innovation profit abundance of good quality land, soil construction which means capital applied on the soil turned then in productive planted land and more production grasslands were substitute natural grasslands, introducing of new crop varieties (Rezende *et al*, 2002). The "boom" of cleaning land for future sale at high prices to soya beans producers (Jepson, 2006),state development policies and the global demand for soya beans are identified as primary cause of land clearance over, the past 30years. The argument is best on the view that cheap land credit, maximum prices, and infrastructure instrument distorted economic signals and enable farmers to duplicate the capitals intensive cropping system of older settlement areas (Jepson, 2006). Policy and economic factors and activities such as agriculture and livestock (Branstrom *et al*, 2008). Factors such as government policy subsidies and technical assistance offered by federal government influence land use for agriculture and livestock purpose (Branstrom *et al*, 2008). Factors which affected land use changes introduction of extensive mechanized production of grains for exports mainly soya beans, maize, cotton and coffee (Branstrom *et al*, 2009).

Factors Contributing to Land Degradation

Soil degradation is one of the most serious consequences of conventional agriculture in the world that has been damage to this degree by post World War II agricultural

practice (Gleissman, 1998). Soil can be degraded by salting, water logging, compaction, pesticide contamination, decline in soil structure quality, loss of fertility and erosion (Gleissman, 1998). Soil degradation also occur from compaction cause by heavy machinery and cattle trampling, compaction can make tillage costly, impede seedling emergence, and increased run off and erosion (Gleissman, 1998). Salination degrades soil by increasing dissolved salt concentration, Salination also can become especially problematic in irrigated areas, irrigation water contained salt that become concentrated in the soil as water is used and evaporates. An increase in salinity can result in decreased yield for such sensitive plants as soya beans, corn, rice (Gleissman, 1998). Biological degradation is probably the most serious formal soil degradation. Biological degradation affect the microbial community, of the soil, which are the primary decomposer, and can alter nutrient circle, pest and disease control, and chemical transformation properties of the soil(Gleissman, 1998). Land degradation can be consideration interrns of the loose of actual or potentials productivity or utility as a result of natural or anthropogenic factors, it is the decline in land quality or reduction in its productivity. In the context of productivity, land degradation results from a mismatch between land quality and land use (Beionrath *et al*, 1994). Mechanism that initiate land degradation include physical, chemicals and biological processes (Lal, 1994) important among physical process are a decline in soil structure leading to crusting compaction, erosion, desertification, amaebism, environmental pollution and sustainable use of natural resources. Significant chemical processes include acidification, leaching, salinasation decrease in cat-iron retention capacity and fertility depletion. Biological processes include reduction in total and biomass carbon, and decline in land biodiversity. Factors of land degradation are the biophysical process and attribute that to the kind of degradative processes e.g erosion, salinasation etc. These include land quality (Eswaran *et al*, 2002) as affected by its intrinsic properties of climate, terrain and landscape position, climax vegetation and biodiversity, especially soil biodiversity cause of land degradation are the agents that determine the rate of degradation, and biodiversity. These are biophysical (land use and land management, including deforestation and tillage method), socio-economic (e.g land tenure, marketing institutional support, income are human health), and political (e.g incentives, political stability) forces that influence the effectiveness of process and factors of land degradation (Eswaran *et al*, 2002).

Problems Associated with Land Use Management Practice

According to Gleisman (1998) the merger effect of land-use since 1750 has been deforestation of corporate regions. More recently significant effect of land-use includes urban sprawl, soil erosion, soil degradation, salinazation, and desertification. Land-use change together with use of fossil fuels as the major anthropogenic source of carbondioxide, dominant green house gas. Agricultural practices caused more water pollution than any other single source (Gleisman, 1998). Run off from farms can contain sediment, pesticide and fertilizer as well as ammonium waste product. Pesticides that reach ways can seriously affect ecosystem health. Agriculture account for 67% of all pesticide use in the U.S, 63% of these pesticides is to corn and Soya-beans (Gleisman, 1998). Erosion rate are greatly increased by conventional tillage practices in which field are plowed several time a year. These practices leave soil free of any conver for extensive period and increase rate of wind and water erosion (Gleisman, 1998). Conventional agriculture practices can also affect species

composition. Yearly tillage encouraged opportunities plantation species to grow and these can speed nearly undisturbed habitat. The application of herbicides also result in a shift toward opportunities specifies in adjacent wood loots (Gleisman, 1998).

Importance of Traditional Land-Use

Agriculture has a central role in providing food, creates jobs earns export income, generates savings and fund for investment and produce primary commodities for expanding industries (FAO, 2005). Agriculture contributes as the main source of employment of the majority of the world poor. In developing countries it constitutes 33% of the total workforce in 2004 (Hazell, P. 2006). The role of agriculture in economic growth is centuries old Hazell (1996) classical articles identify five types of inter-sectoral linkages that highlight agricultures role in economic growth. These forward and backward linkages, operating through both production and consumption, include:

a. Providing food for domestic consumption
b. Releasing labour for industrial employment
c. Enlarging the market for domestic industrial support
d. Increasing the supply of domestic saving
e. Earning foreign exchange

(FAO, 1983)

Current traditional land use is an important criterion for better targeting of areas for implementing projects by local or international entities knowledge of regions where major crops are grown is of importance for early warning for food security (FAO, 1983).

STUDY AREA

Location, Position and Size

Doho district of Kwami local government area Gombe state is located on latitude 10^0N 25^1 56.2^{11} and longitude 11^0E 13^1 40.3^{11} has an area of approximately 50 square kilometers. It has a population of approximately 7,628 (field work 2014). Doho district is bounded to the north by Gadam ward, to the south by Kurba ward to the east by Mallam Sidi, while to the west by Gombe metropolis (Ministry of Land and Survey, Gombe, 2011)

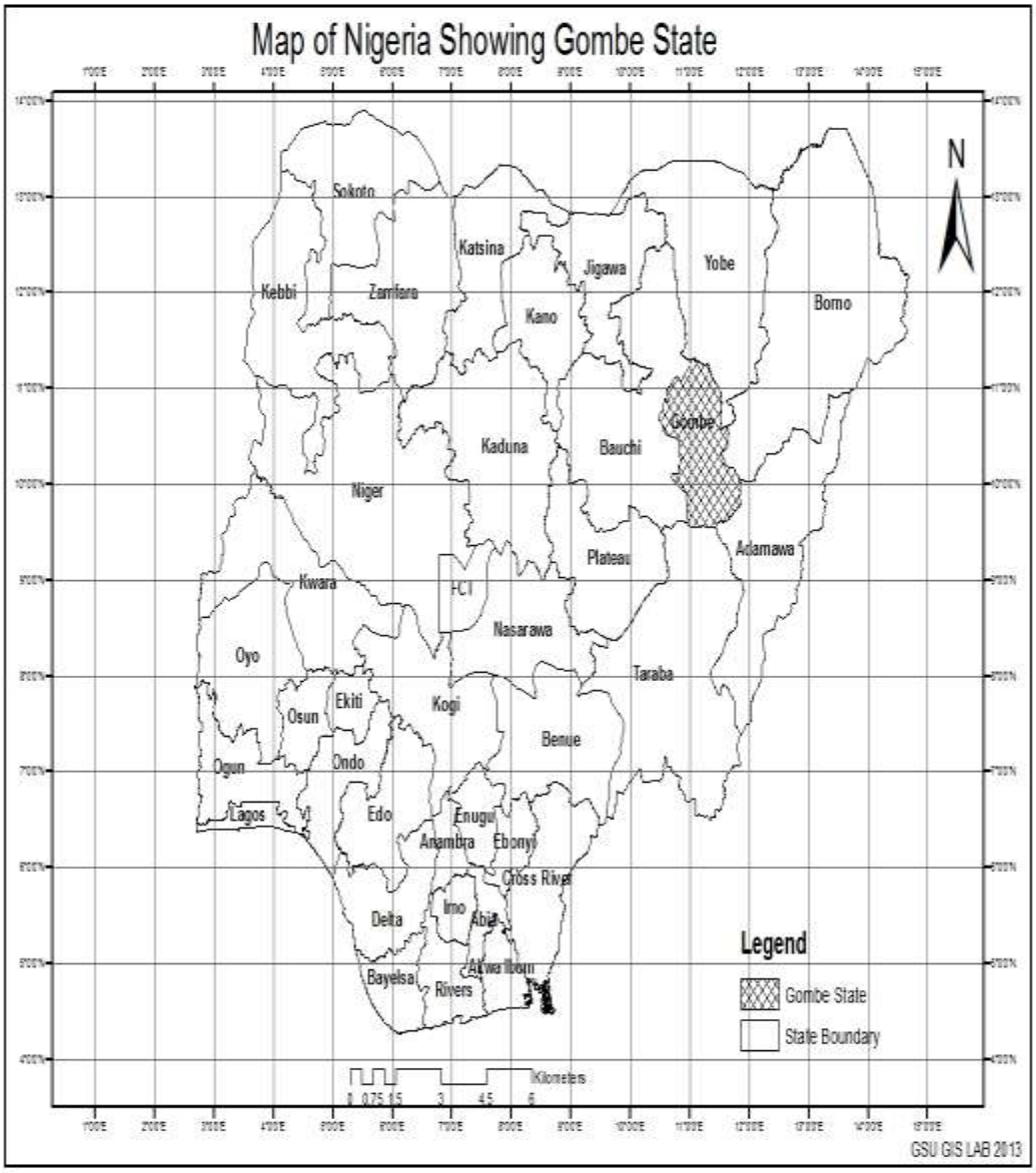

Figure: 3.1 Map of Nigeria Showing Gombe State

MAP OF GOMBE STATE SHOWING KWAMI L.G.A

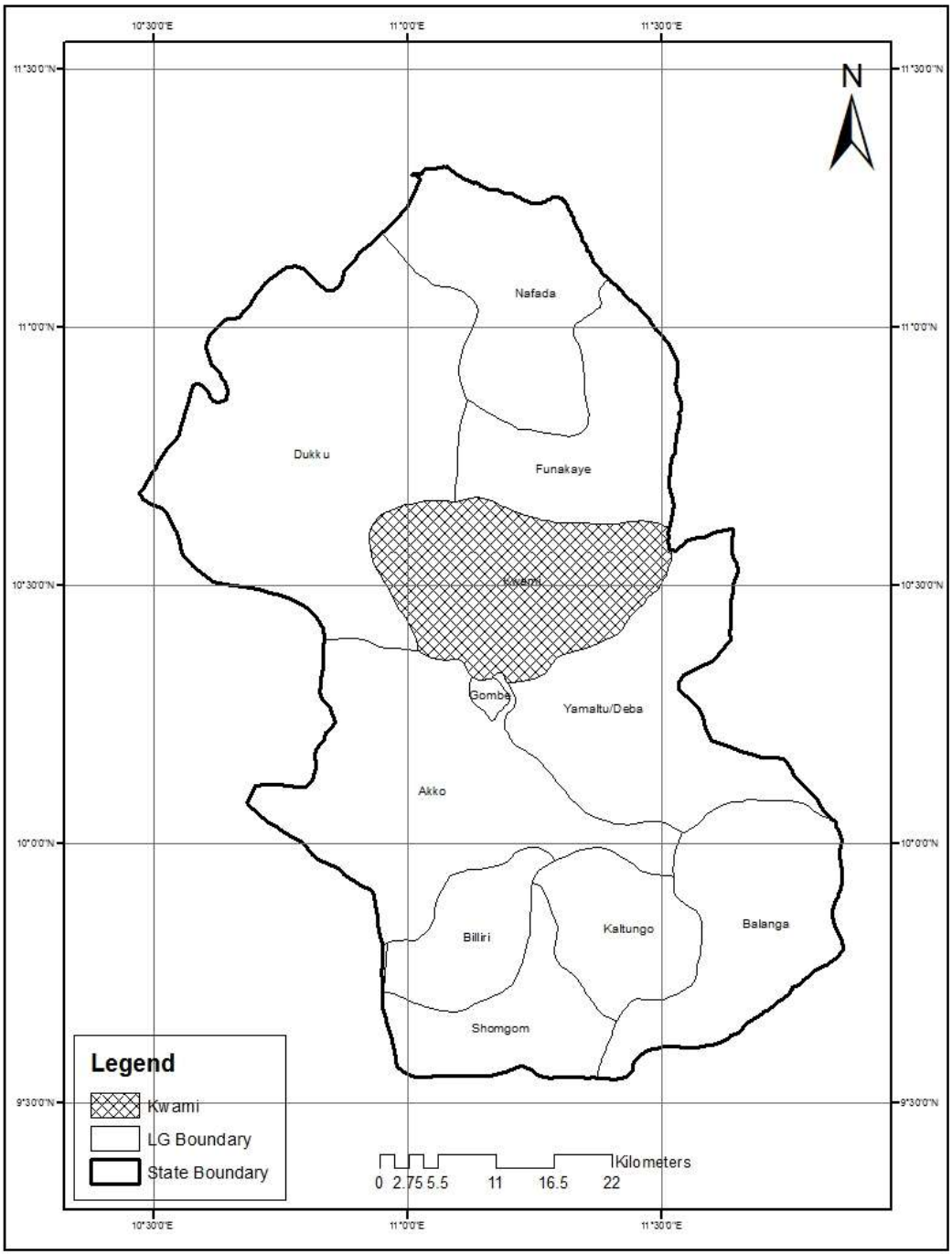

Figure: 3.2 Map of Gombe State Showing Kwami L.G.A.

MAP OF DOHO SHOWING STUDY AREA

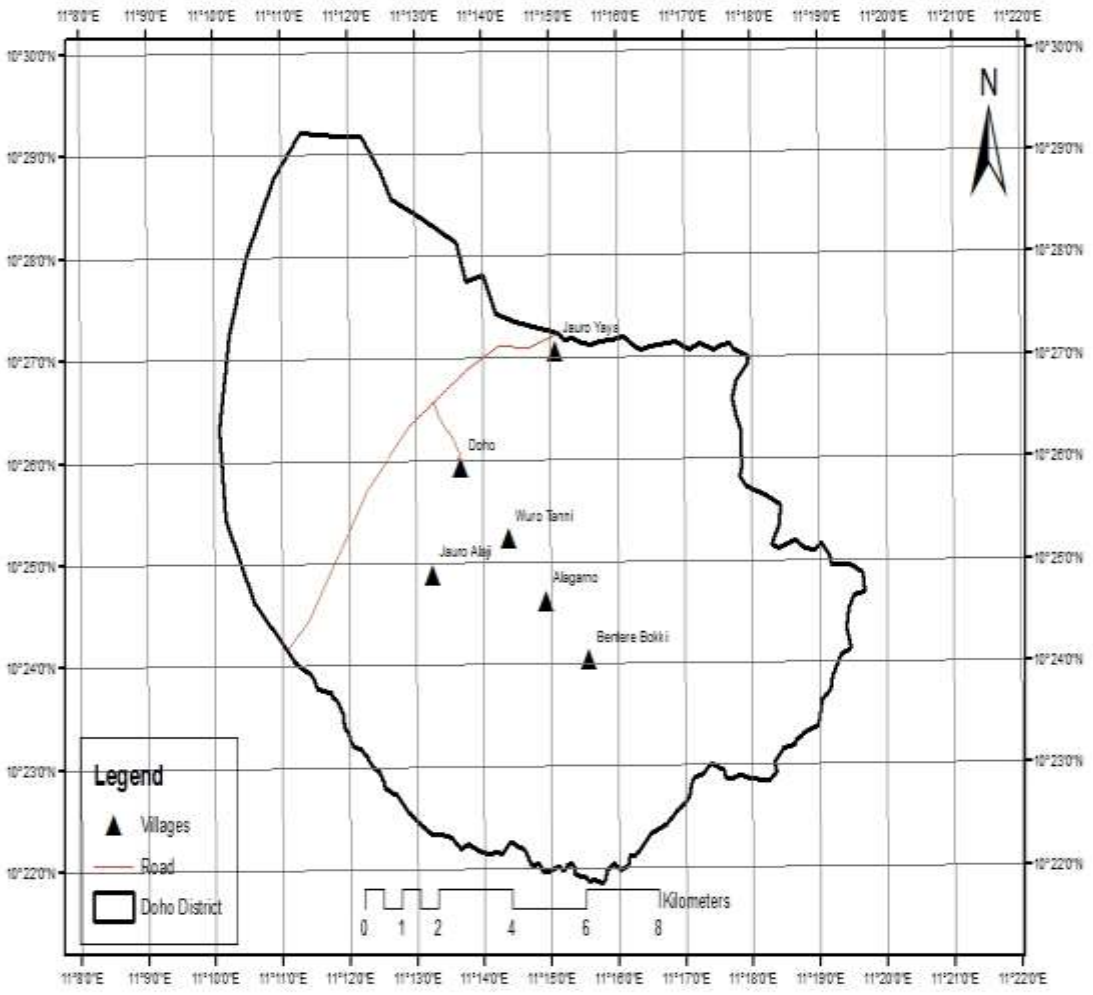

Figure: 3.3 Map of Doho Showing the Study Area

DATA ANALYSIS AND DISCUSSIONOF RESULT

Farming Activities

Figure 4.4: A Bar Graph Showing Means of Ownership of Farmland

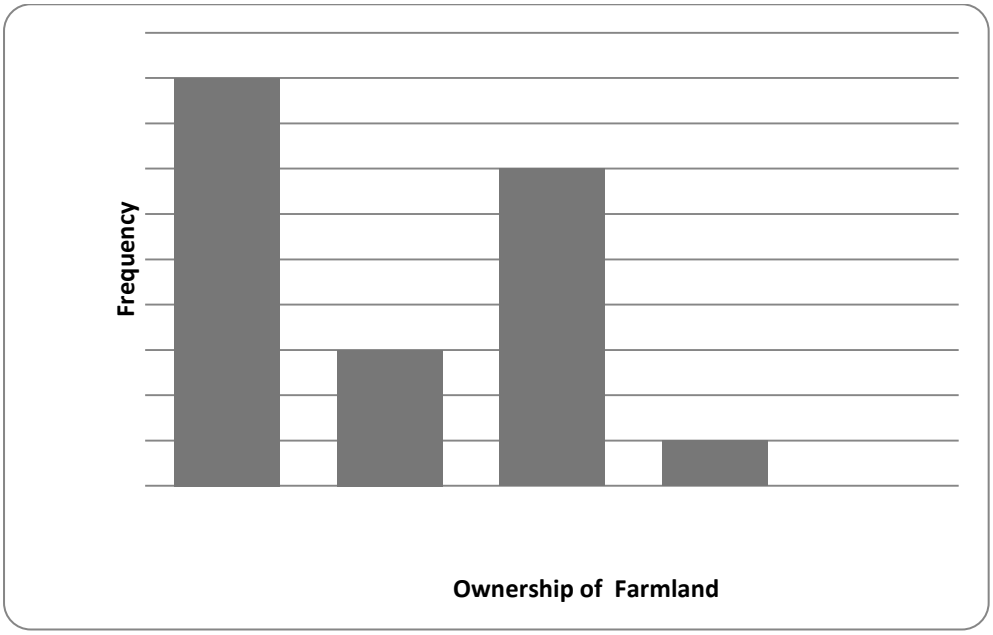

Figure 4.4 above revealed that access to land is predominantly through inheritance which accounts for 45.9% of the respondents (figure 4.4). Access to land by purchase and hired constitute of about 33.6% and 15.3%, while only 5.1% reported land via government. These findings almost concur with the result of FAO, (2007), that 60% of farmland cultivated by the respondents is acquired through inheritance. 13.7% depicts those acquired from government, 18% purchase and 8.3% by rent.

Table 4.5 Frequency of Extension Workers Visit

Extension visit	Frequency	Percentage
Yes	27	27.5%
No	71	72.4%
Total	**98**	**100%**

Source: Adamu field survey, 2014

Table 4.5 present the result of the analysis of the frequently of extension workers visit. This result reveals low visit of the extension expects to the farmers which majority of the respondents reported lack of visit accounts for 72.4%. Only 27.5% of the respondents admitted that extension workers visit them regularly.

Figure 4.5: A Bar Chart Showing Management Practice by the Respondents

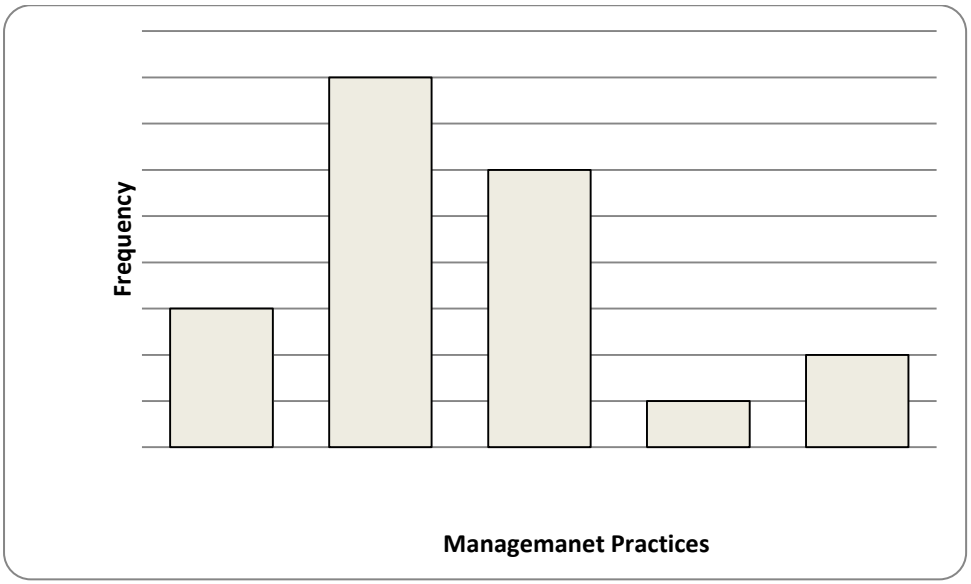

Figure 4.5: The management practices adopted, based on the analysis shows that the dominant management practices are mixed cropping account for 40.8%, mono cropping 15.3%, shifting cultivation account for 30.6%. The remaining 3.0% and 10.2% depicts agro-forestry and crop rotation respectively. Respondents reported that they have adopted mixed cropping in the study area in order to record bumper harvest and also for maximum land utilization. (Adamu, 2014)

Farmer's Perception on Soil Fertility

Table 4.6 Farmer's Perception on Soil Fertility

Responses	Frequency	Percentage
Decrease in soil fertility	63	64.2%
Increase in soil fertility	35	35.7%
Total	98	100%

Source Adamu field survey, 2014

Table 4.6 shows the percentage of farmers perception on soil fertility in the study area is declining due to continues used of the land without any efforts towards improving the soil fertility, from the analysis conducted, 64.2% and 36.7% indicates decline in soil fertility and increase in soil fertility respectively. (Adamu, 2014)

Table 4.7 Soil Erosion Types Based on the Respondents

Erosion	Frequency	Percentage
Wind Erosion	26	26.5%
Sheet Erosion	45	45.9%
Gully Erosion	27	27.5%
Total	98	100%

Source: Adamu field survey, 2014

Table 4.7: The erosion distribution, based on the analysis conducted shows that the dominant erosion types in the study area iswind erosions account for 26.5% Sheet and gully erosion constitute 45.9% and 27.5% respectively (table 4.7). The effect of wind erosion in the study area could be attributed to the location of the area being in the sub-Sahara region, this could also be attributed to desert encroachment/improper land management that affecting the North – Eastern part of Nigeria. (FAO, 2007)

Table 4.8 Types of Fertilizer Used According to the Respondents

Fertilizer	Frequency	Percentage
Organic fertilizer	59	60.3%
Inorganic fertilizer	39	39.7%
Total	98	100%

Source: Adamu field survey, 2014

Table 4.8: the fertilizer application, based on the analysis shows that the dominant fertilizer used by the respondents is organic with 60.3% consisting of all organic types namely, cow dung, sheep dung, chicken dung, and others. Inorganic fertilizer of all kind account for about 39.7% consisting of all types namely, Urea, NPK, Super. According to the respondents, the used of organic type of fertilizer in the study area becomes necessary because it is the fertilizer readily available and affordable by the farmers at the area (Adamu, 2014).

Plate 4.1: Showing Mixed Farming System in the Study Area.

Plate 4.2: Showing the effect of Sheet Erosion in the Study Area.

CONCLUSION AND RECOMMENDATION

The study also revealed that the constraints of farmers in the study area include poverty 23.4%, illiteracy 10.2%, drought 10.2%, pest and diseases 10.2%, inadequate fertilizer 20.4%, land tenure system 5.1%, implement and machineries 10.2%, and the remaining 10.2% indicates credit facilities.

The research recommend that Government and Non-Governmental Organizations should try and provide those communities with extension education to enable them to improve their traditional land-use management practices, and the research also further recommend that Government and Non-Governmental Organization should try and empower the local farmers with modern farming equipment's for attainment of food security in the country.

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