

Farmers' Perception of Causes of Soil Degradation in Northern Taraba, Taraba State of Nigeria

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Introduction

Food and nutrition security have emerged as two of the most pressing issues in the developing world and Nigeria in particular. These concerns are driven by the fear of the impact of climate change on agriculture and its effect on crop yields. There are calls for improving agricultural production through sustainable soil and water conservation practices to address the concerns. Conservation of soil and water are vital to the sustenance of life as outlined in the United Nation's Sustainable Development Goals 2, 12 and 15. Studies have shown that smallholder farmers are the backbone of global food security and this is particularly true, especially in Africa where majority of the people depend on agriculture for livelihoods (Chapel and LaValle 2011).

Soil degradation is the reduction in soil productive capacity. It is the decline in soil quality or reduction in its productivity. Soil degradation, mostly human induced, is potentially a critical problem in agricultural development in a developing country like Nigeria. Increasing population pressure, cultivation of the marginal agro-ecological environment susceptible to various types of soil degradation and inappropriate soil management are resulting in serious soil productivity decline, especially under extensive farming practices (Philip and Adam, 2015). Soil degradative processes include the loss of topsoil by the action of water or wind, chemical deterioration such as nutrient depletion, physical degradation such as compaction, and biological deterioration of natural resources including the reduction of soil biodiversity. This brief seeks to examine farmers' perception of soil degradation as it relates to their agricultural productivity in the northern part of Taraba state, Nigeria.

Methodology

The study was conducted in the northern part of Taraba State, (6° 30' and 9° 36' N; 9° 10' and 11° 50' E), North-

Key Findings

- The farmers in the study area are aware of soil degradation
- Improper cultivation practices were identified by the farmers as the most dominant cause of soil degradation in the study area
- Flooding is identified as the most dominant cause of soil degradation in Lau and Karim Lamido local government areas because of their proximity to the River Benue.

Eastern Nigeria, (Figure 1) with the total population of 778,131 people in 2013, a projected annual growth rate of 3.1% and a population density of 54 people per km² (Taraba Agricultural Development Programme, 2014) The data used for the study was collected through a structured questionnaire survey of 180 sample farmers randomly selected from the eighteen districts that were purposively selected from the six local government areas in the region. The questionnaire sought for information on farmers' perception of soil degradation and its causes. The data was analyzed using R Statistical software.

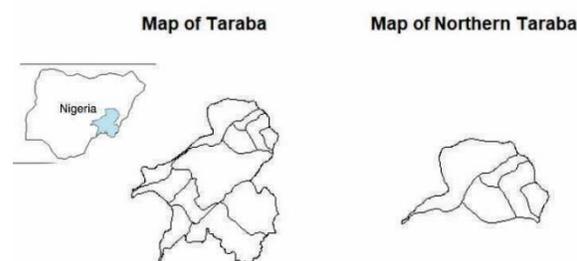


Figure. 1: Map of the study area

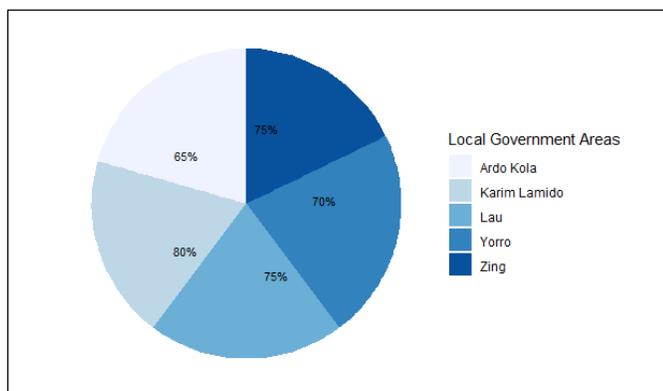


Figure 2: Farmers' awareness of soil degradation in northern Taraba State of Nigeria.

Results

Most farmers in the study area are well aware of soil degradation on their farms (Figure 2). They have lived through decline in their yields over the years, loss of farm lands, and decline in fertility as well as deterioration of the soil structural condition. The farmers' perceived causes of soil degradation were identified as improper cultivation practices (like mono cropping), poor manuring, misuse of fertilizers or excessive fertilization and wrong use of chemicals (that kill soil organisms which help in binding the soil together), continuous cropping, inappropriate tillage (break up soil into finer particles thereby increasing the soil vulnerability to erosion). Improper cultivation was identified as the main drivers of soil degradation as 79%, 82%, 75%, 70% and 73% of the farmers in Ardo Kola, Lau, Karim Lamido, Yorro and Zing respectively indicated that as a cause of soil degradation. Deforestation and indiscriminate bush burning (which exposes soil minerals by removing trees and cover crops that help in improving the soil conditions; reduces water and nutrient holding capacity) and addition of organic matter are identified as the major causes of soil degradation in Ardo Kola (67%) and Yorro (75%). Most farmers in Karim Lamido and Lau identified flooding as causes of soil degradation because their farms are along the plains of River Benue (Table 1).

Table 1: Perceived causes of soil degradation in the study area

Causes of degradation	Ardo Kola	Lau	Karim Lamido	Yorro	Zing
Extensive cultivation of marginal lands	53%	79%	62%	65%	68%
Improper cultivation practices	79%	82%	75%	70%	73%
Flooding	45%	85%	85%	40%	35%
Over grazing	49%	40%	35%	51%	48%
Deforestation and indiscriminate bush burning	65%	51%	48%	75%	45%
Erosion	67%	75%	70%	54%	50%

Conclusion:

Soil degradation has been and is still an issue in global discourse as it affects agricultural productivity and poses a threat to food security. Though most of the farmers are aware of soil degradation in the study area, they have little or no knowledge of how to control this problem and how to sustainably use the soil to increase their productivity and income. The state government through the TADP should be motivated and adequately funded for regular extension visits and training to educate the farmers on sustainable use of the soil and integrated nutrient management. Extension workers should also be trained and motivated adequately to educate the farmers so that the state can truly take its position as nature's gift to the nation.

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