

**EFFECT OF SELECTED LAND USE TYPES ON SPATIAL DISTRIBUTION OF SOIL HEALTH WITHIN BUGESERA AGRO-ECOLOGICAL ZONE IN THE CENTRAL PLATEAU, EASTERN PROVINCE OF RWANDA**

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**Abstract**

Land used for different purposes may be disturbed to differing degrees depending on management practice, application rate and timing in the areas of intensive agriculture as they vary according to soil formation factors such as parent material, topography and climate. Assessing land-use-induced changes in soil properties is essential for addressing the issue of agro-ecosystem transformation and sustainable land productivity. Effective land use, planning and management at local and regional scales are dependent on a sound knowledge of the distribution and variability of suitability land use within the agro-ecological zone.

The main objective of this research was to determine the impact of selected land use types and interactions on some soil chemical, physical and biological characteristics such as soil pH, soil organic matter (SOM), bulk density (BD), water stable aggregates (WSA), hydraulic conductivity (HC), soil flora (bacteria, fungi, actinomyces) and microbial biomass nutrients in surface layers (0-20 cm) of topsoil of land use. The experimental design was a completely randomized block with 3 replications for each land use system. This study was carried out in Juru, Rweru and Gashora sectors in Bugesera district Eastern Province of Rwanda. The study area is traditional potential area for field crops (especially banana, maize and cassava) and for natural land use (shrubs and forest lands).

According to ANOVA statistical analysis, different land uses in the study area has significantly affected soil health as follows  $p < 0.01$  for SOM, WSA and HC,  $p < 0.05$  for BD,  $p < 0.05$  for microbial biomass N and C. Besides, soil texture was significantly detected as  $p < 0.01$

**Key words:** microbial biomass; soil flora; soil quality; land use; Rwanda.

**PAYMENT FOR ENVIRONMENTAL SERVICES AND FOREST CONSERVATION: AN ANALYSIS OF POPULATION PARTICIPATION IN THE COMMUNITY FOREST OF MOLIMOZOK IN THE EASTERN REGION - CAMEROON**

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**Abstract**

The main approaches to forest conservation are often combined without the fact that stakeholders' perceptions and expectations are understood clearly and systematically. The main objective of this study is to analyze rural households' behavior face to new approaches of PES in the management of community forestry. The contingent valuation method has been used. Econometric and statistical analyses show that the socio-economic characteristics such as *age of the household head* (+), *marital status* (-), *household size* (+), *income* (-), *ethnicity* (-), significantly influence the participation of households through their willingness to accept (WTA). Furthermore, the only logic of compensation at opportunity cost of practices competing with forest in the use of land, doesn't lead unlikely to sustainable results. It is necessary for this purpose, to move from logic of compensation to an investment perspective, at the national level as at the local level. This will make PES scheme more efficient and equity in the distribution of resources.

**Keywords:** participation, rural population, biodiversity conservation, PES, contingent valuation, WTA, Community Forest, Cameroon.