

An Investigation of Soil and Water Conservation Related Problems in the Kigezi Highlands of Uganda

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Abstract: It is increasingly becoming important to address the many problems in the realm of soil and water conservation in Uganda and in particular the Kigezi highlands. This is intended to protect the land resource, to increase the agricultural productivity in order to support the high population of the area. Since the colonial period, several soil and water conservation technologies including Terracing, mulching, Trash lines, Contour cultivation, Woodlots, Boundary planting and Agroforestry were introduced to solve the problems of soil degradation as a result of soil erosion. This study was conducted to establish the problems related to soil and water conservation in the area. The study revealed that shortage and nature of land (100%), socio economic constraints (100%), the complex nature of introduced technologies (98%), and inadequate extension services (98%). Inadequate extension services was associated to low farmer interest, inadequate training of extension personnel, and lack of equipment. Formation of small manageable groups, provision of better quality tree species and demonstration plots establishment were among ways of solving the above mentioned problems.

Keywords: soil erosion, land degradation, plant diversity, pollution

1 Introduction

Poor management and the increasing utilization of marginal lands are among major causes of land degradation especially in high land of Uganda (Apio and Miro, 1999). The hill sides have been heavily settled on, ploughed down hill which results into rill to gully erosion and later siltation of the swamps (Apio and Miro, 1999) and hence reducing land productivity (AES, 1993). Soil and water conservation strategies are recognized as key to soil erosion and associated environmental and ecological degradations control, to alleviate the adverse effects of drought on crop and animal production through improved physical, chemical and biological attributes of soil (Zake and Magunda, 1999). However, despite decades of campaign in almost every developing country in general, and in Kigezi in particular, and the existence of well established indigenous and scientifically soil and water conservation systems soil erosion continues to be uncontrolled in Kigezi and many parts of East Africa and else where in the world (UNEP 1983; Reij *et al.*, 1996; Kerr and Sanghi 1992; Blaikie and Brookfield, 1987). Underlying causes of the situation may include performance of technologies and/or low adoption rate related to socioeconomic, inherent complexity of the introduced technologies, and their associated response time lag. The major aim of this study was to establish the major constraints of soil and water conservation in the Kigezi highlands of Uganda.

2 Methodology

Participatory Rural Appraisals (PRA) and House hold Surveys were conducted to establish the problems and solutions of soil and water conservation in the area. The target population was 120 families in the Kigezi highlands of Uganda. The accessible population was farming families in .county Kabale District. Three parishes were randomly selected and a farming population ($n=40$) was randomly selected per parish giving a total sample of 120. The tools used during the PRA included; Resource mapping, Transect walk; Problem ranking, Pair wise ranking; and Problem tree analysis. During the house hold surveys, a contact rate of 82% was realized. Therefore n became 98. This was because of the absence of some farmers. Ten extension workers in charge of the parishes provided information to confirm what the

respondents had given. Interviews from extension workers provided 100% return rate. In general, the data collected was summarised as descriptive statistics of frequency tables, percentages and histograms.

3 Results and discussions

3.1 Soil and water conservation technologies

Soil and water conservation technologies identified on farmers' gardens in Kigezi highlands are presented in Fig.1. These technologies included terracing (100 %), mulching (97 %), trashlines (92 %), contour cultivation (46 %), woodlots (16 %), boundaries planting (10 %) and agroforestry (41 %). These results attest that soil and water conservation technologies are adopted by farmers in Kigezi highlands.

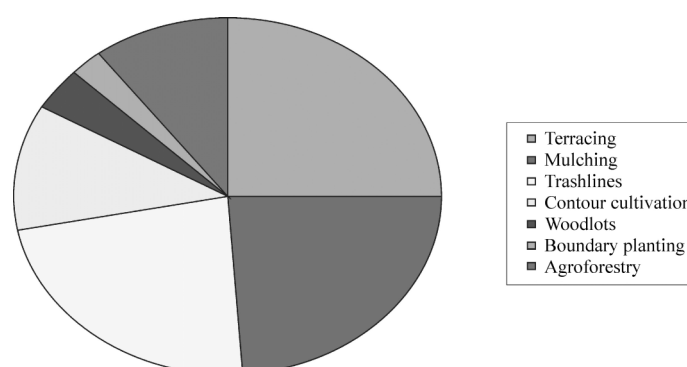


Fig. 1 Soil and water conservation technologies in Kigezi highlands

3.2 Soil and water conservation problems

Problems related to SWC are depicted in Fig. 2. They include shortage and nature of land (100 %), socioeconomic constraints (100 %), complex nature of some SWC technologies (98 %), inadequate extension services (98 %). Extension personnel confirmed farmers' observations; they think that the inadequate services they provide could be due to low interest by farmers. However, they acknowledge that there is inadequate training (45.5%), at times they lack equipment and inherent difficulty to some technologies (20%) (Fig. 3).

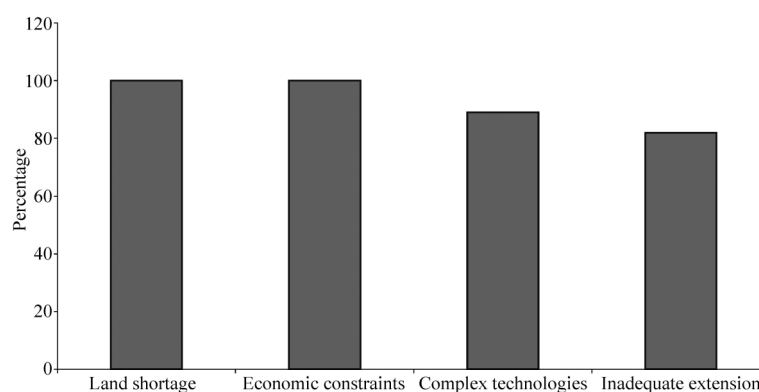


Fig.2 Soil and water conservation related problems

3.3 Adopted technologies

To solve the above problems attempt have been made including formation of small manageable groups (Fig. 4). This was intended to ease labor constraints especially during the construction of terraces,

contour bands and water harvesting trenches. There are demonstration plots on the modal farmer's farms for sensitization purposes. Increased dissemination of soil and water conservation technologies. The government of Uganda and some local organizations have empowered the extension workers by provision of improved seeds, equipment and transport facilities. The local people have also been educated on seed collection drying and storage, then nursery preparation, sowing, transplanting and general nurturing of the seedling until they begin producing seeds. Farmers also have a planning schedule for their various activities.

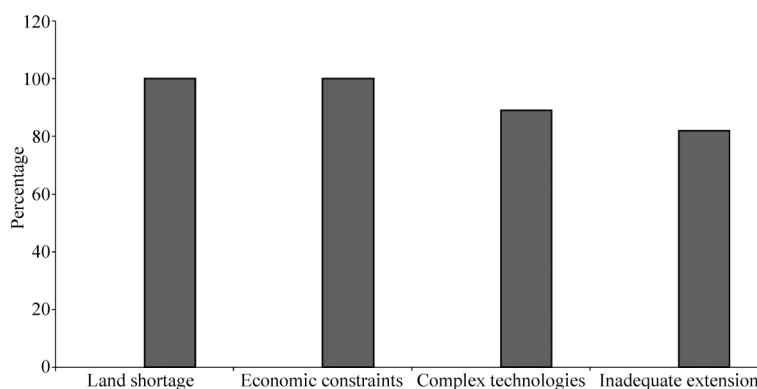


Fig.3 Factors for inadequate extension services

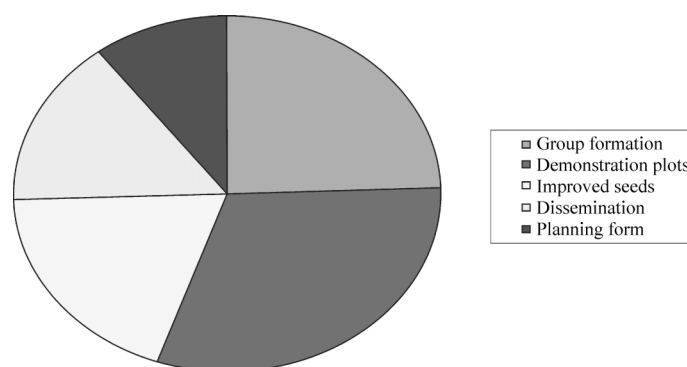


Fig. 4 Adopted strategies

4 Conclusion

This study has demonstrated that soil and water technologies are adopted in Kigezi. However, shortage and nature of land, socio economic constraints, the complex nature of introduced technologies, and inadequate extension services are the major soil and water conservation related problems in the Kigezi highlands of Uganda.

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