

Creating awareness among decision makers on land degradation and sustainable land management – *a Farm System Analysis for the development of a computer game*

Machteld Schoolenberg, MSc^{1,2}

¹YPARD – *Young Professionals in Agricultural Research for Development*

²LDD - *Land Degradation & Development group, Wageningen University; WOTRO*

ABSTRACT

Land degradation is an increasing problem for smallholder farmer communities in the Usambara Mountains of Tanzania. A lot of research on this issue has been conducted in this area, but there lacks communication with district level policy makers, who can adjust and implement land conservation policies.

The purpose of this study was to develop a computer game in order to create awareness among policy makers by explaining farmers' main issues in a fast and comprehensible manner. Therefore, the local farming system, and farmers' critical decision moments and investment behaviour were examined. A farming system analysis was conducted, based on a case-study approach that took into account the different aspects of Farming System Research (FSR).

Results indicated that in general, the smallholder farmers in the Usambara Mountains keep savings, for instance in the form of stocked goods and livestock. This saving strategy increases their coping capacity for low market prices. In case of conflict, illness or death, farmers' social relations support in resolving that. Additionally, it was found that these smallholders cultivate both staple and cash crops. This mixture of crops makes them relatively resilient to physical events, as other crops partly compensate for yield losses. It became clear, however, that the implementation of soil conservation techniques was highly variable, i.e. some farmers construct terraces on their plots while others do not apply any soil and water conservation measures at all. It seems that farmers lack a knowledge basis on the possible benefits of these measures. The influence of district authorities and extension workers proved to be limited: incentives and regulations do not extent beyond villages along the main roads and market points, are not well enough adapted to farmers' capital and thus meet little acceptance. Taking this into consideration, the principal conclusion was that the computer game needs to show farmers' resilience as well as their limitations in order to give a clear message to policy makers. The context of the launch of this game should be a policy maker workshop that gives room to the discussion that is provoked by the topics addressed in this computer game.

Keywords: serious gaming; land degradation; policy making; farming systems; smallholders