



Strategies to develop and evaluate soil conservation measures for complex mountainous farmland in South Korea

S. Arnhold and B. Huwe

Department of Soil Physics, University of Bayreuth, Bayreuth, Germany (sebastian.arnhold@uni-bayreuth.de)

Soil erosion by water can generate serious damages in mountainous ecosystems by the irreversible loss of soil productivity and the degradation of surface water quality. A substantial impact on the quantity of erosion and the amount of transported soil has the local land management. The application of best management practices in regions affected by high soil erosion is the major goal of conservation planning. Management practices include tillage operations and crop cultivation on farmland, but also landscape structuring by field margins, forest patches and riparian areas. Developing proper management strategies for a certain area require careful planning, because they are often associated with high costs and use restrictions for the local people. Different potential control measures are not only strongly variable in their effectiveness, but in certain cases they can even produce higher erosion rates. Therefore effective conservation planning requires individual treatments depending on the local conditions, and it should consider all important factors controlling the impact of each management measure. Objective of this work is to derive possible management measures for mountainous farmland areas in the watershed of the Soyang Lake in South Korea, which are characterized by intense agriculture and heavy monsoonal rain events during the summer months. The complex topography and heterogeneous soil and land use conditions of those areas play a primary role in soil erosion processes and require special consideration for developing conservation measures. The complexity of factors governing erosion processes and the difficulties of evaluating erosion control measures are described on the basis of recent studies focusing on local farmland management and its effect on erosion in this region. We present the types of data bases, which are needed to develop erosion control measures and show different methods, which can be applied to obtain those information. Possible strategies and procedures for the planning of best management practices in this region are given, which can help to develop a more sustainable and environmentally sound agriculture.