

ASSESSMENT OF THE LONG-TERM EFFECT OF LAND USE PATTERNS ON HYDROLOGIC LANDSCAPE FUNCTIONS

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EC market policies and regional subsidy programs have an enormous impact on local land use. This has far reaching consequences on various landscape functions. In the joint research project SFB299 at the Giessen University the effect of land use options on economic, ecological and hydrological landscape functions are under investigation. The continuous time step model SWAT-G (Eckhardt et al., 2000; Arnold et al., 1998) is employed to characterize the influence of land use patterns on hydrological processes. The model was calibrated and validated employing a split sample approach and base flow separation. For a mesoscale watersheds (Aar, 60 km²) located in the Lahn-Dill-Bergland, Germany, different land use scenarios were analyzed with regard to their hydrological impact. Different average field sizes were assumed and the model ProLand calculated the land use systems with maximal land rent for each scenario. The so obtained land use maps served as input information for the hydrologic model runs.