



Research on the fluvial dynamics in relation with the landuse changes in three catchments of the Euregio Maas-Rhine (Belgium, The Netherlands and Germany)

J. Mols, E. Hallot and F. Petit

Laboratory of Hydrography and Fluvial Geomorphology, Departement of Geography,
University of Liège, Belgium. (jmols@ulg.ac.be)

This study is carried out with the support of the Interreg III project “Ways of Waters”. These guidelines respond to the requirements of the European water framework directive (DC2000/60). The problematic of sediments fluxes within river systems which is examined in this study is already the focus of several researchers. We focused on the transfer and the storage of sediments in the floodplain and the channel. This study takes place in the watershed of three rivers of the Euregio Maas-Rhine. During the Holocene, important changes in landuse due to natural evolution and human impacts occurred and could be identified in the edification of the floodplains. In order to date and describe the different units of the floodplains, several tracers were used: microslags from the present day and past iron and steel industries and organic matter. Drillings were made along several cross sections in order to sample the sediments. In order to evaluate the bedload discharge of the rivers, macroslags from the past metal working and marked pebbles were used. Field work was carried out and a database of the characteristics of the rivers with a range of maps was compiled. The main descriptive factors of the rivers were estimated: bank full discharge and its recurrence and specific stream power. Initial results indicate significant differences in the behaviour of the rivers studied. In one hand, the physical characteristics of the rivers and the catchment (Lithology and slope) determine the power of each system. On the other hand, the historical landuse evolution of these catchments is different which implies different sediment inputs to the floodplains. Different rates of aggradations of sediments were calculated in several floodplain units and at different periods according to the dating results. These different rivers features require different management strategies for the river managers concerned.