Suspended sediment means transported fraction (<63μm) in the water column at any flow conditions. It can adversely affect the aquatic environment (change in hydrodynamic conditions, geomorphological) and due to its sorption properties is also one of the factors responsible for the transport of contaminants (eg. heavy metals). Changeable mineral composition, content of organic compounds, as well as the diversification of its origin (natural, anthropogenic) have a significant impact on the quantity and quality of suspended sediment. Also, suspended sediment is considered as an important element of the transport of heavy metals in rivers and streams, especially during periods of high water flows. Suspended sediment and bottom sediments are unique in providing current and historical contamination records, and are good monitoring tools to evaluate general pollution episodes. The problem of suspended sediment in Polish catchments is approached mainly quantitatively. In the currently existing legislations only the concentration of total suspended solids limit exists. The qualitative aspect is still a research gap, which could be partially fulfilled with the proposed project.

The main objective of the proposed research project is to characterize suspended sediment in the Carpathian catchment through the development and appointment of a typical geochemical marker set (*sediment fingerprints*) for this region. Two tributaries of the Dobczyce Reservoir: the Raba River (in estuary) and the Wolnica Stream (southern Poland) were selected for the study. Suspended sediment will be collected with use of *time-integrated samplers*. In addition, bottom sediment and soil samples will be collected. Preliminary measurements *in-situ* (oxygen, temperature, pH, conductivity) will be carried during the sampling. Representative contaminants for geochemical *fingerprints* samples were chosen: heavy metals (Ni, Cd, Pb, Cu, Mn, Zn, Fe), N and P, whose existence was confirmed previously, PAHs and nitro-PAHs and radioisotopes ^{7}Be and ^{210}Pb.

Integration of field and laboratory work and the use of *sediment fingerprinting* will enhance the knowledge on aquatic environment pollution in the studied region, but also will create a useful tool to assess the contamination of the other Carpathian reservoirs. Based on the comparison of the indicator concentration in suspended sediment, bottom sediments and soil, Project Manager attempts to determine also origin of the suspended sediment in the studied catchments.