

DEVELOPMENT IN A METHODOLOGY OF CLASSIFYING SEDIMENTS IN HIMALAYAN RIVERS

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The sediment loads of Himalayan rivers are among the highest in the world, resulting in national, regional, and local water resource problems, such as the siltation of reservoirs, blockage of river channels, quality of water supplies, transport of chemical pollutants, and the degradation of biological habitats. The major sources of sediments are considered to be glacial debris, landslides, and intensively-cultivated hill slopes, but little is known about the characteristics of the sediments from these sources, the movements into the river system, or their transportation down the rivers. Throughout the Himalayas the relative contributions from these sources, the type of sediments, and their transportation are likely to differ according to geology, topography, climate, and land use. The aim of the project is to develop a methodology for classifying sediments in the Himalayan rivers, including the full range of sources and methods of transportation, providing an essential information source for a future project to quantify the sediment loads of the rivers. Standardised methods of surveying sediments from first order rivers to the piedmont zone are being developed by field sampling and statistical analysis.

In addition, a GIS framework is being developed from two of the study river basins, the Upper Ganges in North West India and the Trisuli in Central Nepal. Comprehensive sets of attribute data, including geology, topography, river networks, land use, and sediment characteristics are being utilised to enable the analysis of the sediment in a spatially distributed manner on a river basin scale. The establishment of this framework will be fundamental in the quantification of both sediment supply from the main sources and the transportable load within the river channel.