

Hydrodynamic analysis of Kabul River (NW Pakistan) during monsoon floods of August 2010

Ikramuddin Bahram, Somana Riaz and Gohar Rehman

Department of Geology, University of Peshawar, Peshawar

The densely populated floodplains of River Kabul at Charsadda and Nowshera witness flash floods recurrently. However, the recent mega monsoon floods had catastrophic impact on the infrastructure and the communities settled along the banks of the river. A geotechnical study of the area reveals the peak flow discharge at different locations between Charsadda and Nowshera and the extent of inundation. Masses received structural and non-structural damages including roads, agricultural fields, bridges, houses and livestock. Though the hazard is very prominent and eminent, still masses keep developing the infrastructure close to the risk zone and the trend goes unchecked and least monitored.

A geo-hazard research study of the area was conducted primarily for the purpose of 'delineation of flood plain and to study erosional dynamics as a result of monsoon floods downstream of River Kabul'. The study focuses on marking the extent of the recent flood, described as a 100 year flood, and assessment of the structural and non-structural damages and the long term impact of such recurring floods. The methodology adopted for this study involves the use of GIS whereby primary data have been collected from the field and incorporated on the standard GIS maps of the area. Available data have significantly helped in establishing the findings of primary data. They also reveal that no mechanism has ever been developed to cope with the recurring hazard. Rather developing in floodplains close to the channel on a large scale and therefore removal of trees, and at instances the natural levees has added to the intensity of the floods.