Faris Qazi 2009: GIS-Based Hydrological Database for Site Selection of Dam Projects in Pakistan. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Mr. Suphawut Malaikrisanachalee, Ph.D. 169 pages.

The present study presents an approach for management of the hydrological data of Indus River in Pakistan with an aid of Geographic Information System (GIS). The Indus River is the biggest river in Pakistan in terms of its catchment area and discharge carrying capacity. Proper management of hydrological data, which include daily inflows and water levels of the Indus River, is imperative for taming its full potential and the development of the water sector mega projects such as dams. Nevertheless, most of hydrological data are currently maintained in hardcopy format thus making it difficult to be accessed by dam designers, hydrologists, engineers, scientists and researchers. With the availability of today information technology, the data can be converted to digital format and systematically stored in the database management system. The primary goal of this study is to develop the web-based GIS hydrological database system for the Indus River that offers easy accessibility of hydrological data to the data users. The system provides the historical inflows of the river at different gauging sites on daily, monthly and yearly basis as well as the statistical summary including maximum, minimum, average and standard deviation. The system also helps to determine the suitability of site for construction of dam based on the hydrology of Indus River. The system is developed by free and open source software which is a cost effective approach for the developing countries like Pakistan.

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