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MORPHOMETRY OF BUGGAVANKA WATERSHED IN KADAPA, ANDHRA PRADESH, INDIA USING SPATIAL INFORMATION TECHNOLOGY

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ABSTRACT

Water is the most essential element of life on Earth. The demand for water is increasing manifold with population explosion and rapid growth of all sectors of economy. Sustainable development is need of the hour and watershed forms the basic unit in water resource planning particularly in Semi Arid Tropics. Channel Morphometry, by the measurement of various stream attributes, gives holistic idea of a watershed. An attempt is made to study the Morphometry of morsel "Buggavanka" a seasonal tributary to Pennar river basin. "Bugga" stands for "Spring" and "Vanka" for "Stream" in vernacular language Telugu. The stream traverses several villages and Kadapa town in Andhra Pradesh before joining the main river. Spatial Information Technology plays an important role in geosciences for its effective, accurate and quick processing techniques. The basis of the study is SOI Toposheets(1979) on 1:50,000 Scale. The Buggavanka watershed morphometric parameters are determined, generated and computed using ERDAS and ArcGIS softwares. The Buggavanka stream travels from South to North for about 57.947 Km encompassing the watershed area 724.73Km^2 with a perimeter of 134.105 Km. The stream provides much of irrigation and drinking water to the villages within watershed area directly or indirectly. Simultaneously a pump house within the riparian part of the stream supplies drinking water to the major part of the Kadapa town. The ground water distribution in the study area is not uniform and it depends on the drainage pattern. The watershed region has high relief in the upper reach and nearly plain in the lower reach. Buggavanka watershed drainage pattern is sub-dendritic to dendritic type.

KEYWORDS: Morphometry, Watershed, Buggavanka, Spatial Information Technology