

**ANALYSIS OF BASIN GEOMORPHOMETRY THROUGH THE USE OF REMOTE  
SENSING AND GIS TECHNIQUES: A STUDY ON GANDESHWARI RIVER BASIN,  
BANKURA DISTRICT, WEST BENGAL, INDIA**

*Pintu Mandal<sup>1</sup> & Uttam Kr. Patra<sup>2</sup>*

*<sup>1</sup>Assistant Teacher, Purulia, West Bengal, India*

*<sup>2</sup>Faculty Member, J.K. College, Purulia, West Bengal, India*

---

**Received: 07 Oct 2018**

**Accepted: 16 Oct 2018**

**Published: 26 Oct 2018**

---

**ABSTRACT**

*The present study deals with the GIS-based morphometric analysis of Gandeshwari drainage basin. For extraction of the river basin and its stream networks, ASTER (DEM) with SRTM Data and Survey of India Topographical Map of 1: 50000 scales have been used. Morphometric parameters of linear, areal and relief aspects viz. Stream order, bifurcation ratio, stream length, drainage density, drainage frequency, circularity ratio, form factor analysis, relative relief, slope analysis etc. are calculated for analysis. The gandeshwari river basin is basically a 7<sup>th</sup> order drainage basin in the elongated shape. The total area of the basin is 388.60 km<sup>2</sup> and the drainage pattern is Dendritic. The mean bifurcation ratio of this basin is 2.494; it is due to its varying topography and lithological condition. The average drainage density of the basin is 12.8 km<sup>2</sup>. This study would be important to understand the basin morphological characteristics, its hydrological response, and resource utilization.*

**KEYWORDS:** *Morphometric Analysis, River Basin, SRTM Data, DEM, Topographical Map, Hydrological Response*