

Preface

Neo-Thinking on Geomorphology of the Ganges–Brahmaputra Basin is not in a true sense the geomorphology of the Ganges–Brahmaputra Basin but the study of sample forms and processes and events operating in this huge basin through the newer lorgnette.

Chapter 1 deals with the cause–effect relationship between controlling the variable climate and adjustable variables of the alluvial stratigraphy (Charlton 2008) of the Damodar River Basin of West Bengal, a subsystem of the Ganges–Brahmaputra system as tools for inference about the controlling variables of climate of the past geological epoch. Chapter 2 set its specs over typical forms of badlands of Bankura district of West Bengal and the processes responsible for their origin.

Fundamental theoretical bases are the backbone of the study of geomorphology as with all natural sciences. Chapters 3–5 are newer contributions to the theoretical base of fluvial geomorphology. River channel shapes are measured and formulated from different angles. Channel asymmetry is one such measure which was formulated and studied as a self-sufficient topic in fluvial geomorphology by Knighton (1981). But no knowledge in the world within the limited wisdom of mankind is final and so a newer avenue of knowledge opens that is nearer to the ultimate truth. Chapter 3 opens a newer pane to analyse the cross-sectional asymmetry of river channel. Different channel dimensions along with geomatics create hybrid tools in the study of fluvial geomorphic study. Chapter 4 categorizes alluvial channel reaches using these hybrid tools. Epitomizing His creatures is an instinct in human beings and scientists do it for better understanding His forms and processes. Chapter 5 tries to set His unmatched unique forms into some gathering of geometric shapes which may knock on the newer door of geomorphic, hydraulics, and hydrologic studies.

The most influential external controlling variable interfering with fluvial forms and processes is humans. Through arrogant and callous attitudes towards land use, humans deform and disturb His pure, orderly, esthetic fluvial forms and processes which in turn conflict with human activities. Chapters 6 and 7 are concerned with the interaction between humans and rivers. In Chap. 6 longitudinal disconnection

on road–stream crossings endorses significant changes on in-stream fluvial processes, for example, in-stream bar dynamics, thalweg wandering, and channel avulsion. These in turn impose threats to the bridge stability associated with severe bank erosion. Flood makes deltas possible. Therefore deltas and floods are inseparable no matter what. But when humans perceive it as a hazard, it does matter. Why and how a natural phenomenon became a hazard is a matter of serious concern for today's scientists. But Chap. 7 saw the phenomenon and its causes through the newer lorgnette of victims.

Not only surface water but also subsurface water plays an influential role in earth surface forms and processes. That is why Chaps. 8 and 9 are concerned with groundwater. Applying established methods devised by Thornthwaite and Mather, the water balance of a microregion of this basin is studied in Chap. 8. Chapter 9 opens another newer pane raising the question of whether a dug-well water level can be treated as a groundwater level.

Applied geomorphology perhaps reaches the ultimate as it deals with the use of geomorphological knowledge with the goal of human wellbeing. Chapters 10 and 11 shed a newer spectrum of light on the mining of energy and water and its consequences.

Neo-Thinking on Geomorphology of the Ganges–Brahmaputra Basin has a diverse concern within the sphere of geomorphology ranging from insight into the fundamentals of river science, geology, forms and processes, groundwater, and ecology. Therefore the volume is a useful tool for geologists, geographers, hydrologists, landscape-ecologists, environmentalists, engineers, planners, and policy makers as well.

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