BOOK REVIEW

NATURAL RESOURCES, WATER HARVESTING AND DROUGHT IN CENTRAL INDIA

by S.C. Bhatt, Shree Publishers & Distributors, New Delhi, 2020, 130p. Price: INR 700.

Since last several decades chronic water scarcity in Bundelkhand has been in limelight as consecutive droughts lead to crises of drinking water and foodgrains production, slow down of economic activities, and ultimately mass migration. Bundelkhand Region occupies thirteen districts in the states of Uttar Pradesh and Madhya Pradesh. It is marked by highly varied topography, – hilly, rugged, undulating and flat, – a predominantly hard rock terrain, drained by several perennial streams and rivers, all tributaries of the Yamuna with alluvial strips along its courses. It enjoys a semiarid to arid climate, and though the average annual rainfall is 700 mm, it is erratic, droughts are frequent. Sixteen percent (16%) of the total area is Forest covered, and 56% is cultivable land out of which only 12.4% is double cropped due to paucity of water. A significant proportion of the precipitation is lost as surface runoff and through evaporation, while only 11-15 % (?) infiltrates to recharge groundwater. Weathered residuum, fractures/fissures of rocks and porous alluvium hold limited groundwater storage. Climate change and global warming exacerbates the situation. Thus, Bundelkhand is fast attaining the sobriquet of “hot spot” of dry lands after Rajasthan and Karnataka. The prevailing water scarcity situation may be ameliorated through water harvesting and conservation as part of integrated watershed management. Water and agriculture constitute the harbinger of environmental and socioeconomic resurgence. Watershed development and management is aimed at optimal utilization of land and water endowments, conserving every drop of rainwater, increasing soil moisture and recharge, vegetation and forest cover, maximizing productivity per unit area and per unit water. There is a good number of books or publications on watershed management, but none devoted solely to the critical water problems of Bundelkhand. This book authored by S. C. Bhatt has been published at an appropriate time with a vow to enrich knowledge and generate awareness about water management in the Central Region (Bundelkhand). In accordance with this central theme of the book the author has organized the book in four chapters: 1. Introduction. A summary of environmental features. 2. Water Resources and rivers in Bundelkhand region. 3. Watershed management and Water harvesting. 4. Drought: Types, causes, mitigation. But this book, a pioneering attempt is beset with several missing links or omissions which need to be addressed in the next prints or editions.

The Chapter on ‘Introduction’ presents a brief description of water related environmental features. But this chapter is incomplete without a discussion on geology and hydrogeology so crucial for watershed management. The chapter 2 is about river resources, structurally controlled drainage pattern and its morphometric analysis, but the role of drainage pattern in siting, and designing of water harvesting structures, which is basic to the watershed development is not discussed. Further, the next chapter 3 on the Watershed management and water harvesting for drought mitigation, the central

theme of the book embodies short descriptions of the water harvesting structures, but fail to dwell on scientific aspects of the water harvesting methods in different hydrogeomorphic, hydrogeologic and agroclimatic conditions and related field investigations. From ridge down the valley the runoff generated needs to be harvested through appropriate structures. A thorough knowledge of soil texture and infiltration capacity, lithology, depth and location of aquifers, geologic and hydraulic boundaries, aquifer parameters, natural recharge and discharge is, therefore, necessary for planning water harvesting and artificial recharge. Soil moisture conservation and afforestation are the two other important measures of watershed management missing in the book. Dryland agriculture and Microirrigation (drip and sprinkler) which are vital for water conservation are absent in the book. The narrative in the following chapter 4 on drought mitigation is superficial and without much substance. This chapter should have logically preceded chapter 3. ‘The role of Community’ in the watershed development and management, as also some success stories, preferably from Bundelkhand region could make the reading attractive and the book informative. But surprisingly these are ignored in the book.

The figures and illustrations in the book pertain mostly to Rajasthan, Gujarat and Maharashtra, and strangely not related to Bundelkhand. The quality of reproduction often leaves much to be improved upon. The “References” are not cited in the text. Lastly, the book is replete with innumerable grammatical errors, confusing sentences, avoidable repetitions and factual discrepancies at places marring the quality of the book. The book should have been carefully reviewed and corrected before publication.

In the Preface of the book the author informs that the publication is the outcome of research and field surveys of his students, and is meant for post graduate students or PhD research scholars. But in fact the book is mostly a drab compilation of select readings from few sources and not done very skillfully either to make it highly informative and educative. The deliberations are shorn off academic fervor though professed in the Preface. But this book does have the potential to turn into a Treatise on Bundelkhand or a valuable Reference book for water conservationists in the region, provided the shortcomings are properly addressed. Otherwise, the book in its present form may at best serve as a Rapid Reader for the inquisitive public.

However, despite all these shortcomings, Bhatt’s enthusiastic and pioneering attempt to apprise the public about the nagging water scarcity problems of Bundelkhand which may be haunting other regions, too, in near future due to climate change and global warming is noteworthy.

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