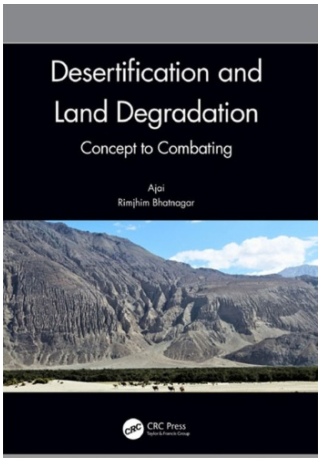

Desertification and Land Degradation: Concept to Combating. Ajai and Rimjhim Bhatnagar. CRC Press, Boca Raton, FL 33487-2742, USA and CRC Press, Oxon, OX14 4RN, UK. 2022. 400 pages. Price: £ 160.00.

Issues pertaining to problems caused by desertification and land degradation (DLD) are becoming more relevant in the present environmental scenario. During the past several years, DLD has put millions of lives at stake and indicated a grim future with associated direct and indirect consequences. The book under review written by veterans in the field has come at the right time when 'The 2030 Agenda' of the United Nations is under implementation through its 17 Sustainable Development Goals (SDGs). It is an important contribution considering the magnitude of challenges in SDG 15, which specifically aims to combat desertification, halt it and reverse land degradation processes. This is a comprehensive book that has 13 chapters covering about 400 pages. It is well supported by colour and black-and-white illustrations for easy reading. The language is lucid and free-flowing. The chapters are enriching and meticulously arranged so that the basis for the subsequent chapters becomes clear. Each word relevant to this field has been described well and discussed elaborately. This is a good reference book for university students, researchers and professionals working in mapping, monitoring and combating DLD.

The book begins by introducing the readers to this global issue, its magnitude and causes, and discusses the historical perspectives of DLD. It clarifies several misconceptions about the causes and drivers, origination and evolution of DLD. The second chapter lays the foundation of the book. Readers as introduced to the basic concepts about deserts, desertification, land degradation, drylands, wastelands, and ecosystem functions and services. The subtle differences between land and soil degradation are elucidated. The causes and drivers of DLD–anthropogenic, biophysical and a combination of the two are discussed extensively in chapter 3. As identification of DLD is a preliminary but essential step towards combating it, the next chapter is dedicated to interpreting the signals of DLD. This includes physical/chemical/biological degradation processes corresponding to water-logging, soil compaction, mass movement, frost shattering and frost heaving, salinization and alkalization, soil acidification, soil nutrient depletion, vegetal degradation, soil organic carbon loss, urbanization, mining and quarrying. The basic concepts behind each DLD process are explained. The impact of DLD on the surface physical properties, ecosystem services, environment, and human and social dimensions is extensively discussed in chapter 5.

A novel part of this book is the chapter on ocean biological deserts, an unconventional area of DLD. The concept of DLD indicators is also well-introduced. Traditionally, field-based methods were used to map and monitor DLD. However, for large spatial-scale mapping at better temporal scales, the use of remote sensing data is illustrated. This book examines many of the conceptual, methodological and technological advances made during the past few decades in developing strategies towards combating DLD. Chapter 8 provides details on remote sensing and geospatial technologies. In addition, the fundamentals of DLD mapping and monitoring techniques, described in chapter 9, are highly educative. Methods of mapping DLD processes using satellite data have been explained in detail. DLD mapping through an indicator-based approach and process-based approach is illustrated with case studies. A special mention should be made here of an exhaustive remote sensing image interpretation key and classification system given in the chapter, allowing users to perform DLD mapping objectively.

The issue of DLD can be better handled if the vulnerable zones are known beforehand. The chapter on desertification vulnerability assessment clarifies the subtle differences between the terms risk, hazard and vulnerability. Models for vulnerability assessment are well illustrated. Once the reader gets acquainted with DLD mapping, monitoring and vulnerability assessment, the importance and need of combating DLD is introduced. Various methods of combating DLD are discussed. One of the highlights of this book are the examples and case studies from different parts of the world that have been discussed.

The chapter on international initiatives to arrest DLD dates back to 1971. This was followed by setting up the United Nations Conference on Desertification in 1977, the Earth Summit in 1992 and subsequently the formation of the United Nations Convention to Combat Desertification (UNCCD). Besides this, there is an overview of the important initiatives, namely GLASOD, LADA, GLADA, GLADIS, Millennium Ecosystem Assessment, IPBES, World Atlas of Desertification and Bonn Challenge. The last chapter deals with Land Degradation Neutrality, where the readers are introduced to the concepts and implementation mechanisms of this important programme of UNCCD. The Millennium Development Goals (MDGs) and SDGs of the United Nations are also briefly described.

In a nutshell, the book under review is a source of information encompassing all elements of DLD. In my opinion, it is one of the few books which provides comprehensive details on each aspect of DLD in a single place. It is a must read for all those working or interested in this field.

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