

so-called Hertzians – Bose, Lodge, Righi and Marconi.

In the final chapter, V. A. Shepherd has described how Bose extended his knowledge of electromagnetic radiation in carrying out experiments on the life processes of plants. He developed special instruments for this purpose and used touch-sensitive plants like *Mimosa pudica* and *Desmodium* to demonstrate that plants have an electromechanical pulse, like the nervous system in animals. Bose's concepts of plant intelligence, learning and long distance electrical signalling have led to his being regarded as the 'father of the science of plant neurobiology'. He opened up a new field of research by demonstrating that plants possess an electro-mechanical pulse and experience pulsatile growth.

Bose's theory of ascent of sap based on the electro-mechanical pulsations of living cells was however not accepted by other scientists. The Dixon-Jolly tension-cohesion hypothesis is widely accepted even today to explain the ascent of sap. However, Bose's model, which envisaged the ascent of sap as an ultrastable, adoptable system, led to a considerable interest in this area of research. Bose opened up a new line of research by stating in his book, *Researches on Irritability of Plants* (Longmans, Green and Co., 1913), 'I once did not know that trees have a life like ours. They eat and grow, face poverty, sorrow and suffering. They also help each other, develop friendship, sacrifice their lives for their children'. This then was the personal philosophy and conviction of Bose, the human being, to whom the unity of life was a reality.

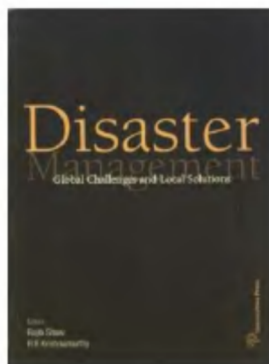
The content and get-up of this book are superb. We owe a deep debt of gratitude to the authors, the Indian Institute of Science and the World Scientific Publishing Co Pte Ltd, for this wonderful gift to Indian science.

I would like to end this review with another quote for C. N. R. Rao's inspiring foreword.

'The book brings out the spirit of J. C. Bose and the flavour of the great man. I do hope it will be read by a large number of people, particularly young people of India.'

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Disaster Management: Global Challenges and Local Solutions. Rajib Shaw and R. R. Krishnamurthy (eds). University Press, 3-6-747/1/A and 3-6-754/1 Himayatnagar, Hyderabad 500 029. 2009. 648 pp. Price: Rs 1150.00

With the passage of time, the impact of natural disasters on human beings continues to increase despite advances in natural and social sciences of hazards and disasters. In the first 9 years of the 21st century several natural disasters have claimed an unprecedented number of human lives and inflicted huge financial losses globally. The Mw 9.3 Sumatra earthquake of 26 December 2004 and the resultant tsunami claimed over 250,000 human lives in south Asia. Hurricane Katrina of 23 August 2005 claimed 1836 lives, 705 missing and costed \$90.0 billion (2009 USD); Muzaffarabad earthquake 8 October 2005 claimed 80,000 lives; Nargis storm of May 2008 and resultant floods claimed more than 120,000 lives in Myanmar. Landslides in Nepal during 2002 displaced some 266,000 people. Wenchuan earthquake of 12 May 2008 claimed 90,000 lives. The latest in the list is the Haiti earthquake of 12 December. Though only of magnitude 7, the population density and poor design of buildings resulted in an estimated loss of over 200,000 human lives.

In the *Foreword* of the book under review, Salvano Briceno, Director, UNISDR Secretariat, has noted that in the recent years there is an increasing trend in developing new disaster risk management courses as a part of higher education in the universities. However, there is a lack of appropriate text books. The existing text books have a sectoral approach and there is need for a book which takes a balanced view of hazards, risk, vulnerability, technology and education. So the aim of the current book is to fill this gap.

The 37 chapters in the book are grouped under seven headings: (1) Introduction, (2) Hazards and Disasters, (3) Risk and Vulnerability, (4) Disaster Reduction Technology, (5) Education and Community, (6) Crosscutting Issues and (7) Postscript. These 37 chapters are authored/coauthored by 48 experts, a majority of them being from Japan and India. The book is an outcome of a collaboration between Kyoto University, Japan and University of Madras, India. A generic introduction to disaster management is provided by the editors in the *Introduction*. The second group of articles, *Hazards and Disasters* addresses earthquakes, tsunamis, floods, cyclones and droughts. The issue of coastal hazards in India and vulnerability to tsunamis is also included in this group. The third group of chapters dedicated to *Risk and Vulnerability*, deals with physical, social, economic and environmental risks and vulnerability as well as climate risk and financial risk management. Under the group on *Disaster Reduction Technology*, issues addressed include implementation technology, infrastructure technology, geospatial technology, multimedia technology and indigenous technology. Ways and means as how to apply known technologies to reduce impact of a hazard are discussed. Under the group *Education and the Community*, community-based recovery and community-based resilience, and social capital are discussed. In the sixth group of chapters on *Crosscutting Issues*, there are 12 articles. This is the longest section accounting for about one third of the book. It deals with crosscutting issues of disaster management such as the linkages of disaster with environment, poverty, agriculture, forest, health, livelihood security, urban risk reduction, institutional capabilities, role of corporate sector, pre-disaster recovery issue, etc. An article on the *African Experience on Disaster Risk Reduction* is also included in this group of articles. In the last article under *Postscript*, what could be done in the future is visualized.

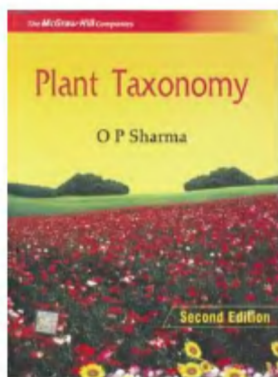
The scope of this review does not permit to comment on each article. It is not easy to cover all aspects of *Disaster Risk Reduction* in a book. It is also difficult to have 48 authors to write articles that are mutually consistent and follow a predesigned goal as spelled out by Salvano Briceno in the *Foreword*. Having said that, I must add that Rajib Shaw and Krishnamurthy have done a very com-

mendable job of threading all aspects of disasters and risks. Many diagrams could be more complete and better drawn. For example in figure 1.2, the word 'Europe' is missing; all the colour plates are put at one place instead of distributing them with the corresponding articles and the quality of most of the colour plates is not good. There is always a problem with the official governmental data and the reality. It is well known that the Gujarat earthquake of 26 January 2001 killed more than 20,000 people. However, a figure of 13,000 deaths appears on page 31. I find it difficult to accept that earthquake lethality potential of Delhi, India is less than 40,000 (figure 2.5).

India succeeded in setting up a most modern, state of art 'Tsunami and Storm Surge Warning Centre' in August 2007. It has been functioning very well and is appreciated by all. There should have been a mention of it. Several more similar comments could be made. In spite of these minor shortcomings, the book provides a good overview of the global challenges and local solutions to disaster management.

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Plant Taxonomy. O. P. Sharma. McGraw-Hill Publishing Company Limited, 7, West Patel Nagar, New Delhi 110 008. 2009. 2nd edn. 564 pp. Price not mentioned.

Taxonomy, the classificatory science is one of the earliest of all botanical disciplines. The branch which started as 'folk taxonomy' in the early 15th century has today become a synthetic discipline to which all modern disciplines of biology including molecular biology have much to offer to taxonomy. Yet, traditional and

modern taxonomists are reluctant to converge on most issues. While on one hand, traditional taxonomists are yet to complete their basic tasks of survey and inventORIZATION of floras, particularly in the tropics, a host of completely new responsibilities and challenges emerging from newer disciplines are to be shouldered by today's taxonomists, leaving them completely confused. The scenario of taxonomy in India (as elsewhere) is so dismal that virtually an extinction of the subject is feared. As traditional taxonomy is regarded as a monotonous, unfashionable, conservative discipline of no applied value, there are not many takers of the subject in universities creating an obvious shortage of taxonomists in the country. Most universities in India have failed to enthuse students to take up and pursue the subject. Among several reasons, lack of good trained teachers and lack of good textbooks on plant taxonomy to cater to the needs of Indian students with Indian plant examples are believed to be the main ones. Therefore, in this direction, the present publication under review is not only welcome but also timely.

In the second revised edition of the book under review, the author has aimed to cover all important topics of plant taxonomy so as to cater to the needs of graduate and undergraduate students of taxonomy in Indian universities. Commencing from the introductory chapter, there are 22 chapters covering all important aspects of taxonomy which reflect the global perspectives of these aspects, while at the same time catering to needs of the current syllabi of many universities. Some major issues covered in this book are history of plant taxonomy, various systems of plant classification, methods of plant collection for herbarium, herbarium preparation, methods of plant identification, naming, plant nomenclature including international codes of botanical nomenclature, some of the recent trends in taxonomy, the concept and function of herbarium, botanical gardens, art of phytography and description of some selected families of flowering plants. At the end of each chapter, the author provides a list of questions to test the understanding of the students and a few important references as 'suggested reading', wherein the author provides works of only foreign authors ignoring the important contributions of Indian authors. For example, nowhere does the author mention the work of Jain and Rao (1976), *A Handbook of Field and Her-*

barium Methods, which provides a comprehensive account of field and herbarium methods for students and beginners. Similarly, in the chapter on phytography (plant description), the classical work of Dutta (1964 with several editions; 1968, 70, 74), *Botany for Degree Students*, which has been serving the needs of students for decades in India is missing.

The chapter dealing with taxonomic structure provides a good discussion on the 'species concept' which should be useful to all students, teachers and researchers of taxonomy. Other noteworthy feature of this textbook is the discussion on some of the modern aspects of taxonomy such as molecular taxonomy, chemotaxonomy, numerical taxonomy and so on, which are normally avoided by other Indian textbooks on plant taxonomy.

Description of 89 families of flowering plants that occur in the Indian region forms the major portion of this book. Although routine procedure is followed in describing the various families, the author has rightly selected the common Indian genera and species for illustrations and descriptions. This greatly helps the students in locating and studying these species for their practical exercises. Discussion on affinities or systematic position of all these families greatly helps the students of botany in general and taxonomy in particular. The book is profusely illustrated and nicely printed. The overall get-up of the book is quite attractive, but the quality of the paper could have been better.

The price of the book is not mentioned. But as the book is meant for catering to the needs of undergraduate and graduate students, the price should be kept as low as possible.

In my opinion, the book is certainly a welcome contribution to plant taxonomy, a much neglected topic in India. The whole book makes a good reading and enhances the knowledge of all students and teachers of plant taxonomy. The author has done a commendable job of consolidating all available information on taxonomy at one place. The book is a must for all students and teachers of botany and for college libraries in all tropical countries.

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