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Ratan Lal Banik

# Silviculture of South Asian Priority Bamboos

 Springer

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# Foreword

Recent years have shown that bamboo silviculture and management is entering a new era. Considering the vast variety of bamboo species, the basic requirement for the purposeful cultivation of bamboo is the knowledge and comprehensive understanding of the growth conditions and characteristics of individual species.

As editor of Springer's Tropical Forestry Series, I am especially pleased to have been able to engage Dr. Ratan Lal Banik as author for a book on bamboo species. He is a proven expert on the subject and has a record of numerous projects and activities in the field of bamboo silviculture in South Asia. With this book, Dr. Banik offers his overwhelming knowledge and expertise to scientists and practitioners.

I am confident that the current book will largely meet existing needs and wish it well deserved success.

Hamburg, Germany

Michael Köhl

# Preface

Bamboo is a versatile group of plants, capable of providing ecological, economic, and livelihood security to the people: “It is to shelter, to fashion tools, to weave baskets, to help water obey, to provide beauty and sounds.” In the tropics, especially the rural areas in different countries of South Asia, most of the houses are made of bamboos. In the hilly areas of Bangladesh, Bhutan, Nepal, and India, the tribal people take bamboo shoots as one of their major food items since prehistoric days. Certainly, it saved many lives of our forefathers. Thus, bamboo has been identified as a symbol of life and became “the poor man’s timber” to the Indians, “the friend of the people” to the Chinese, and it is “the brother” of the Vietnamese. With high productivity and grass-like leaves, bamboo plants have been liked by most of the herbivore animals, such as elephants, wild cattle (*Bos gaurus* and *B. javanicus*), and various species of deer. The red panda in the Himalayas, primates, pigs, rats and mice, porcupines, and squirrels are also important incidental feeders on Southeast Asian bamboos. However, it is not that all bamboo species are liked by these animals; rather, they have some selection about the species. Reforesting and managing forest of these selected species is also important for sustainability of ecosystem and fauna of the region.

There has been a growing awareness in recent years about the values of bamboo, being an important means of economic growth and for improving the socioeconomic conditions of the rural poor. Bamboo as an industrial material can substitute wood and that too at low cost. Due to increasing demand and squeezing of bamboo area, the plants have been overexploited and the quality and quantity of resource alarmingly getting depleted. Besides, many new bamboo-based industries have come up which also urgently require uninterrupted supply of species-wise bamboo resource. The South Asia region has been bestowed with more than 300 bamboo species with enormous diversities at species, ecological, and genetic levels. People from their age-old experiences have selected only some of these bamboo species for their socioeconomic, specific ecologic, and modern industrial needs, and they started cultivating them with priority. A number of such priority bamboo species are found to be common among countries of the region, indicating their wide range of ability to adjust to the environmental conditions of these countries and various

utilization potentials. Both government and private planters in the countries of South Asia have started allocating funds, land, and other logistics to raise large-scale plantation of desired bamboo species. Often, they have queries to know the specific local and modern industrial uses of each bamboo species, how to recognize them at the field, traditional vernacular and correct scientific name of the bamboo species for making local and international trade contacts, what are the flowering (seeding) intervals and seed availability, how to have sufficient number of quality planting materials (QPM), and details of planting and management techniques. In many occasions, it has not been able to answer these queries to the satisfaction of the clients due to the lack of information. This book has been drafted to find out answers of these queries mostly based on my field observations on each of the bamboo species and knowledge learned from the indigenous people living with bamboos in different parts of Southeast and South Asian countries. During the last 45 years of my association with bamboo plant, I had the opportunity to observe flowering, seeding, and seedling of more than 30 bamboo species, and the relevant information are reflected in this book. The incidences of flowering in *Bambusa balcooa* and *B. vulgaris* has been reported to be very rare and without any seed production. Such rare flowering event of these two most commonly grown bamboos in the rural areas of the region was also luckily observed and included in this treatise. The production and nursery management of different types of planting material is a major bottle neck in bamboo cultivation. This has forced greater attention to bamboo propagation practices and techniques. Over the years, many new propagation techniques have been developed, tested and gradually being made suitable for field application. Detail step-wise practical notes along with pictorial guides have been drafted as Appendix-I in the book for obtaining better success in production of bamboo planting materials. Additionally, I tried to collate the available documented information, especially the culm wood properties of each of the bamboo species and added in this book for their proper engineering utilization. The overall purpose of this book is to make available all possible information on the above queries of each important bamboo species of the region and serve these in one tray to the consumers.

I believe this monograph would be interesting and useful to bamboo professionals, foresters, horticulturists, field level extension workers, nurserymen, planters, industrial entrepreneurs, and ecologists, and would be a valuable source of reference to the relevant researchers and students in the region.

New Delhi, India  
January, 2016

Ratan Lal Banik

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With great honor and gratefulness, I like to remember Mr. Syed Mortuza Hasan, the then silviculturist of BFRI, Chittagong, where I was working as a scientist as he had motivated me in 1969 to learn all about the amazing bamboo plants. Many innovative ideas and local ethnic knowledge I learned was gathered from the gracious support and sharing of wisdom and know-how about bamboos by local people living with this plant resource. I am indebted to my research and academic colleagues, foresters, and local indigenous people from the different parts of South Asia (especially BFRI, Chittagong; Tripura Department of Forests; and GBP University of Agriculture and Technology, Pantnagar, Uttarakhand) for their support and assistance while I was studying bamboos in the field.

I gratefully acknowledge the support of Prof. Dr. Michael Köhl, Center for Wood Sciences, World Forestry, University of Hamburg, Germany, and for his generous consent of editing the manuscript and inclusion of the draft for publication as a book in the Tropical Forestry Series, of which he is the editor. Further, I am indebted to Prof. Köhl for his untiring efforts in critiquing, reviewing, and editing the manuscript, and I am also expressing my deep gratitude to him for making it possible to publish this book as a monograph on priority bamboos under the aegis of Springer.

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New Delhi, 2016

Ratan Lal Banik

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