

Preface

As an author, I am proud to introduce *Applied Limnology*, which addresses a new, comprehensive method of studying lake systems from watershed to open waters. This book opens up a new view of limnology for researchers and decision makers to consider overall land use across the catchment to find the real issues in which lakes are involved. Recently, several issues concerning lakes have been encountered such as pollution of natural resources, shoaling, eutrophication, coastal changes, and reduction of water sources around the world. Human activities have contributed most in recent issues which are exacerbated by natural factors such as climate change. There are conservation and land development approaches in terms of integrated lake management and mitigation of the environmental impact of recent land development projects in catchment areas. This book is remarkable for highlighting a method in which issues are completely investigated and a natural resource management plan is presented with a conservation approach.

Applied Limnology has a simple outline of six chapters. Chapter 1 gives a brief introduction to an overall view of Bera Lake and issues that involve it. Chapter 2 is divided into two sections, catchment areas and lake characteristics. Physiographic particulars, geological settings, stratigraphy, structural geology, climatology, and land use are introduced in the catchment section. Lake specification comprises hydrology, bathymetry, water quality, and physical properties of sediments in Bera Lake. In Chap. 3 the emphasis is on shoaling as one of the main issues of Bera Lake, which was investigated by using ^{210}Pb and ^{137}Cs radioisotopes. The book highlights the capability of this method in a tropical lake to estimate sedimentation rate. Severe soil erosion and nutrient loss is another issue that plays an important role in devastating natural resources of wetlands and open waters. Chapter 4 presents the application of radiocesium in estimation of soil loss in a tropical area that is far from a source of ^{137}Cs emission. In addition, the contribution of land development projects in the soil redistribution rate is highlighted in Chap. 4. Chapter 5 deals with contamination of sediments and several models that evaluate ecological risk assessment. Application of models of risk assessment and of dating of sediment age is a novel feature of this book that reveals the contribution of land development phases in pollution of Bera Lake. Another contribution to knowledge is provided in

this book, namely, that the natural background level of several heavy minerals has been calculated for further investigation. Emphasis on the watershed and lake management plan is presented in Chap. 6. I believe that applied limnology must involve management practices to conserve natural resources. Therefore, this book has included a management plan that shows how limnology comprehensively applied will perform and how legislation and a decision support system will be established.

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Applied Limnology

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