Foreword

English language is gaining increasing importance in scientific media. In most disciplines of science, new concepts and theories and the basic terminology are widely presented in English. As such, around the world, this language has emerged as the major medium of communication among scientists in different fields.

In recognition of the importance of this language for successful scientific studies, we have prepared the present text. Originally, it was intended for senior and graduate students in soil science. However, the contents also cover topics which are useful for those who want to familiarize themselves with terminologies used in water and environmental sciences.

The text is organized in different units containing sections of various scientific papers. These cover specialized areas such as soil genesis and classification, soil-water-plant relationship, soil fertility and plant nutrition, soil chemistry, soil physics, land degradation, soil conservation, drainage, soil biology and pollution. For each unit, many questions have been prepared so as to help the students in learning both the concepts and the relevant terms. It is our hope that the materials included in this text will satisfy the needs of the students who wish to become capable of reading and understanding soil and environmental sciences literature in English. We welcome any comment and suggestion which may improve the contents in this respect.

Finally, we wish to acknowledge our appreciation and gratitude to the Director and staff of SAMT who supported our efforts throughout the time of preparation of this book. We also like to thank Dr. M. A. Rakhshanfar for his thorough review of the manuscript and constructive editorial comments.

M. H. Roozitalab H. Siādat

Table of Contents

Unit	Title	Page
1	. Modern Concept of Soil	1
2	. Soil Science, A Vital Discipline	14
3	. Physical and Chemical Properties of Clay Soils	24
4	. Clay Minerals	37
5	. New Trends in Soil Survey	52
6	. Classification of Land Suitability for Citrus Production Using	
	DRAINMOD	67
7	. N Transformations in Soils	78
8	. Nutrient Diffusion	93
9	. Phosphorus Losses From Soils	107
10	. Recognition and Prediction of Soil Pollution	121
11	. New Issues and Challenges in Soil Physics Research	135
12	. Hydraulic Conductivity, Diffusivity, and Sorptivity of Unsaturated	
	Soils: Field Methods	144
13	. Salt Balance in Sustainable Irrigated Farming	153
14	. Prediction Technology for Soil Erosion by Water: Status and	
	Research Needs	166
15	. Soil Degradation Types	181
16	. Empirical Analysis of Slope and Runoff for Sediment Delivery From	
	Interrill Areas	196
17	Potential Application of Biotechnology in Soil Science	210