
Preface

The purpose of this book is to put together in a single reference several topics related to current environmental issues and challenges. The latter ones have been presented and discussed during specific summer schools attended in the last years by PhD Students in Environmental Science and Engineering involved in the agreement signed by the Ecole Nationale de l'Industrie Minérale (Morocco), the Pushchino State Institute of Life Sciences (Russia), the University of Aveiro (Portugal) and the University of Cagliari (Italy). The agreement, which was approved and financially supported for the first time in 2001 by the Ministry of the University and the Scientific and Technological Research (MURST) of the Italian Government in the framework of the Three Years Plan 1998–2000 indicated as Internationalisation, was aimed to establish an international postgraduate education programme in environmental studies. It should be noted in passing that the objective of the agreement was to increase the academic, scientific and cultural relations among the involved institutions in the area of Environmental Science and Engineering and, particularly, to jointly award the corresponding PhD Degree.

This book covers quite diverse subjects which belong to significant environmental topics. In particular, the chapters dealing with air pollution from mobile sources, air pollution and health effects and air quality modelling fall in the air pollution category, while the ones related to microalgae for carbon dioxide sequestration/biofuels production, fuel cells and solar energy technology, respectively, can be ascribed to the energy topic. Then, several technologies to handle a wide spectrum of environmental pollutants are taken into account in the corresponding chapters: self-propagating high-temperature reactions, catabolic plasmids in biodegradation, dust removal, glyphosate biodegradation, bioleaching and probiotic bacteria for water sanitation. Moreover, the chapter on biodiversity is clearly related to the conservation issue, while the water pollution subject is tackled by the chapter on water quality monitoring. Finally, a general analysis on green business as well as on the grid/cloud computing technology to share resources management in environmental sciences is also provided.

Each chapter is a stand-alone to allow the user rapid access to the subject of interest. All chapters provide a reference section for further reading and research. Few books currently exist that cover such a wide spectrum of topics. For this reason it is intended as a text for graduate courses in environmental science and engineering as well as a reference book on the addressed topics.

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