Mohd Armi Abu Samah
Mohd Khairul Amri Kamarudin *Editors*

Environmental Management and Sustainable Development

Case Studies and Solutions from Malaysia

Springer

Samah · Kamarudin *Eds.*
Environmental Management and Sustainable Development

Environmental Management and Sustainable Development

Mohd Armi Abu Samah
Mohd Khairul Amri Kamarudin
Editors

Environmental Management and Sustainable Development

Case Studies and Solutions from Malaysia

Springer

Editors
Mohd Armi Abu Samah
Kulliyyah of Science
International Islamic University Malaysia
Kuantan, Pahang, Malaysia

Mohd Khairul Amri Kamarudin
Faculty of Applied Social Sciences
Universiti Sultan Zainal Abidin
Kuala Nerus, Terengganu, Malaysia

ISBN 978-3-030-93931-1 ISBN 978-3-030-93932-8 (eBook)
https://doi.org/10.1007/978-3-030-93932-8

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

Alhamdulillah! All praises to Allah and Prophet Muhammad (peace be upon him). We are very thankful to Allah, who has granted us the courage and patience for compiling the articles that form this book, *Environmental Management and Sustainable Development: Malaysian Case Studies*. It is with great humility that we present this book on such a vast and comprehensive topic as environmental management and sustainable development in Malaysia in nine chapters.

The first chapter is about environmental awareness studies in environmental management in Terengganu, Malaysia. Chapter 2 assesses the risk posed to human health by exposure to heavy metals due to ingestion of select freshwater fishes from Sungai Kuantan, Malaysia. The third chapter investigates the quantity of nickel and cadmium in freshwater fishes in Kuantan River and Riau River. Chapter 4, titled "Tourism Sustainability: Perspectives on Past Works, Issues and Future Research Opportunities," looks at tourism from the lens of sustainability. An overview on particulate matter emissions at construction sites in Malaysia, effectiveness of the "polluter pays principle" (PPP) on reduction of environmental pollution, and health risk from municipal solid waste (MSW) is presented in Chaps. 5 and 6. Chapter 7 presents a general overview on the properties, extraction, and application of cellulose and cellulose nanocrystals for successful environmental management and sustainable development in Malaysia. Chapters 8 and 9 discuss the laws regarding wildlife in the field of environmental management.

We would like to thank all the authors for dedicating their time and effort to write the chapters based on their ideas and experiences in environmental management and sustainable development. We have gained much foresight and information from them, which has enriched this book. Finally, we wish to thank those who have made the publication of this book possible.

Kuantan, Pahang, Malaysia
Kuala Nerus, Terengganu, Malaysia

Mohd Armi Abu Samah
Mohd Khairul Amri Kamarudin

Contents

Contributors

Nuriah Anas Faculty of Applied Social Science, Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

Mohd Shukri Mohd Aris Department of Environmental Health, Faculty of Health Sciences, Universiti Teknologi Mara, Bandar Puncak Alam, Selangor, Malaysia

Muaz Azinuddin Faculty of Applied Social Sciences, Gong Badak Campus, Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

Siti Nor Aisyah Bati East Coast Environmental Institute (ESERI), Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

J. L. Chong Faculty of Science and Marine Environment & Institute of Tropical and Biodiversity and Sustainable Development, Universiti Malaysia Terengganu, Kuala Nerus, Terengganu, Malaysia

Wan Hazman Danial Department of Chemistry, Kulliyyah of Science, International Islamic University Malaysia, Kuantan, Pahang, Malaysia

Nazri Che Dom Faculty of Health Sciences, Universiti Teknologi MARA (UiTM), Bandar Puncak Alam, Selangor, Malaysia

Mohd Filza Ikmal Irozi Department of Environmental and Occupational Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia (UPM), Serdang, Selangor, Malaysia

Fatthir Iftiaz Ismail Kulliyyah of Science, International Islamic University Malaysia, Kuantan, Pahang, Malaysia

Sharifah Norkhadijah Syed Ismail Department of Environmental and Occupational Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia (UPM), Serdang, Selangor, Malaysia

Research Associate (INTERIM) Malaysian Research Institute on Ageing (MyAgeing), Universiti Putra Malaysia (UPM), Serdang, Selangor, Malaysia

Institutes for Social Science Studies, Universiti Putra Malaysia (UPM), Serdang, Selangor, Malaysia

Syazni Jusoh Faculty of Applied Social Science, Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

Mohd Khairul Amri Kamarudin Faculty of Applied Social Science, Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

East Coast Environmental Institute (ESERI), Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

I. H. Loh School of Business and Management, Royal Melbourne Institute of Technology University, Hanoi, Vietnam

Zaiton Abdul Majid Department of Chemistry, Faculty of Science, Universiti Teknologi Malaysia, Johor Bahru, Johor, Malaysia

Nik Hazwani Nik Mat Faculty of Applied Social Science, Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

Sarva Mangala Praveena Department of Environmental and Occupational Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia (UPM), Serdang, Selangor, Malaysia

Wan Marlin Rohalin School of Animal Science, Faculty of Bioresources and Food Industry, Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

Muhammad Hafiz Md Saad East Coast Environmental Institute (ESERI), Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

Mohd Armi Abu Samah Kulliyyah of Science, International Islamic University Malaysia, Kuantan, Pahang, Malaysia

Department of Chemistry, Kulliyyah of Science, International Islamic University Malaysia, Kuantan, Pahang, Malaysia

Aida Soraya Shamsuddin Department of Nutrition Sciences, Kulliyyah of Allied Health Sciences, International Islamic University Malaysia (IIUM), Kuantan, Pahang, Malaysia

Nur Shahirah Mior Shariffuddin Faculty of Applied Social Sciences, Gong Badak Campus, Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

Raihan Mohd Taib Department of Chemistry, Kulliyyah of Science, International Islamic University Malaysia, Kuantan, Pahang, Malaysia

Roslan Umar East Coast Environmental Institute (ESERI), Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

Noorjima Abd Wahab Faculty of Applied Social Science, Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

East Coast Environmental Institute (ESERI), Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

Nadzifah Yaakub School of Animal Science, Faculty of Bioresources and Food Industry, Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

Siti Rohana Mohd Yatim Department of Environmental Health, Faculty of Health Sciences, Universiti Teknologi Mara, Bandar Puncak Alam, Selangor, Malaysia

Wan Mohd Adzim Wan Mohd Zain Faculty of Applied Social Sciences, Gong Badak Campus, Universiti Sultan Zainal Abidin, Kampus Gong Badak, Terengganu, Malaysia

Index

M. A. A. Samah, M. K. A. Kamarudin (eds.), *Environmental Management and Sustainable Development*, https://doi.org/10.1007/978-3-030-93932-8

Mohd Armi Abu Samah · Mohd Khairul Amri Kamarudin *Editors*

Environmental Management and Sustainable Development

Case Studies and Solutions from Malaysia

This volume provides case studies conducted in Malaysia based on environmental management and the sustainable development of human and ecological systems. The first chapter discusses awareness studies in environmental management in Terengganu, Malaysia. The second chapter is about human health risk assessment of heavy metals exposure due to freshwater fish ingestion from Sungai Kuantan, Malaysia. The third chapter discusses nickel and cadmium pollution in freshwater fishes in Kuantan River and Riau River. Chapter four discusses tourism sustainability. Chapters five and six provide an overview on particulate matter emissions at construction sites, and municipal solid waste (MSW) management approaches. In chapter seven, the book provides a general overview on cellulose and cellulose nanocrystals extraction. Finally, chapters eight and nine discuss legal measures for wildlife protection in Malaysia, and how improved environmental management practices are needed to achieve this. The book is intended for environmental managers, wildlife organizations, and students and researchers studying sustainable development, waste management, and corporate impacts on the environment.

ISBN 978-3-030-93931-1

▶ springer.com