

# Preface

Environmental deterioration has shown an increasing relationship with the rise and spread of human diseases. The World Health Organization believes that almost one third of global diseases can be directly related to environmental risk factors. In fact, environmental deterioration plays a large role in the emergence of infectious diseases. Particularly, in developing countries with poor access to sanitation, safe and sufficient water supply as the human population continues to grow, the population density increases; this leads to an abundance of vectors/parasites and other infection-forming conditions. Extreme temperatures, climate-related disturbances, air and water pollution have a direct influence on the spread of infection and disease. Environmental exposures to chemicals and toxins are a major contributor to diseases.

The health effects of global change are often indirect and difficult to assess, and the evidence of quality of the health-related outcomes varies widely. Furthermore, the health science needs to understand that global environmental change is increasingly interdisciplinary and requires collaboration among meteorologists, chemists, biologists, agronomists, geographers, geologists and health scientists. Environmental deterioration exaggerates the imbalance between population and resources and worsens the severity of poverty. In other words, interactions between poverty, population growth and environmental degradation impede sustainable economic development and worsen population health. It is important for health scientists to anticipate the potential consequence of environmental change and act accordingly. It is irony that serious environmental problems are often unknown or unrecognized.

The increasing incidences of air pollution, water pollution, land and soil pollution, solid and hazardous waste pollution, deforestation, soil erosion, silting and flooding are illustrations of environmental quality deterioration. Deteriorating quality of the environment slowly, but steadily poses a threat to human security. To counter the threat caused by environmental quality deterioration that impinges on human security, an environmental management system already exists. However, the various efforts undertaken by the relevant government agencies do not seem to be successful in stopping further environmental quality deterioration as the actions taken are not really coordinated and integrated especially when it comes to

implementation of laws and regulations and, thus, the threat to human security is not really checked.

This book discusses the natural and anthropogenic determinants of the environment; climate change and other issues and their impact on human health. The book covers ecology of antibiotic resistant microorganisms, pesticide and heavy metal (arsenic) problems in natural environment; molecular advances in understanding of microbial interactions; ecological studies of human and animal health and diseases; food security, climate change and technological developments. This book is not intended to serve as an encyclopaedic review of the subject. However, the various chapters incorporate both theoretical and practical aspects and may serve as baseline information for future research through which significant development is possible.

The content of this book is divided into four main areas: Environmental Quality Deterioration and Health; Pollution and Health; Climate Change and Health; and Water Quality, Exposure and Health. The book has 18 chapters, with each focused on a specific topic to cover diverse perspectives. Chapter 1 gives an overview on Environmental Deterioration and Human Health. Other Chapters include Environment and Health in Italian Cities; Environmental Concerns of the Tanning Industry; Environmental and Health Effects of Textile Industry Wastewater; Applications of *Bacillus thuringiensis* for Prevention of Environmental Deterioration; Impact of Insecticides on the Environment and Human Health; Spread of Antibiotic Resistance in the Environment; Organic Chemicals of Emerging Environmental Concern—Persistence and Bioavailability; Application of microorganisms in bioremediation of environment from heavy metals; Organochlorine Pesticide Residues in Foodstuffs, Fish, Wildlife and Human Tissues from India; Management of Municipal Solid Waste Landfill Leachate: A Global Environmental Issue; Climate Change and Migration: Food Insecurity as a Driver and Outcome of Climate Change related Migration; Climate Change and Vector Borne Diseases in Latin America; Climate Change and Geoenvironmental Problems in Indian Desert; Geo-ecology of Malaria in India; Spring Water Quality and Human Health in Foothill Settlements of Pir Panjal Range in Anantnag and Kulgam, Kashmir, India; Dietary Exposure to Arsenic as Main Anthropogenic Factor; and Land Use Changes and their Impact on Water Resources in Himalayas.

With great pleasure, we extend our sincere thanks to all our well-qualified and internationally renowned contributors from different countries for providing the important, authoritative and cutting edge scientific information/technology to make this book a reality. All chapters are well illustrated with appropriately placed tables and figures and enriched with up to date information. We are also thankful to the reviewers who carefully and timely reviewed the manuscripts. Dr. Abdul Malik is also thankful to the Department of Biotechnology, Govt. of India, New Delhi for DBT CREST award/fellowship during the preparation of the book.

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