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KEY=ENVIRONMENTAL - ROACH DAPHNE

RESEARCH ANTHOLOGY ON EMERGING TECHNIQUES IN ENVIRONMENTAL REMEDIATION

IGI Global **As industry develops globally, environmental pollution grows to be an increasingly serious problem with each passing year. While there are many things that individuals on every level of power can do to mitigate the harm done to the environment, environmental remediation is a step to take to save our soil and water resources. As this problem is ongoing, it is essential to be knowledgeable in the emerging techniques made within the field of environmental remediation. The Research Anthology on Emerging Techniques in Environmental Remediation is a comprehensive resource on the emerging techniques and developments made within the field of environmental remediation. With global contributing authors, this book explores environmental remediation within diverse settings and international standards. Covering topics such as pollution and contamination, nanotechnology, and agriculture, this book is an essential reference for scientists, chemists, environmentalists, government officials, professors, students, researchers, conservationists, and academicians.**

HANDBOOK OF RESEARCH ON RESOURCE MANAGEMENT FOR POLLUTION AND WASTE TREATMENT

IGI Global **It is necessary to understand the extent of pollution in the environment in terms of the air, water, and soil in order for both humans and animals to live healthier lives. Poor waste treatment or pollution monitoring can lead to massive environmental issues, such as diminishing valuable resources, and cause a significant negative impact on society. Solutions, such as reuse of waste and sustainable waste management, must be explored to prevent these adverse effects. The Handbook of Research on Resource Management for Pollution and Waste Treatment is a collection of innovative research that examines waste and pollution treatment methods that can be adopted at local and international levels and examines appropriate resource management strategies for environmentally related issues. Featuring coverage on a wide range of topics such as soil washing, bioremediation, and runoff handling, this book is ideally designed for environmentalists, engineers, waste management professionals, natural resource regulators, environmental policymakers, scientists, academicians, researchers, and students seeking current research on viable resource management methods for the regeneration of their immediate environment.**

ENVIRONMENTAL CHEMISTRY OF SOILS

Royal Society of Chemistry **Environmental Chemistry of Soils provides an understanding of soil chemical properties and processes at a fundamental scientific level.**

METALLOIDS IN PLANTS

ADVANCES AND FUTURE PROSPECTS

John Wiley & Sons **Understanding metalloids and the potential impact they can have upon crop success or failure Metalloids have a complex relationship with plant life. Exhibiting a combination of metal and non-metal characteristics, this small group of elements – which includes boron (B), silicon (Si), germanium (Ge), arsenic (As), antimony (Sb), and tellurium (Te) – may hinder or enhance the growth and survival of crops. The causes underlying the effects that different metalloids may have upon certain plants range from genetic variance to anatomical factors, the complexities of which can pose a challenge to botanists and agriculturalists of all backgrounds. With Metalloids in Plants, a group of leading plant scientists present a complete guide to the beneficial and adverse impacts of metalloids at morphological, anatomical, biochemical, and molecular levels. Insightful analysis of data on genetic regulation helps to inform the optimization of farming, indicating how one may boost the uptake of beneficial metalloids and reduce the influence of toxic ones. Contained within this essential new text, there are: Expert analyses of the role of metalloids in plants, covering their benefits as well as their adverse effects Explanations of the physiological, biochemical, and genetic factors at play in plant uptake of metalloids Outlines of the breeding and genetic engineering techniques involved in the generation of resistant crops Written for students and professionals in the fields of agriculture, botany, molecular biology, and biotechnology, Metalloids in Plants is an invaluable overview of the relationship between crops and these unusual elements.**

SOILS

PRINCIPLES, PROPERTIES AND MANAGEMENT

Springer Science & Business Media **Aimed at taking the mystery out of soil science, Soils: Principles, Properties and Management is a text for undergraduate/graduate students who study soil as a natural resource. Written in a reader-friendly style, with a host of examples, figures and tables, the book leads the reader from the basics of soil science through to complex situations, covering such topics as: the origin, development and classification of soil physical, chemical and biological properties of soil water and nutrient management management of problem soils, wetland soils and forest soils soil degradation Further, the ecological and agrological functions of soil are emphasized in the context of food security, biodiversity and climate change. The interactions between the environment and soil management are highlighted. Soil is viewed as an ecosystem itself and as a part of larger terrestrial ecosystems.**

URBANIZATION: CHALLENGE AND OPPORTUNITY FOR SOIL FUNCTIONS AND ECOSYSTEM SERVICES

PROCEEDINGS OF THE 9TH SUITMA CONGRESS

Springer **This proceedings volume focuses on different aspects of environmental assessment, monitoring, and management of urban and technogenic soils. Soils of Urban, Industrial, Traffic, Mining and Military Areas (SUITMAs) differ substantially from their natural zonal counterparts in their physical, chemical and biological features, their performed functions, and supported services. This book discusses the monitoring, analysis and assessment of the effects of urbanization on soil functions and services. Further, it helps to find solutions to the environmental consequences of urbanization and discusses best management practices such as management and design of urban green infrastructure, waste management, water purification, and reclamation and remediation of contaminated soils in the context of sustainable urban development. The book includes thematic sections corresponding to 14 sessions of the SUITMA 9 congress, covering broad topics that highlight the importance of urban soils for society and environment and summarizing the lessons learned and existing methodologies in analyses, assessments, and modeling of anthropogenic effects on soils and the related ecological risks. This proceedings book appeals to scientists and students as well as practitioners in soil and environmental science, urban planning, geography and related disciplines, and provides useful information for policy makers and other stakeholders working in urban management and greenery.**

MICROBIAL INTERVENTIONS IN AGRICULTURE AND ENVIRONMENT

VOLUME 2: RHIZOSPHERE, MICROBIOME AND AGRO-ECOLOGY

Springer Nature **Microbial communities and their functions play a crucial role in the management of ecological, environmental and agricultural health on the Earth. Microorganisms are the key identified players for plant growth promotion, plant immunization, disease suppression, induced resistance and tolerance against stresses as the indicative parameters of improved crop productivity and sustainable soil health. Beneficial belowground microbial interactions with the rhizosphere help plants mitigate drought and salinity stresses and alleviate water stresses under the unfavorable environmental conditions in the native soils. Microorganisms that are inhabitants of such environmental conditions have potential solutions for them. There are potential microbial communities that can degrade xenobiotic compounds, pesticides and toxic industrial chemicals and help remediate even heavy metals, and thus they find enormous applications in environmental remediation. Microbes have developed intrinsic metabolic capabilities with specific metabolic networks while inhabiting under specific conditions for many generations and, so play a crucial role. The book Microbial Interventions in Agriculture and Environment is an effort to compile and present a great volume of authentic, high-quality, socially-viable, practical and implementable research and technological work on microbial implications. The whole content of the volume covers protocols, methodologies, applications, interactions, role and impact of research and development aspects on microbial interventions and technological outcomes in prospects of agricultural and environmental domain including crop production, plan-soil health management, food & nutrition, nutrient recycling, land reclamation, clean water systems and agro-waste management, biodegradation & bioremediation, biomass to bioenergy, sanitation and rural livelihood security. The covered topics and sub-topics of the microbial domain have high implications for the targeted and wide readership of researchers, students, faculty and scientists working on these areas along with the agri-activists, policymakers, environmentalists, advisors etc. in the Government, industries and non-government level for reference and knowledge generation.**

ENVIRONMENTAL GEOCHEMISTRY

SITE CHARACTERIZATION, DATA ANALYSIS AND CASE HISTORIES

Elsevier **Environmental Geochemistry: Site Characterization, Data Analysis and Case Histories, Second Edition, reviews the role of geochemistry in the environment and details state-of-the-art applications of these principles in the field, specifically in pollution and remediation situations. Chapters cover both philosophy and procedures, as well as applications, in an array of issues in environmental geochemistry including health problems related to environment pollution, waste disposal and data base management. This updated edition also includes illustrations of specific case histories of site characterization and remediation of brownfield sites. Covers numerous global case studies allowing readers to see principles in action Explores the environmental impacts on soils, water and air in terms of both inorganic and organic geochemistry Written by a well-respected author team, with over 100 years of experience combined Includes updated content on: urban geochemical mapping, chemical speciation, characterizing a brownsfield site and the relationship between heavy metal distributions and cancer mortality**

CHEMISTRY FOR SUSTAINABLE DEVELOPMENT IN AFRICA

Springer Science & Business Media **Chemistry for Sustainable Development in Africa gives an insight into current Chemical research in Africa. It is edited and written by distinguished African scientists and includes contributions from Chemists from Northern, Southern, Western, Eastern, Central and Island state African Countries. The core themes embrace the most pressing issues of our time, including Environmental Chemistry, Renewable Energies, Health and Human Well-Being, Food and Nutrition, and Bioprospecting and Commercial Development. This book is invaluable for teaching and research institutes in Africa and worldwide, private sector entities dealing with natural products from Africa, as well as policy and decision-making bodies and non-governmental organizations.**

ENVIRONMENTAL AND LOW TEMPERATURE GEOCHEMISTRY

John Wiley & Sons **Environmental and Low-Temperature Geochemistry presents conceptual and quantitative principles of geochemistry in order to foster understanding of natural processes at and near the earth's surface, as well as anthropogenic impacts on the natural environment. It provides the reader with the essentials of concentration, speciation and reactivity of elements in soils, waters, sediments and air, drawing attention to both thermodynamic and kinetic controls. Specific features include: • An introductory chapter that reviews basic chemical principles applied to environmental and low-temperature geochemistry • Explanation and analysis of the importance of minerals in the environment • Principles of aqueous geochemistry • Organic compounds in the environment • The role of microbes in processes such as biomineralization, elemental speciation and reduction-oxidation reactions • Thorough coverage of the fundamentals of important geochemical cycles (C, N, P, S) • Atmospheric chemistry • Soil geochemistry • The roles of stable isotopes in environmental analysis • Radioactive and radiogenic isotopes as environmental tracers and environmental contaminants • Principles and examples of instrumental analysis in environmental geochemistry The text concludes with a case study of surface water and groundwater contamination that includes interactions and reactions of naturally-derived inorganic substances and introduced organic compounds (fuels and solvents), and illustrates the importance of interdisciplinary analysis in environmental geochemistry. Readership: Advanced undergraduate and graduate students studying environmental/low T geochemistry as part of an earth science, environmental science or related program. Additional resources for this book can be found at: www.wiley.com/go/ryan/geochemistry.**

HANDBOOK OF SOIL SCIENCES (TWO VOLUME SET)

CRC Press **An evolving, living organic/inorganic covering, soil is in dynamic equilibrium with the atmosphere above, the biosphere within, and the geology below. It acts as an anchor for roots, a purveyor of water and nutrients, a residence for a vast community of microorganisms and animals, a sanitizer of the environment, and a source of raw materials for co**

LEAD IN PLANTS AND THE ENVIRONMENT

Springer Nature **This book examines the way that lead enters the biosphere and the subsequent environmental impact. The contributing authors include international experts who provide methods for assessing and characterizing the ecological risk of lead contamination of soil and plants. Information is provided on the consequences for human health as a result of lead pollution. This book reveals that approximately 98% of stable lead in the atmosphere originates from human activities. Lead in Plants and the Environment reports on methods for detecting, measuring, and assessing the concentration of lead in plants. The authors provide a method for the measurement of 210Pb isotopes in plants. This method can be applied extensively in different environmental settings, not only as a way of revealing sources of lead, but also as a way to monitor lead transport in plants and animals that ingest them. The chapters include coverage on the following topics: · Lead bioavailability in the environment and its exposure and effects · Radioanalytical methods for detecting and identifying trace concentrations of lead in the environment · Lead contamination and its dynamics in soil plant systems · Lead pollution monitoring and remediation through terrestrial plants in mesocosm constructed wetlands · A review of phytoremediation of lead This book is a valuable resource to students, academics, researchers, and environmental professionals doing field work on lead contamination throughout the world.**

SOIL MICROENVIRONMENT FOR BIOREMEDIATION AND POLYMER PRODUCTION

John Wiley & Sons **The book consists of 21 chapters by subject matter experts and is divided into four parts: Soil Microenvironment and Biotransformation Mechanisms; Synergistic effects between substrates and Microbes; Polyhydroxyalakanoates: Resources, Demands and Sustainability; and Cellulose based biomaterials: Benefits and challenges. Included in the chapters are classical bioremediation approaches and advances in the use of nanoparticles for removal of radioactive waste. The book also discusses the production of applied emerging biopolymers using diverse microorganisms. All chapters are supplemented with comprehensive illustrative diagrams and comparative tables.**

MODELLING OF POLLUTANTS IN COMPLEX ENVIRONMENTAL SYSTEMS

ILM Publications **Environmental modelling has enjoyed a long tradition, but there is a defined need to continually address both the power and the limitations of such models, as well as their quantitative assessment. This book showcases modern environmental modelling methods, the basic theory behind them and their incorporation into complex environmental investigations. It highlights advanced computing technologies and how they have led to unprecedented and adaptive modelling, simulation and decision-support tools to study**

complex environmental systems, and how they can be applied to current environmental concerns. This volume is essential reading for researchers in academia, industry and government-related bodies who have a vested interest in all aspects of environmental modelling. Features include: A range of modern environmental modelling techniques are described by experts from around the world, including the USA, Canada, Australia, Europe and Thailand; many examples from air, water, soil/sediment and biological matrices are covered in detail throughout the book; key chapters are included on modelling uncertainty and sensitivity analysis; and, a selection of figures are provided in full colour to enable greater comprehension of the topics discussed

ENHANCING CLEANUP OF ENVIRONMENTAL POLLUTANTS

VOLUME 2: NON-BIOLOGICAL APPROACHES

Springer **This two-volume work is an effort to provide a common platform to environmental engineers, microbiologists, chemical scientists, plant physiologists and molecular biologists working with a common aim of sustainable solutions to varied environmental contamination issues. Chapters explore biological and non-biological strategies to minimize environmental pollution. Highly readable entries attempt to close the knowledge gap between plant - microbial associations and environmental remediation. Volume 2 focuses on the non-biological/chemical approaches for the cleanup of contaminated soils. Important concepts such as the role of metallic iron in the decontamination of hexavalent chromium polluted waters are highlighted; in addition, nanoscale materials and electrochemical approaches used in water and soil remediation are discussed; and the synthesis and characterization of cation composite exchange material and its application in removing toxic metals are elaborated in detail. Readers will also discover the major advances in the remediation of environmental pollutants by adsorption technologies.**

ENVIRONMENTAL CHEMISTRY

AN ANALYTICAL APPROACH

John Wiley & Sons **"With a focus on quantitative measurements, Environmental Chemistry provides the reader with the essential chemical principles that drive environmental processes. The author puts the state of the current environment in the context of the formation and evolution of the planet while reviewing chemical fundamentals. To prepare students for quantitative measurements, an entire chapter is devoted to measurement statistics and quantitative methods of analysis. A concise yet detailed explanation of the chemistry that underlies the atmosphere, lithosphere and hydrosphere gives students the requisite knowledge to understand issues such as ozone formation, the greenhouse effect, soil chemistry and water quality. Each chapter concludes with descriptions of the methods used in the analysis of environmentally significant chemicals. In-chapter and end-of-chapter problems train the students in analysis techniques and develop a chemically rigorous understanding of the environment. An appendix provides a detailed description of major chemical instruments students are likely to use in an undergraduate laboratory"--**

ENVIRONMENTAL GEOCHEMISTRY: SITE CHARACTERIZATION, DATA ANALYSIS AND CASE HISTORIES

Elsevier **This volume contains chapters spanning from the role of geochemistry in the environment in general to specific investigations on site characterization (sampling strategy, analytical procedures and problems). Specific articles deal with health problems related to environment pollution, waste disposal, data base management, and provide illustrations of specific case histories of site characterization and remediation of brownfield sites. * Comprehensive analysis providing background information ranging from geochemistry in general to specific investigations * Provides practical insight through case study material * Informs and updates students and practitioners on hot topics, latest trends and developments**

THE SUSTAINABLE ROLE OF THE TREE IN ENVIRONMENTAL PROTECTION TECHNOLOGIES

Springer **This monograph describes ways of using trees and their byproducts in environmental protection technologies and methodologies throughout their lifecycles. The tree, the planet’s main source of biomass, is an indispensable tool for sustainable technologies, and the authors present a holistic picture of how and why in this volume. The authors describe the indispensable role of the living tree in phytoremediation and biomonitoring and detail the relationship of the tree with its surrounding ecosystem. The direct and indirect relationships of a tree at its vegetation period with various components of the ecosystem (i.e. atmosphere, hydrosphere, lithosphere and soil) contribute to the role of a tree as the medium for integrating aerogenic and edaphic pollutants. Trees phytostabilize pollutants in their organisms and remove them from the soil. The ability of some species of trees to reflect the quality of the environment makes a basis for the environmental bioindication, while quantitative representation of the chemical composition of the surrounding environment allows for the use of trees in biomonitoring. Morphological features of trees (e.g. annual tree rings) allow us to observe environmental conditions in the past and retrospectively evaluate them. This monograph also details how wood products (e.g. biochar, chips, bark, etc.) of a tree after it has died are used in environmental technologies. Due to the specific morphological form and physical and chemical composition of wood products, they may be used as active materials in the technologies aimed at reducing pollution in an effective and sustainable manner.**

ADVANCES IN AGRONOMY

Academic Press **Advances in Agronomy continues to be recognized as a leading reference and a first-rate source for the latest research in agronomy. As always, the subjects covered are varied and exemplary of the myriad of subject matter dealt with by this long-running serial. Maintains the highest impact factor among serial publications in agriculture Presents timely reviews on important agronomy issues Enjoys a long-standing reputation for excellence in the field**

MINERALS AT THE NANOSCALE

The Mineralogical Society of Great Britain and Ireland **The editors have gathered in this book, reviews of past and current studies of mineral groups that have played important roles in geology, environmental science and health science. The various chapters cover the application of TEM and related techniques to: mineral groups in which TEM investigations have been extensive and crucial to the understanding of their mineralogy, namely pyriboles, serpentines, clays, micas and other metamorphic phyllosilicates, oxides and oxyhydroxides, sulfides and carbonates. Some research fields for which TEM is particularly suitable and which have produced significant advances, in particular, are inclusions and traces, extraterrestrial material, deformation processes, non-stoichiometry and superstructures, and biominerals. Nowadays, we are witnessing the push for the improvement of detectors for imaging (direct detection of electrons) and X-rays (silicon drift detectors and annular high solid-angle of collection detectors), the development of new support materials (e.g. graphene) and liquid cells for TEMs. Most of these new technologies have not yet been applied to mineralogical problems but we hope they will be in the near future.**

COMPETITIVE SORPTION AND TRANSPORT OF HEAVY METALS IN SOILS AND GEOLOGICAL MEDIA

CRC Press **Most reported incidents of soil contamination include an array of heavy metals species rather than a single ion. The various interactions in these multicomponent or multiple-ion systems significantly impact the fate and transport of heavy metals, and competition for sorption sites on soil matrix surfaces is a common phenomenon. Because of this, considering competitive sorption is an important part of predicting contaminant transport. Competitive Sorption and Transport of Heavy Metals in Soils and Geological Media gives you the information needed to understand heavy metals’ sorption and transport in the vadose zone and aquifers. The book brings together state-of-the art research on the competitive sorption and mobility of single versus multiple heavy metal species. It also relates the transport mechanisms to the processes that govern sorption mechanisms. The work offers new experimental evidence on the fate of multiple heavy metals in soil columns and new field results on how multiple ions influence the mobility of metals in the soil profile under water-unsaturated flow. Emphasizing modeling approaches, the book begins with an overview of the competitive behavior of heavy metals. It then takes a closer look at various heavy metals, discussing their behavior in tropical soils, speciation and fractionation, accumulation, migration, competitive retention, and the contamination of water resources at the watershed scale. The book also presents extensive data on phosphate, a commonly used fertilizer, and its role in facilitating the release of trace elements. The final chapter looks at the effect of waterlogged conditions on arsenic and cadmium solubilization. Edited by an internationally recognized researcher and featuring expert contributors, this comprehensive work addresses the complex physical and chemical phenomena of sorption mechanisms. Presenting the latest research, it helps you to better predict the potential mobility of multiple heavy metals in soils.**

SOIL CONTAMINATION

CURRENT CONSEQUENCES AND FURTHER SOLUTIONS

BoD – Books on Demand **This edited book, Soil Contamination - Current Consequences and Further Solutions, is intended to provide an overview on the different environmental consequences of our anthropogenic activities, which has introduced a large number of xenobiotics that the soil cannot, or can only slower, decompose or degrade. We hope that this book will continue to meet the expectations and needs of all interested in diverse fields with expertise in soil science, health, toxicology, and other disciplines who contribute and share their findings to take this area forward for future investigations.**

HEAVY METALS IN SOILS

TRACE METALS AND METALLOIDS IN SOILS AND THEIR BIOAVAILABILITY

Springer Science & Business Media **This third edition of the book has been completely re-written, providing a wider scope and enhanced coverage. It covers the general principles of the natural occurrence, pollution sources, chemical analysis, soil chemical behaviour and soil-plant-animal relationships of heavy metals and metalloids, followed by a detailed coverage of 21 individual elements, including: antimony, arsenic, barium, cadmium, chromium, cobalt, copper, gold, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, tin, tungsten, uranium, vanadium and zinc. The book is highly relevant for those involved in environmental science, soil science, geochemistry, agronomy, environmental health, and environmental engineering, including specialists responsible for the management and clean-up of contaminated land.**

URBAN POLLUTION

SCIENCE AND MANAGEMENT

Wiley-Blackwell **Multidisciplinary treatment of the urgent issues surrounding urban pollution worldwide Written by some of the top experts on the subject in the world, this book presents the diverse, complex and current themes of the urban pollution debate across the built environment, urban development and management continuum. It uniquely combines the science of urban pollution with associated policy that seeks to control it, and includes a comprehensive collection of international case studies showing the status of the problem worldwide. Urban Pollution: Science and Management is a multifaceted collection of chapters that address the contemporary concomitant issues of increasing urban living and associated issues with contamination by offering solutions specifically for the built environment. It covers: the impacts of urban pollution; historical urban pollution; evolution of air quality policy and management in urban areas; ground gases in urban environments; bioaccessibility of trace elements in urban environments; urban wastewater collection, treatment, and disposal; living green roofs; light pollution; river ecology; greywater recycling and reuse; containment of pollution from urban waste disposal sites; bioremediation in urban pollution mitigation; air quality monitoring; urban pollution in China and India; urban planning in sub-Saharan Africa and more. Deals with both the science and the relevant policy and management issues Examines the main sources of urban pollution Covers both first-world and developing world urban pollution issues Integrates the latest scientific research with practical case studies Deals with both legacy and emerging pollutants and their effects The integration of physical and environmental sciences, combined with social, economic and political sciences and the use of case studies makes Urban Pollution: Science and Management an incredibly useful resource for policy experts, scientists, engineers and those interested in the subject.**

APPROACHES TO SOIL HEALTH ANALYSIS, VOLUME 1

John Wiley & Sons **Approaches to Soil Health Analysis A concise survey of soil health analysis and its various techniques and applications The maintenance of healthy soil resources provides the foundation for an array of global efforts and initiatives that affect humanity. Whether they are working to combat food shortages, conserve our ecosystems, or mitigate the impact of climate change, researchers and agriculturalists the world over must be able to correctly examine and understand the complex nature of this essential, fragile resource. These new volumes have been designed to meet this need, addressing the many dimensions of soil health analysis in chapters that are concise, accessible and applicable to the tasks at hand. Soil Health, Volume One: Approaches to Soil Health Analysis provides a well-rounded overview of the various methods and strategies available to analysists, and covers topics including: The history of soil health and its study Challenges and opportunities facing analysists Meta-data and its assessment Applications to forestry and urban land reclamation Future soil health monitoring and evaluation approaches Offering a far-reaching survey of this increasingly interdisciplinary field, this volume will be of great interest to all those working in agriculture, private sector businesses, non-governmental organizations (NGOs), academic-, state-, and federal-research projects, as well as state and federal soil conservation, water quality and other environmental programs.**

HANDBOOK OF RESEARCH ON ADVANCEMENTS IN ENVIRONMENTAL ENGINEERING

IGI Global **The protection of clean water, air, and land for the habitation of humans and other organisms has become a pressing concern amid the intensification of industrial activities and the rapidly growing world population. The integration of environmental science with engineering principles has been introduced as a means of long-term sustainable development. The Handbook of Research on Advancements in Environmental Engineering creates awareness of the role engineering plays in protecting and improving the natural environment. Providing the latest empirical research findings, this book is an essential reference source for executives, educators, and other experts who seek to improve their project's environmental costs.**

URBAN SOILS

PRINCIPLES AND PRACTICE

Springer Nature **Urbanisation of the world's population is an increasing trend; in China, for example, the proportion of the population living in cities increased from 13% in 1950 to 45% in 2010 (World Bank data). Australia is one of the world's top ten urbanised countries with population greater than ten million, with approximately 90% of its population living in cities, mainly along Australia's coast. The most rapidly urbanising populations are currently in nations of the African continent. Soils in urban areas have multiple functions which are becoming more valued by urban communities: soils supply water, nutrients and physical support for urban plant and animal communities (parks, reserves, gardens), and are becoming increasingly valued for growing food. Soils may be used for building foundations, or as building materials themselves. Urban hydrology relies on the existence of unsealed soils for aquifer protection and flood control. This book is designed primarily as an educational text, but it also reflects current developments in research, and provides readers with an authoritative gateway to the primary literature. It presents the importance of urban ecosystems and the impacts of global change. It examines pedogenesis of urban soils: natural materials affected by urban phenomena, and natural processes acting on urban materials, including an examination of different climatic zones. There is a focus on soils formed on landfill, reclaimed land, dredge spoils as well as soil-related changes in urban geomorphology. There is plenty of discussion on urban soil as a source and sink as well as soil geochemistry and health. .**

WETLAND SOILS

GENESIS, HYDROLOGY, LANDSCAPES, AND CLASSIFICATION, SECOND EDITION

CRC Press **A Major Revision of the Previous EditionWetland Soils: Genesis, Hydrology, Landscapes, and Classification, Second Edition contains 11 new chapters and additional updates written by new authors with a broad range of related field and academic experience. This revised work augments the previous material on wetland functions and restorations, while ma**

MINERALS IN SOIL ENVIRONMENTS

Soil Science Society of Amer **"A basic knowledge of mineralogy has become essential in all aspects of soil and earth science. This comprehensive book includes introductory mineralogy, surface chemistry, mineral equilibria, soil organic matter, and mineral occurrence, as well as the thorough treatment of all minerals you would expect from the series. Of particular interest is the chapter on mineral occurrence in soils of the world."**

INTERACTIONS AT THE SOIL COLLOID

SOIL SOLUTION INTERFACE

Springer **About 20 years ago the emphasis in soil chemistry research switched from studies of problems related to scarcities of plant nutrients to those arising from soil pollutants. The new problems have come about because of the excessive uses of fertilizers, the inputs from farm and industrial wastes, the widespread applications of anthropogenie xenobiotic chemicals, and the deterioration of soil structure resulting from certain modern agriculture practises. The International Society of Soil Science (ISSS) recognized these problems and challenges. A provisional Working Group was set up in 1978 to focus attention on soil colloids with a view to understanding better the interactions wh ich take place at their surfaces. It was recognized that these interactions are fundamental to problems of soil fertility, as well as to those of soil pollution. After the group had received the official support of ISSS at its 12th International Congress in New Delhi in 1982 it set as its priority the assembling and evaluation of information, relevant to the soil and environmental sciences, concerning the composition and structure of soil colloids. Prior to that aseries of Position Papers were published in the Bulletin of the International Society of Soil Science (Vol. 61, 1981) outlining the state of knowledge about the composition and properties of soil colloids.**

REVIEWS OF ENVIRONMENTAL CONTAMINATION AND TOXICOLOGY VOLUME 213

Springer Science & Business Media **Reviews of Environmental Contamination and Toxicology attempts to provide concise, critical reviews of timely advances, philosophy and significant areas of accomplished or needed endeavor in the total field of xenobiotics, in any segment of the environment, as well as toxicological implications.**

TRACE ELEMENTS IN WATERLOGGED SOILS AND SEDIMENTS

CRC Press **Many wetlands around the world act as sinks for pollutants, in particular for trace elements. In comparison to terrestrial environments, wetlands are still far less studied. A collaborative effort among world experts, this book brings the current knowledge concerning trace elements in temporary waterlogged soils and sediments together. It discusses factors controlling the dynamics and release kinetics of trace elements and their underlying biogeochemical processes. It also discusses current technologies for remediating sites contaminated with trace metals, and the role of bioavailability in risk assessment and regulatory decision making. This book is intended for professionals around the world in disciplines related to contaminant bioavailability in aquatic organisms, contaminant fate and transport, remediation technologies, and risk assessment of aquatic and wetland ecosystems.**

SOIL SURVEY HORIZONS

PHES, ENVIRONMENT AND HUMAN HEALTH

POTENTIALLY HARMFUL ELEMENTS IN THE ENVIRONMENT AND THE IMPACT ON HUMAN HEALTH

Springer **This book is dedicated to the occurrence and behaviour of PHEs in the different compartments of the environment, with special reference to soil. Current studies of PHEs in ecosystems have indicated that many industrial areas near urban agglomerates, abandoned or active mines, major road systems and ultimately also agricultural land act as sources and at the same time sinks, of PHEs and large amounts of metals are recycled or dispersed in the environment, posing severe concerns to human health. Thanks to the collaboration of numerous colleagues, the book outlines the state of art in PHEs research in several countries and is enforced with case studies and enriched with new data, not published elsewhere. The book will provide to Stakeholders (both Scientists Professionals and Public Administrators) and also to non-specialists a lot of data on the concentrations of metals in soils and the environment and the critical levels so far established, in the perspective to improve the environmental quality and the human safety.**

FUNGI AS BIOREMEDIATORS

Springer Science & Business Media **Biological remediation methods have been successfully used to treat polluted soils. While bacteria have produced good results in bioremediation for quite some time now, the use of fungi to decontaminate soils has only recently been established. This volume of Soil Biology discusses the potentials of filamentous fungi in bioremediation. Fungi suitable for degradation, as well as genetically modified organisms, their biochemistry, enzymology, and practical applications are described. Chapters include topics such as pesticide removal, fungal wood decay processes, remediation of soils contaminated with heavy and radioactive metals, of paper and cardboard industrial wastes, and of petroleum pollutants.**

ECOLOGY, SOILS, AND THE LEFT

AN ECOSOCIAL APPROACH

Springer **Soil degradation is real and global, even if the evidence is not so easy to glean. Degradation poses comparable risks to greenhouse gas emissions, deforestation, and nonhuman animal extinctions. Few have noticed soil degradation as the problem it has become, except most indigenous peoples in their struggles for survival.**

SOIL POLLUTION: A HIDDEN REALITY

Food & Agriculture Org. **This document presents key messages and the state-of-the-art of soil pollution, its implications on food safety and human health. It aims to set the basis for further discussion during the forthcoming Global Symposium on Soil Pollution (GSOP18), to be held at FAO HQ from May 2nd to 4th 2018. The publication has been reviewed by the Intergovernmental Technical Panel on Soil (ITPS) and contributing authors. It addresses scientific evidences on soil pollution and highlights the need to assess the extent of soil pollution globally in order to achieve food safety and sustainable development. This is linked to FAO's strategic objectives, especially SO1, SO2, SO4 and SO5 because of the crucial role of soils to ensure effective nutrient cycling to produce nutritious and safe food, reduce atmospheric CO2 and N2O concentrations and thus mitigate climate change, develop sustainable soil management practices that enhance agricultural resilience to extreme climate events by reducing soil degradation processes. This document will be a reference material for those interested in learning more about sources and effects of soil pollution.**

SOIL HEALTH ANALYSIS, SET

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