Ground Water Bioengineering For Erosion Control

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Bioengineering for Streambank Erosion Control John Wiley & Sons
Desertification and land degradation are complex phenomena, and we need to understand their causes, consequences, and means to mitigate and combat their impact. Therefore, this book aims to explain the concept and characteristics of drylands, desert and desertification, land degradation, wastelands, and the concept of ecosystem services. It also discusses various types of processes of land degradations, their characteristics, physics and indicators along with mapping, monitoring and assessment of methods involved. Concept of Ocean Biological Deserts is discussed along with international and regional efforts towards combating land degradation and desertification. Key Features: • Provides all the aspect of desertification and land degradation at one place • Includes comprehensive methods to monitor different desertification/land degradation processes • Comprehensive overview of the mapping, monitoring and

modelling techniques • Role of space borne data in identifying, monitoring and combating desertification is evaluated and reported with real case studies • Explains the concept of ocean biological deserts, their characteristics and mapping

Sustainable Stream Bank and Slope Stabilization Springer

Computers in Earth and Environmental Sciences: Artificial Intelligence and Advanced Technologies in Hazards and Risk Management addresses the need for a comprehensive book that focuses on multi-hazard assessments, natural and manmade hazards, and risk management using new methods and technologies that employ GIS, artificial intelligence, spatial modeling, machine learning tools and meta-heuristic techniques. The book is clearly organized into four parts that cover natural hazards, environmental hazards, advanced tools and technologies in risk management, and future challenges in computer applications to hazards and risk management. Researchers and professionals in Earth and Environmental Science who require the latest technologies and advances in hazards, remote sensing, geosciences, spatial modeling and machine learning will find this book to be an invaluable source of information on the latest tools and technologies available. Covers advanced tools and technologies in risk management of hazards in both the Earth and Environmental Sciences Details the benefits and applications of various technologies to assist researchers in choosing the most appropriate techniques for purpose

Expansively covers specific future challenges in the use of computers in Earth and Environmental Science Includes case studies that detail the applications of the discussed technologies down to individual hazards

Soil Degradation, Conservation and Remediation CRC Press

The book is a comprehensive treatment of the application of geotechnical engineering to site selection, site exploration, design, operation and closure of mine waste storage facilities.The level and content are suitable as a technical source and reference for practising engineers engaged both in the design and operational management of mine waste s

Enhancing Cleanup of Environmental Pollutants **CRC Press**

This book provides us the knowledge about various geomorphological attributes and the various degradational processes of land in and around Subarnarekha Basin. This book will be of great help to geographers, planners, policy maker etc.

News-notes Transportation Research Board

This book presents a first-of-its-kind exposition on the emerging technology of jute fiber geotextiles. The book covers the characteristics of jute fiber and jute yarns, types and functions of jute geotextiles, and the mechanism of control of surficial soil with jute geotextiles. The content also includes applications such as the mechanisms of functioning of jute geotextiles in strengthening road sub-grade and controlling river bank erosion, stabilization of earthen embankments, management of settlement of railway tracks, and consolidation of soft soil by use of pre-fabricated vertical jute drains (PVJD). Geotextile standards, properties and test methods, variants of jute geotextiles, economical and environmental advantages in different applications are covered along with a few case studies. A chapter on soil basics is included to enable clearer understanding of soil mechanisms. The book can be used as a reference work or as primary or supporting text for graduate and professional coursework. It will also prove useful to researchers and practicing

engineers looking for a comprehensive treatise on jute geotextiles.

Landslide Processes Wiley-Blackwell

The first comprehensive, practical guide to the selection,construction, and installation of soil bioengineering andbiotechnical slope protection Here is the ultimate guide to physically attractive,environmentally compatible, and cost-effective methods ofprotecting slopes from erosion and mass wasting. Lavishlyillustrated with more than 150 photographs and supplemented withscores of charts and tables, this book covers the entire subjectfrom general principles and background on the nature of soilerosion and mass movement to detailed information on rootstrengths, treatment selection, unit costs, critical tractivestresses, methods for harvesting and handling live cuttings, andmore. Four illustrated case studies, each addressing a different set ofproblems and solutions, demonstrate both the application ofparticular technologies and the site investigation, planning,scheduling, and organization required to complete these projectssuccessfully. This unique reference handbook * Reviews the horticultural and engineering underpinnings forbiotechnical and soil engineering treatments * Documents and explains the role of woody plants in stabilizingslopes against both surficial erosion and mass movement * Provides details on a broad range of soil bioengineering methods,including live staking, live fascines, brushlayering, live cribwalls, branchpacking, and live slope gratings * Describes various biotechnical methods and materials, includingthe incorporation of vegetation in erosion control blankets,flexible mats, cellular revetments (geocells), rock armor (riprap), and gabion and open-front crib walls * Summarizes the findings of the National ScienceFoundation-sponsored workshop to assess the state of the art anddetermine research needs For practicing professionals, researchers, and students ingeotechnical engineering, geology, soil science, forestry andforest engineering, landscape architecture, environmentalhorticulture, and restoration ecology, this book offers thorough,up-to-date coverage that is not available from any other singlesource.

Engineering Geology for Society and Territory - Volume 2 CRC Press

This book, the first of a pair of volumes on bioengineering techniques, shows how vegetation can be used for the engineering and ecological enhancement of earth structures. Vegetation provides protection and stabilisation of both natural and manmade slopes along transportation routes (such as motorways) and for industrial, housing and leisure facilities.

Ground and Water Bioengineering for Erosion Control and Slope Stabilization Krieger Publishing Company

This document is a cooperative effort among fifteen Federal agencies and partners to produce a common reference on stream corridor restoration. It responds to a growing national and international interest in restoring stream corridors.

Grasses CRC Press

This book, with contributions from international landslide experts, presents in-depth knowledge of theories, practices, and modern numerical techniques for landslide analysis. Landslides are a reoccurring problem across the world and need to be properly studied for their mitigation and control. Due to increased natural and anthropogenic activities, chances of landslide occurrence and associated hazards have increased. The book focuses on landslide dynamics, mechanisms and processes along with hazard mitigation using geo-engineering, structural, geophysical and numerical tools. The book contains a wealth of the latest information on all aspects of theory, practices and modelling tools and techniques involved in prediction, prevention, monitoring, mitigation and risk analysis of landslide hazards. This book will bring the reader up to date on the latest trends in landslide studies and will help planners, engineers, scientists and researchers working on landslide engineering.

A Bioengineering Approach Springer

The most recent advances in research on coastal saline soil rehabilitation and utilization based on forestry approach are discussed. The forestry approach is emphasized rather than physical or engineering measures to

ameliorate saline soils, which is significant for coastal environmental improvement and land resources expansion. The monograph is a useful reference for researchers using techniques of ecology, forestry and agronomy. Prof. Jianfeng Zhang works at the Institute of Subtropical Forestry, Chinese Academy of Forestry. He has been working on afforestation in saline soils for over 20 years.

Review of water and climate change policies in South Asia. Springer

With climate change and deforestation, debris flows and debris avalanches have become the most significant landslide hazards in many countries. In recent years there have been numerous debris flow avalanches in Southern Europe, South America and the Indian Subcontinent, resulting in major catastrophes and large loss of life. This is therefore a major high-profile problem for the world's governments and for the engineers and scientists concerned. Matthias Jakob and Oldrich Hungr are ideally suited to edit this book. Matthias Jakob has worked on debris flow for over a decade and has had numerous papers published on the topic, as well as working as a consultant on debris flow for municipal and provincial governments. Oldrich Hungr has worked on site investigations on debris flow, avalanches and rockfall, with emphasis on slope stability analysis and evaluation of risks to roads in built-up areas. He has also developed mathematical models for landslide dynamic analysis. They have invited world-renowned experts to joint them in this book.

Physical Modelling in Geotechnics, Volume 2 Springer Science & Business Media

Vetiveria is one of the most versatile genera in plant kingdom. For example, the species Vetiveria zizanoides produces oderous roots from which a precious essential oil is distilled and used in a variety of applications from perfumery to ethnopharmacology. The same roots give the plant particular characteristics that make it a valuable natural barr

Slope Stability and Erosion Control: Ecotechnological Solutions Notion Press

"Bio-Stabilization Case Studies: Treatment and Performance Evaluation" describes and evaluates 30 projects from across the United States where bio-stabilization was employed to address a detrimental naturally occurring process or byproduct of the built environment. Bio-stabilization (or soil bioengineering) refers to the use of plant materials, primarily live cuttings, arranged in the ground in different arrays to reinforce soils and protect upland slopes and/or stream banks against surficial erosion and shallow slope failures. Examples included in the collection represent different regions of the country and their specific conditions and challenges. Each project is illustrated with a number of distinctive photographs to support the reader's understanding and showcase the wide scope of projects and techniques presented. The volume is ideal for civil and environmental engineers and environmental scientists working on watershed, infrastructure projects, and municipal scale installations.

Proceedings of the 9th International Conference on Physical Modelling in Geotechnics (ICPMG 2018), July 17-20, 2018, London, United Kingdom Springer

This book is an up-to-date review of research and practice on the use of vegetation for slope stabilization and control of surface erosion caused by water and wind. From a basic understanding of the principles and practices of vegetation growth and establishment, it describes how vegetation can be treated as an engineering material and used to solve erosion and slope stability problems.

Guidelines. Report 1 Springer

Soils are neither good nor bad, but some have inherent or acquired characteristics that may or may not suit our intended use. Unsuitable characteristics are considered to be soil problems, soil constraints or soil limitations. Only twelve percent of global land is right for agricultural production without much limitation. Some soils have severe limitations for crop production. These soils are so called ‘ problem soils ’. Many of them do not have enough fertility to be productive; some are arid and saline; some are very sandy and dry; and some are wet and waterlogged for most of the growing season. The global demand for food, wood, fuel, fiber, medicine and other plant products for the 7.2 billion current world

population has created such an immense pressure on global soil resources that even the most fertile soils are losing their productive capacity. We are being compelled to bring more and more unsuitable or marginally suitable soils under cultivation. Unless innovative and integrated soil, crop and environmental management practices are adopted for their improvement and sustainable use, further degradation is inevitable. This book, Management of Soil Problems, identifies the problems and discusses management options in a smooth and reader-friendly style. It will be useful for students and professionals of soil science, agriculture, forestry, geography and environmental sciences.

Geotechnical Engineering for Mine Waste Storage Facilities Elsevier

Water and ground bioengineering techniques combine the expertise of civil engineers, landscape architects, botanists and ecologists, and increasingly are being used to protect and restore the natural environment. This practical handbook shows how vegetation can be used for the protection, stabilisation and ecological enhancement of riverbanks and shores. It covers a range of techniques from wholly vegetative 'soft' techniques to 'semi-hard' or composite structures with vegetative inclusions. A chapter on bioengineering techniques in earth dam and floodbank construction is also included. Together with its companion book, Ground Bioengineering Techniques, this handbook on water bioengineering provides a rare opportunity to gain insight into the approach of its chief proponents--Professor H.M. Schiechtl and his colleague, Dr R. Stern--in the use of vegetation for the engineering and ecological and visual enhancement of waterways and shorelines. Water Bioengineering Techniques will be of interest to geotechnical engineers, botanists, ecologists and to those concerned with landscape planning, land and catchment management.

A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization CRC Press

Promoting the use of bamboo for livelihoods, enterprises, and land management is a recent trend in bamboo growing countries. The book ‘Bamboopreneur’ is a ready reckoner for the bamboo fraternity. It will create interest and will motivate everyone to participate in a bamboo development journey in various capacities. The book covers the sociology of bamboos and the unknown or un-captured stories in Southeast Asia and Africa. Some of the topics included are: • Understanding the bamboo myths and culture • Growing and managing bamboo • Bamboo bioengineering • Scanning the business for enterprise development • Process costing, pricing, value chain, and cluster development • Bamboo enterprise models

Proceedings of the First Asia-Pacific Conference on Ground and Water Bioengineering for Erosion Control and Slope Stabilization Springer Science & Business Media

Physical Modelling in Geotechnics collects more than 1500 pages of peer-reviewed papers written by researchers from over 30 countries, and presented at the 9th International Conference on Physical Modelling in Geotechnics 2018 (City, University of London, UK 17-20 July 2018). The ICPMG series has grown such that two volumes of proceedings were required to publish all contributions. The books represent a substantial body of work in four years. Physical Modelling in Geotechnics contains 230 papers, including eight keynote and themed lectures representing the state-of-the-art in physical modelling research in aspects as diverse as fundamental modelling including sensors, imaging, modelling techniques and scaling, onshore and offshore foundations, dams and embankments, retaining walls and deep excavations, ground improvement and environmental engineering, tunnels and geohazards including significant contributions in the area of seismic engineering. ISSMGE TC104 have identified areas for special attention including education in physical modelling and the promotion of physical modelling to industry. With this in mind there is a special themed paper on education, focusing on both undergraduate and postgraduate teaching as well as practicing geotechnical engineers. Physical modelling has entered a new era with the advent of exciting

work on real time interfaces between physical and numerical modelling and the growth of facilities and expertise that enable development of so called ‘megafuges’ of 1000gtonne capacity or more; capable of modelling the largest and most complex of geotechnical challenges. Physical Modelling in Geotechnics will be of interest to professionals, engineers and academics interested or involved in geotechnics, geotechnical engineering and related areas. The 9th International Conference on Physical Modelling in Geotechnics was organised by the Multi Scale Geotechnical Engineering Research Centre at City, University of London under the auspices of Technical Committee 104 of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). City, University of London, are pleased to host the prestigious international conference for the first time having initiated and hosted the first regional conference, Eurofuge, ten years ago in 2008. Quadrennial regional conferences in both Europe and Asia are now well established events giving doctoral researchers, in particular, the opportunity to attend an international conference in this rapidly evolving specialist area. This is volume 2 of a 2-volume set.

Background Paper 2 World Bank Publications

The handbook details the MoSSaiC (Management of Slope Stability in Communities) methodology, which aims to create behavioral change in vulnerable communities in developing countries. Focusing on maximizing within-country capacity to deliver landslide mitigation measures on the ground, it provides an end-to-end blueprint for the mitigation process.

Debris-flow Hazards and Related Phenomena Springer Science & Business Media

This book is one out of 8 IAEG XII Congress volumes, and deals with Landslide processes, including: field data and monitoring techniques, prediction and forecasting of landslide occurrence, regional landslide inventories and dating studies, modeling of slope instabilities and secondary hazards (e.g. impulse waves and landslide-induced tsunamis, landslide dam failures and breaching), hazard and risk assessment, earthquake and rainfall induced landslides, instabilities of volcanic edifices, remedial works and mitigation measures, development of innovative stabilization techniques and applicability to specific engineering geological conditions, use of geophysical techniques for landslide characterization and investigation of triggering mechanisms. Focuses is given to innovative techniques, well documented case studies in different environments, critical components of engineering geological and geotechnical investigations, hydrological and hydrogeological investigations, remote sensing and geophysical techniques, modeling of triggering, collapse, run out and landslide reactivation, geotechnical design and construction procedures in landslide zones, interaction of landslides with structures and infrastructures and possibility of domino effects. The Engineering Geology for Society and Territory volumes of the IAEG XII Congress held in Torino from September 15-19, 2014, analyze the dynamic role of engineering geology in our changing world and build on the four main themes of the congress: environment, processes, issues, and approaches. The congress topics and subject areas of the 8 IAEG XII Congress volumes are: Climate Change and Engineering Geology. Landslide Processes. River Basins, Reservoir Sedimentation and Water Resources. Marine and Coastal Processes. Urban Geology, Sustainable Planning and Landscape Exploitation. Applied Geology for Major Engineering Projects. Education, Professional Ethics and Public Recognition of Engineering Geology. Preservation of Cultural Heritage.