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Formato	Materiale a stampa
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Nota di contenuto	Geological Substrates and Heaping Process of Coal Mining Operations in the Sokolov Basin, Czech Republic : Implications for Reclamation and Soil Development / Petr Rojik -- Humus Accumulation and Humification during Soil Development in Post-Mining Soil / Evgenij Abakumov and Jan Frouz -- Vegetation Development in Central European Coal Mining Sites / Karel Prach -- Biological Soil Crusts in Post-Mining Areas / Alena Lukesova, Martina Zahradnikova and Jan Frouz -- Soil Properties and Development of Humus Forms in Pine and Oak Stands of Reclaimed Post-mining Sites in Lusatia : Influence of Lignite from Overburden Sediments and Dust Immissions / Oliver Bens and Reinhard F. Huttl -- Plant Production, Carbon Accumulation and Soil Chemistry at Post-Mining Sites / Jan Frouz, Petr Dvorscik, Olga Vinduskova and Emil Cienciala -- Soil Microflora Development in Post-mining Sites / Jan Frouz, Dana Elhottova, Petr Baldrian, Alice Chronakova, Alena Lukesova, Alena Novakova and Vaclav Kristufek --

Macrofungi in Post-mining Sites / Lucie Zibarova and Anna Lepsova -- Interactions of Plants with Arbuscular Mycorrhizal Fungi during Ecosystem Development at Post Mining Sites in the Most Coal Basin (Czech Republic) / Jana Rydlova, David Puschel, Martina Janouskova and Miroslav Vosatka -- Recovery and Colonization at Post-mining Sites by the Soil Microfauna / L. Hanel, M. Devetter and S. Adl -- Soil Macro- and Mesofauna Succession in Post-mining Sites and Other Disturbed Areas / Jan Frouz, Vaclav Pizl, Karel Tajovsky, Josef Stary, Michal Holec and Jan Materna -- The Role of Soil Macrofauna in Soil Formation and Carbon Storage in Post-mining Sites / Jan Frouz -- Soil Fauna Plant Interactions during Succession at Post-mining Sites / A. Roubickova, O. Mudrak and J. Frouz -- Soil Fauna and Soil Physical Properties / Jan Frouz and V. Kuraz -- Mining Land and Similar Habitats : A Barren Land or a New Wilderness in the Cultural Landscape? / Tomas Gremlica -- Soil Biota and Ecosystem Development in Post-Mining Sites : Conclusions and Practical Implications / Jan Frouz.

Sommario/riassunto

Mining supplies numerous raw minerals that are essential for economic development. In many cases, however, mineral extraction causes severe destruction of the environment. Large areas can be literally erased by excavation and dumping of overburden. In addition, mining and postprocessing of raw materials may accelerate weathering processes and chemically alter the environment through, for example, acidification or pollution by heavy metals. Environmental damage brings the necessity for ecosystem reconstruction in affected areas. Numerous approaches to land reclamation have been developed. Natural processes collectively referred to as ecological succession, however, bring about gradual ecosystem development without the assistance of man. These processes may be relatively slow, particularly in their early stages, but there are many examples of how they have led to the development of functional ecosystems in the long-term, typically after several decades. In this book, we pay attention to the study of these successional processes. Firstly, only comparisons between the results of reclamation technologies and those of natural succession at unreclaimed sites of the same age can provide us with real information about the added value of reclamation. Secondly, a better understanding of natural succession processes may inspire numerous future improvements to restoration technologies. Finally, post-mining sites represent an excellent model for studying succession processes and may substantially improve our knowledge about these ecological phenomena--Provided by publisher.

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Altri autori (Persone)	SchreflerB. A DelagePierre
Disciplina	628.5/5
Soggetti	Environmental geotechnology Soil pollution
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Environmental Geomechanics; Title Page; Copyright Page; Table of Contents; Introduction; Chapter 1. Debris Flows; 1.1. Introduction; 1.2. Typology of torrential flows; 1.2.1. Watershed as a complex physical system; 1.2.2. Types of transport; 1.3. Initiation, motion and effects of debris flows; 1.3.1. Initiation; 1.3.2. Motion; 1.3.3. Deposition and effects; 1.4. Modeling debris flows; 1.4.1. Debris flow classification and rheological behavior; 1.4.2. Rheometry; 1.4.3. Application: sheet flows; 1.4.4. Slow motion; 1.4.5. Fast motion; 1.5. Bibliography; Chapter 2. Snow Avalanches 2.1. Introduction2.1.1. A physical picture of avalanches; 2.1.2. Avalanche release; 2.1.3. Avalanche motion; 2.2. Modeling avalanches; 2.2.1. Statistical methods; 2.2.2. Fluid-mechanics approach (avalanche-dynamics models); 2.2.3. Simple models; 2.2.4. Intermediate models (depth-averaged models); 2.2.5. Three-dimensional computational models; 2.2.6. Small-scale models; 2.3. Bibliography; Chapter 3. Instability of Soil Masses; 3.1. Introduction; 3.2. Slowly moving slopes; 3.2.1. Principal characteristics; 3.2.2. Determination of the laws of creep in situ; 3.2.3. Modeling of the mass

3.3. Limit state analysis3.3.1. Mohr-Coulomb criterion; 3.3.2. Infinitely long slope; 3.3.3. Methods of slices; 3.3.4. Finite-elements method; 3.4. Case of non-saturated masses; 3.4.1. Problem; 3.4.2. Types of modeling; 3.4.3. Three-phase modeling; 3.4.4. Applications; 3.5. Conclusion and prospects; 3.6. Bibliography; Chapter 4. Instability of Rock Masses; 4.1. Introduction; 4.2. Cliff stability and toppling; 4.2.1. Sliding; 4.2.2. Toppling; 4.3. Contact-impact; 4.3.1. General remarks; 4.3.2. Impact at the surface of the terrain; 4.4. Flight trajectory; 4.5. Sliding and rolling
4.5.1. Sliding4.5.2. Rolling; 4.5.3. Rolling with sliding; 4.6. Impact on an embankment (safety embankment); 4.6.1. Poncelet's empirical formula; 4.6.2. Method of elastic shocks; 4.6.3. Dynamic punching; 4.7. Capacity of the protective structures; 4.7.1. Elastoplastic model; 4.7.2. Capacity of the various types of structures; 4.8. Conclusion; 4.9. Bibliography; Chapter 5. Subsidence Phenomena; 5.1. Subsidence caused by water withdrawal; 5.1.1. Introduction; 5.1.2. The mathematical model; 5.1.3. Possible numerical problems
5.1.4. Case studies: comparison between observed behavior and the predictions of numerical models5.1.5. Second study case: the subsidence of Albano Terme; 5.2. Artificially-induced land uplift; 5.3. Conclusions; 5.4. Bibliography; Chapter 6. Soil Collapse due to Water Infiltration; 6.1. Introduction; 6.2. The loess in Northern France; 6.2.1. The collapse of loess; 6.2.2. Geotechnical characterization of the samples; 6.2.3. Collapse behavior of the loess; 6.2.4. Evaluation of various collapsibility criteria; 6.3. Conclusion; 6.4. Bibliography
Chapter 7. Subsidence Induced by Fossil Fuel Extraction

Sommario/riassunto

This book covers a range of topics that are of increasing importance in engineering practice: natural hazards, pollution, and environmental protection through good practice. The first half of the book deals with natural risk factors, of both natural and human origin, that should be considered: subsidence, accidental infiltration, soil instability, rockslides and mudslides, debris flow, and degradation of buildings and monuments due to pollution and climactic effects, for example. These problems are highlighted and it is shown that a combination of sophisticated numerical techniques and e