New Earth Mining Case Analysis

Although most mining companies have systems in place for slope monitoring, experience indicates that mining operations continue to be surprised by the occurrence of negative geotechnical events. A comprehensive and robust performance monitoring system is an essential component of the slope management program in an open pit mining operation. Yet the development of such a system requires considerable expertise to ensure that the monitoring system is effective and reliable. Written by industry experts, "Guidelines for Slope Performance Monitoring" is an initiative of the Large Open Pit (LOP) Project and the fifth book in the Guidelines for Open Pit Slope Design series. Its 10 chapters present the process of establishing and operating a slope monitoring system, the fundamentals of pit slope monitoring methods and instrumentation, monitoring system operation, data acquisition, management and analysis, and utilisation and communication of monitoring results. The implications of the increasing move to automate mining operations are also discussed, including the potential future requirements of performance monitoring. The book summarises leading mine industry practice in monitoring system design, implementation, system management, data management and reporting, providing guidance for engineers, geologists, technicians and others responsible for geotechnical risk management.

The book's purpose is to provide the quantitative foundation for beginning to think about developing energy and minerals outside of Earth's atmosphere that are necessary to support scientific missions, space and extra-terrestrial scientific stations and permanent colonies, and ultimately expand Earth's economy beyond the near-earth environment to include space resources. We cannot envision a situation where all resources required for future space activities are exported from Earth, therefore, this book clearly illustrates that an effective economy is possible beyond Earth's surface when we consider the resources available in near-Earth space. Our first audience is members of AAPG, American Institute of Mining, Metallurgical and Petroleum Engineers (AIME) and other professionals engaged in energy and resource development. As energy professionals, we are concerned on a daily basis with providing the necessary energy and minerals required for our growing world population and the increasing standard of living that comes with ample energy availability. And more than anything else, AAPG members are explorers. We are the professionals who have pushed back the boundaries of our resource base, from capturing petroleum resources from surface seeps, to drilling onshore wells to extract oil and gas, and to venturing offshore into increasingly difficult and hostile environments to supply the cheap and abundant energy made available by our advances in technology. There are more similarities than differences between deepwater exploration and development, and space exploration. Beyond our own members, however, our audience is every rational human being who understands human health and well-being, quality of life, education and freedom are dependent on the energy and minerals that support our advanced civilization. Space is the next frontier, and as the world civilization expands beyond Earth's surface we hope this publication serves to illustrate there are abundant opportunities to support and maintain - and in fact, allow to prosper - civilization's expansion into space. -- Publisher's website.

This book explores the concepts of data mining and data warehousing, a promising and flourishing frontier in data base systems and new data base applications and is also designed to give a broad, yet in-depth overview of the field of data mining. Data mining is a multidisciplinary field, drawing work from areas including database technology, AI, machine learning, NN, statistics, pattern recognition, knowledge based systems, knowledge acquisition, information retrieval, high performance computing and data visualization. This book is intended for a wide audience of readers who are not necessarily experts in data warehousing and data mining, but are interested in receiving a general introduction to these areas and their many practical applications. Since data mining technology has become a hot topic not only among academic students but also for decision makers, it provides valuable hidden business and scientific intelligence from a large amount of historical data. It is also written for technical managers and executives as well as for technologists interested in learning about data mining.

Uranium industry occupies a very important place in the socio-economic sphere of East Singhbhum District of Jharkhand ever since its inception in 1967 it has played an important role in influencing health, education, crime, employment, income, migration & displacement and environment of the people of surrounding area. The industry has situated at Jaduguda, which falls under Mushabani and Potka Block of East Singhbhum District of Jharkhand. The socio-economic life of the people residing in and around this area has influenced by this in Jaduguda. The findings are based on a comparison of data on variables like health, education, crime, employment, income, migration & displacement and environment prior to inception of the mines and the situation at present time. It has observed that there has been positive impact on education employment and income. However, the study also observed there are certain negative linkages also. The important one is being deterioration of the health of the people, environmental degradation, and increasing rate of crime, migration & displacement. This study provides a means of identifying and tracking indicators associated with community vitality in Jaduguda communities that relate to the uranium mining industry including approaches that assess community health (physical, mental/emotional, spiritual/cultural, and social), community quality of life, community sustainable development, and community wellness as such, it has undertaken a broad array of studies since its inception, guided by input from community members from Jaduguda. As such, the purpose of the study is to identify the socio-economic linkages both beneficial and otherwise that the modern uranium mining industry has had on Jaduguda, and its residents and communities.

Sensitivity Analysis in Earth Observation Modeling highlights the state-of-the-art in ongoing research investigations and new applications of sensitivity analysis in earth
observation modeling. In this framework, original works concerned with the development or exploitation of diverse methods applied to different types of earth observation data or earth observation-based modeling approaches are included. An overview of sensitivity analysis methods and principles is provided first, followed by examples of applications and case studies of different sensitivity/uncertainty analysis implementation methods, covering the full spectrum of sensitivity analysis techniques, including operational products. Finally, the book outlines challenges and future prospects for implementation in earth observation modeling. Information provided in this book is of practical value to readers looking to understand the principles of sensitivity analysis in earth observation modeling, the level of scientific maturity in the field, and where the main limitations or challenges are in terms of improving our ability to implement such approaches in a wide range of applications. Readers will also be informed on the implementation of sensitivity/uncertainty analysis on operational products available at present, on global and continental scales. All of this information is vital in the selection process of the most appropriate sensitivity analysis method to implement. Outlines challenges and future prospects of sensitivity analysis implementation in earth observation modeling Provides readers with a roadmap for directing future efforts Includes case studies with applications from different regions around the globe, helping readers to explore strengths and weaknesses of the different methods in earth observation modeling Presents a step-by-step guide, providing the principles of each method followed by the application of variants, making the reference easy to use and follow

In the new edition of ENVIRONMENTAL SCIENCE, authors Tyler Miller and Scott Spoolman have partnered with the National Geographic Society to develop a text that will equip you with the inspiration and knowledge you need to make a difference solving today's environmental issues. Exclusive content highlights important work of National Geographic Explorers and Grantees and features over 180 new photos, maps, and illustrations that bring course concepts to life. Using this empowering book, you will learn how nature works, how you interact with it, and how you can use various scientific principles based on how nature has sustained life on the earth for billions of years to live more sustainably. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Naturally burning coal fires and those ignited by human activities receive little attention from the media compared to other environmental hazards, but their study is gaining ground. Here, the world's leading experts present their research findings covering topics such as the gases generated in underground coal fires, the origin of gas-vent minerals and land-cover changes due to coal fires.

A sustainable path to development has profound consequences for all economic activities and related policies. The mining industry, which provides input to almost every product and service in the world, is highly relevant to the goal of achieving sustainable development in mineral-rich countries and in the global economy. In addition, environmental sustainability is a critical concern for mining companies, whose growth is increasingly affected by climate change. Given the centrality of minerals and metals to our way of living, Building Resilience: A Green Growth Framework for Mobilizing Mining Investment investigates the extent to which the mining industry can contribute to green growth. Despite what ought to be a tight nexus of public and private interest in targeted green sector investment, this report finds that there is a misalignment between mining companies' investment in climate-sensitive production processes, and policy makers' efforts to develop a cohesive green economy framework for industry to navigate. The private and public sectors regard the climate agenda and the development of local economic opportunity as separate matters. Neither industry nor government have yet to effectively leverage their climate imperatives and mandates to seize green growth opportunities. To address this misalignment, this report proposes a framework to help mining companies and governments integrate climate change and local economic opportunity activities. Going further, the report offers examples of projects and policies that support green growth; particularly climate-related activities that create scalable economic value and invest in long-lasting green infrastructure. This report identifies 12 recommendations that can assist the municipality of Outokumpu and the region of North Karelia in Finland to become key players in the national mining strategy and attain sustainable economic growth by: focusing on mobilising the potential of the local mining value chain, diversifying and developing new sources of economic growth, and improving governance co-ordination. It is part of a project that is building a platform for knowledge sharing and co-operation on increasing productivity and enhancing the well-being of cities and regions with a specialisation in the mining and extractive sector (metals, minerals, and energy resources).

Introduction to Mineralogy and Petrology presents the essentials of both disciplines through an approach accessible to industry professionals, academic researchers, and students. Mineralogy and petrology stand as the backbone of the geosciences. Detailed knowledge of minerals and rocks and the process of formation and association are essential for practicing professionals and advanced students. This book is designed as an accessible, step-by-step guide to exploring, retaining, and implementing the core concepts of mineral and hydrocarbon exploration, mining, and extraction. Each topic is fully supported by working examples, diagrams and full-color images. The inclusion of petroleum, gas, metallic deposits and economic aspects enhance the book's value as a practical reference for mineralogy and petrology. Authored by two of the world's premier experts, this book is a must for any young professional, researcher, or student looking for a thorough and inclusive guide to mineralogy and petrology in a single source. Authored by two of the world's experts in mineralogy and petrology, who have more than 70 years of experience in research and instruction combined Addresses the full scope of the core concepts of mineralogy and petrology, including crystal structure, formation and grouping of minerals and soils, definition, origin, structure and classification of igneous, sedimentary and metamorphic rocks Features more than 150 figures, illustrations, and color photographs to vividly explore the fundamental principles of mineralogy and petrology Offers a holistic approach to both subjects, beginning with the formation of geologic structures followed by the hosting of mineral deposits and concluding with the exploration and extraction of lucrative, usable products to improve the health of global economies

Rare Earth Elements are a group of 17 metals which have a central role in modern industry, increasingly used in the fields of green technologies, high technological consumer goods, industrial and medical appliances and modern weapons systems. Although deposits of Rare Earths are globally dispersed, over 90% of global demand has been provided by Chinese mines since the
late 1990s, leading to a situation where China has a virtual monopoly. This book surveys the Rare Earths mining industry, discusses the extent to which Rare Earths really are scarce elsewhere in the world and assesses the economics of production, considering arguments for the rationing of supply, for higher pricing and for a total export embargo. This actually occurred in 2010, demonstrating the vulnerability of the rest of the world to China's control of these increasingly vital resources.

With the rapidly growing importance of sustainability and corporate responsibility in a globalised world, management schools are increasingly integrating long-term economic, environmental and social issues into their teaching and research. Climate change, poverty, labour standards and human rights are among the many topics that future decision-makers will need to face in their careers. Business education needs to reflect this new reality and provide a broadened understanding of value creation in order to create economic capital while developing social and preserving natural capital. Case studies can be important tools for creating learning processes on different levels - students are forced to struggle with exactly the kinds of decisions and dilemmas managers confront every day. In this reflection of reality, the values and goals of the student are systematically challenged. This can be especially valuable in the context of sustainability management - organisations are now continually forced to value the different aspects of sustainability and their interrelations: How do social issues impact the economic bottom line? How can an environmentally sound strategy create a positive impact on employee motivation and thus have measurable impact on economic performance? What comes first and why?

This third collection of oikos case studies is based on the winning cases from the 2010 to 2013 annual case competition. So what makes an excellent case in sustainability management? These cases have been highly praised because they provide excellent learning opportunities, tell engaging stories, deal with recent situations, include quotations from key actors, are thought-provoking and controversial, require decision-making and provide clear take-aways. These cases are clustered in three different sections: ”Large Corporations and Corporate Sustainability Dilemmas”, ”Managing Stakeholder Relations” and ”Sustainability as a Source of Differentiation Strategies”. Case Studies in Sustainability Management will be an essential purchase for educators and is likely to be a widely used as a course textbook at all levels of management education. Online Teaching Notes to accompany each chapter are available on request with the purchase of the book.

This book applies system theory to analyze the operation and structure of the complex earth surface system, including the interactions between society and nature that cause environmental degradation and threats to human populations. The possible ways to harmonize the operation of a global society as a complex system using the United Nation sustainable development goals are investigated, as well as the major efforts currently implemented to achieve this objective and why many are unsuccessful. Readers will learn this material through case studies that assess the essential conditions required to occupy a planet sustainably, and examine the complex interactions between society and nature in the atmosphere, hydrosphere, biosphere, and outer layers of the lithosphere. The book is written for undergraduate students in geography, earth sciences, environmental sciences, and ecology, and will also appeal to environmental agency employees, nature protection representatives, teachers, and researchers.

Case Studies in Sustainability ManagementThe oikos collectionRoutledge

This landmark publication distills the body of knowledge that characterizes mineral processing and extractive metallurgy as disciplinary fields. It will inspire and inform current and future generations of miners and metallurgy professionals. Mineral processing and extractive metallurgy are atypical disciplines, requiring a combination of knowledge, experience, and art. Investing in this trove of valuable information is a must for all those involved in the industry—students, engineers, mill managers, and operators. More than 192 internationally recognized experts have contributed to the handbook’s 128 thought-provoking chapters that examine nearly every aspect of mineral processing and extractive metallurgy. This inclusive reference addresses the magnitude of traditional industry topics and also addresses the new technologies and important cultural and social issues that are important today. Contents Mineral Characterization and AnalysisManagement and ReportingComminutionClassification and WashingTransport and StoragePhysical SeparationsFlotationSolid and Liquid SeparationDisposalHydrometallurgyPyrometallurgyProcessing of Selected Metals, Minerals, and Materials


Life Cycle Assessment for Sustainable Mining addresses sustainable mining issues based on life cycle assessment, providing a thorough guide to implementing LCAs using sustainability metrics. The book details current research on LCA methodologies related to mining, their outcomes, and how to relate sustainable mining concepts in a circular economy. It is an in-depth, foundational reference for developing ideas for technological advancement through designing reduced-emission mining equipment or processes. It includes literature reviews and theoretical concepts of life cycle assessments applied in mining industries, sustainability metrics and problems related to mining and mineral processing industries identified by the life cycle assessment results. This book will aid researchers, students and academics in the field of environmental science, mining
engineering and sustainability to see LCA technology outcomes which would be useful for the future development of environmentally-friendly mining processes. Details state-of-the-art life cycle assessment theory and practices applied in the mining and mineral processing industries. Includes in-depth, practical case studies outlined with life cycle assessment results to show future pathways for sustainability enhancement. Provides fundamental knowledge on how to measure sustainability metrics using life cycle assessment in mining industries.

The ongoing population growth is resulting in rapid urbanization, new infrastructure development and increasing demand for the Earth's natural resources (e.g., water, oil/gas, minerals). This, together with the current climate change and increasing impact of natural hazards, imply that the engineering geology profession is called upon to respond to new challenges. It is recognized that these challenges are particularly relevant in the developing and newly industrialized regions. The idea beyond this volume is to highlight the role of engineering geology and geological engineering in fostering sustainable use of the Earth's resources, smart urbanization and infrastructure protection from geohazards. We selected 19 contributions from across the globe (16 countries, five continents), which cover a wide spectrum of applied interdisciplinary and multidisciplinary research, from geology to engineering. By illustrating a series of practical case studies, the volume offers a rather unique opportunity to share the experiences of engineering geologists and geological engineers who tackle complex problems working in different environmental and social settings. The specific topics addressed by the authors of chapters included in the volume are the following: pre-design site investigations; physical and mechanical properties of engineering soils; novel, affordable sensing technologies for long-term geotechnical monitoring of engineering structures; slope stability assessments and monitoring in active open-cut mines; control of environmental impacts and hazards posed by abandoned coal mines; assessment of and protection from geohazards (landslides, ground fracturing, coastal erosion); applications of geophysical surveying to investigate active faults and ground instability; numerical modeling of seabed deformations related to active faulting; deep geological repositories and waste disposal; aquifer assessment based on the integrated hydrogeological and geophysical investigation; use of remote sensing and GIS tools for the detection of environmental hazards and mapping of surface geology.

This volume is part of the proceedings of the 1st GeoMEast International Congress and Exhibition on Sustainable Civil Infrastructures, Egypt 2017.

This book contains substantially extended and revised versions of the best papers from the 12th International Conference on Enterprise Information Systems (ICEIS 2010), held in Funchal, Madeira, Portugal, June 8-12, 2010. Two invited papers are presented together with 39 contributions, which were carefully reviewed and selected from 62 full papers presented at the conference (out of 448 submissions). They reflect state-of-the-art research work that is often driven by real-world applications, thus successfully relating the academic with the industrial community. The topics covered are: databases and information systems integration, artificial intelligence and decision support systems, information systems analysis and specification, software agents and internet computing, and human-computer interaction.

Mining Can Be Environmentally and Socially Responsible—still Profitable. In this regulated, environmentally aware world, running a mine can be done safely, with combined goals of maximizing both the return on investment from extraction and the positive environmental and social impact that a well-run, responsible mine can offer.

Responsible Mining is your comprehensive guide to addressing social and environmental risks at mines in the developed world. This book gathers case studies of best practices across the full range of issues. With examples from four continents, you can learn from both your home territory and around the world. Seventy-two leading mine engineers, forestry scientists, conservationists, environmental consultants, sustainability professionals, and geologists from prominent universities, extraction businesses, nongovernmental organizations, and governments have come together within these pages to lead you safely and profitably toward socially, environmentally, and economically beneficial mining practices. Organized around ten sustainability principles required of International Council on Mining and Metals members (including some of the largest extraction businesses in the world), the book addresses nearly every environmental and social consequence of mining in developed countries, including: Protecting biodiversity · Minimizing negative impacts on climate change · Interacting appropriately with indigenous peoples · Enhancing the local community and reducing poverty · Reusing and recycling materials · Recovering energy · Recapturing and reusing water · Managing proper storage, reclamation, and disposal of tailings · Restoring the land after ceasing mining operations You will want to make this book required reading for all members of your team who are responsible for environmental compliance, resource recovery, sustainability, energy management, and marketing/public relations to facilitate cross-departmental discussions about how to incorporate best practices into your business plans.

In the new edition of LIVING IN THE ENVIRONMENT, authors Tyler Miller and Scott Spoolman continue to work with the National Geographic Society in developing a text designed to equip students with the inspiration and knowledge they need to make a difference in solving today's environmental issues. Using sustainability as the integrating theme, LIVING IN THE ENVIRONMENT, 19th Edition, provides clear introductions to the multiple environmental problems that we face and balanced discussions to evaluate potential solutions. New Core Case Studies for 11 of the book's 25 chapters bring important real-world stories to the forefront; new questions added to the captions of figures that involve data graphs give students additional practice evaluating data; and a new focus on learning from nature includes coverage of principles and applications of biomimicry in most chapters. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.
Read Online New Earth Mining Case Analysis


The Office of Industrial Technologies (OIT) of the U. S. Department of Energy commissioned the National Research Council (NRC) to undertake a study on required technologies for the Mining Industries of the Future Program to complement information provided to the program by the National Mining Association. Subsequently, the National Institute for Occupational Safety and Health also became a sponsor of this study, and the Statement of Task was expanded to include health and safety. The overall objectives of this study are: (a) to review available information on the U.S. mining industry; (b) to identify critical research and development needs related to the exploration, mining, and processing of coal, minerals, and metals; and (c) to examine the federal contribution to research and development in mining processes.

This book focuses on the connections between mining activities, knowledge politics and the valuation of landscape in selected case sites in Russia, Greenland and Norway, whilst considering the interrelated aspects of industrialized, natural resource based development and environmental concerns in the Arctic. The case studies in these three different countries reveals that there are indeed multiple ‘Arctics’ – not least concerning the way extractive industries are received and perceived – and that national legislation, public awareness and economic alternatives are amongst the variables that influence to what extent environmental ramifications of mining are accepted. Through analysis of political discourses, legal documents, grey literature, discussions in local and national media and empirical material from in-site fieldwork, the authors seek to understand how debates about mining reveal more general conflicts and concerns about how to define sustainability.

The book contributes to the overall debates on both extractive industries and development trends in the Arctic, and will as such be of interest for both established scholars and students – as well as policy makers and the public. The compilation of cases and variety of analytical perspectives will further stimulate the ongoing debates concerning the impacts of extractive industries on communities – both in the Arctic and beyond.

Read what industry thought leaders are saying about research and advancements in ground control science. The International Conference on Ground Control in Mining has a rich history of advancing ground control techniques and knowledge. It provides a unique platform for researchers, regulators, consultants, manufacturers, and mine operators to present and exchange challenging industry topics as well as to expedite solutions to ground control problems that require immediate attention. This proceedings from the 38th International Conference is no exception. It includes 43 peer-reviewed research papers from industry experts covering topics of importance for today and the future.

Geographic information systems (GISs) have played a vital role in Earth sciences by providing a powerful means of observing the world and various tools for solving complex problems. The scientific community has used GISs to reveal fascinating details about the Earth and other planets. This book on recent advances in GIS for Earth sciences includes 12 publications from esteemed research groups worldwide. The research and review papers in this book belong to the following broad categories: Earth science informatics (geoinformatics), mining, hydrology, natural hazards, and society.

Understanding future supply and demand of raw materials and the associated environmental and social implications is essential to supporting the transition towards greenhouse gas neutrality by 2050. In this Special Issue, we present a range of research papers with a focus on future outlooks of material supply and use, the consideration of associated environmental and social implications, and issues of raw material criticality and a circular economy. These are complemented by an editorial paper that provides, amongst other aspects, an overview of the corresponding policy and institutional framework. Knowledge of materials availability, their use patterns in modern economies, and associated environmental and social trade-offs is essential for informed decision-making in support of the necessary transition towards more resource-efficient and greenhouse-gas-neutral societies in the coming years.

Phytorestoration of Abandoned Mining and Oil Drilling Sites presents case studies and the latest research on the most effective methods to address the large amounts of waste materials released due to mining and oil drilling. In particular, phytoremediation is described as a novel, eco-friendly, cost-effective method for extracting toxic compounds by plants for the restoration of contaminated sites. Plantings on these contaminated areas lead to the removal of toxic substances such as heavy metals and hydrocarbons, improvement in the physiochemical and biological properties of the soil, long-term forest ecosystem rehabilitation, restoration of ecosystem productivity, stability and biological diversity, and reductions in CO2. Utilizing worldwide examples, this book discusses the potential of phytoremediation as an ideal solution for sites contaminated by mining and oil drilling sites. Includes exploration of efficient plants for restoring contaminated former mining and oil drilling sites Addresses adverse impacts of toxicants released from mining activities on living organisms, including human health Presents characteristics of contaminated former mining and oil drilling sites

It is now nearly 25 years since the first textbook on geostatistics (“Traité de géostatistique appliquée” by G. Matheron) appeared in print in 1962. In that time geostatistics has grown from an arcane theory regarded with scepticism by statisticians and miners alike, to a reputable scientific discipline which is routinely used in the geosciences. In the mining industry, in particularly, comparisons between predicted reserve estimates and actual production figures have proved its worth. Few now doubt its usefulness as a statistical tool in the earth sciences. Over the past quarter of a century, many geostatistical case studies have been published but the vast majority of these are routine applications of kriging. Our objective with this volume is to present a series of innovative applications of geostatistics. These range from a careful variographic analysis on uranium data, through detailed studies on geologically complex deposits right up to the latest nonlinear methods applied to deposits with highly skew data distributions. Applications of new techniques such as the external drift method for combining well data with seismic information have also been included. Throughout the volume the accent has been put on how to apply geostatistics in practice. Notation has been kept to a minimum and mathematical details have been
relegated to annexes. We hope that this will encourage readers to put the more sophisticated techniques into practice in their own fields.

This book addresses most of the environmental impacts of sand mining from small rivers. The problems and solutions addressed in this book are applicable to all rivers that drain through densely populated tropical coasts undergoing rapid economic growth. Many rivers in the world are drastically being altered to levels often beyond their natural resilience capability. Among the different types of human interventions, mining of sand and gravel is the most disastrous one, as the activity threatens the very existence of river ecosystem. A better understanding of sand budget is necessary if the problems of river and coastal environments are to be solved.

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