

13th International Symposium on Environmental Issues and Waste Management in Energy and Mineral Production

(SWEMP 2012)

**New Delhi, India
28-30 November 2012**

Editors:

Hao Ge	Maria Menegaki
Carmen Mihaela Neculita	Anil Mehrotra

ISBN: 978-1-62993-279-8

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2012) by the Reading Matrix Inc.
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact the Reading Matrix Inc.
at the address below.

Reading Matrix Inc.
c/o Dr. Raj Singhal
PBX 68002/Crowfoot Post Outlet
28 Crowfoot Terrace NW
Calgary AB T3G 1YO Canada

editors@readingmatrix.com

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Geothermal Heat Recovery from Mine Water in Active Mines; Example of Thompson, Canada	1
<i>Farzaan Abbasy, Faramaz P. Hassani, Katarina Koufos, Seyed Ali Ghoreishi Madiseh</i>	
Hydraulic Conductivity of Tailings Sand Used for Dam Construction at Aitik Mine in Sweden	12
<i>Aymiro Abitew, Amin Zeinali, Sven Knutsson</i>	
Cross-wind Numerical Diffusion Related Issues: Ground Water Flow and Contaminant Transport in Porous Soil Media	25
<i>Punit Arora, Vivek Bhasin, K. K. Vaze</i>	
Drill-and-Blast Tunneling in Very Sensitive Areas: Assessing the Din 4150-3 Standard's Performance	33
<i>A. Benardos, D. Kalampakos, D. Mavromichalis</i>	
Mineral Carbonation – A Mining Opportunity for Large Scale CO₂ Storage	44
<i>G. F. Brent</i>	
Use of Waste Plastic and Tires Into Coke and Charcoal Blast Furnaces	51
<i>K. O. Calixto, A. M. A. Campos, C. F. C De Assis, P. S. Assis</i>	
Effect of Amendments on Multi-metal Extraction by Andrographis Paniculata from Iron Ore Tailings	62
<i>N. Chaturvedi, N. K. Dhal</i>	
The Evolution of Coal Mine Waste Management Practices in Western Canada	77
<i>Fred Claridge, Wes Funk, Lee Martin</i>	
Occupational Exposure to Airborne Dust in Mine Reclamation	87
<i>V. Dentoni, G. Massacci, L. Piras</i>	
Bioassay Study of Trichloroethylene (TCE) Toxicity on Daphnia Magna After Photolysis and Ultrasound Processes.....	94
<i>Sina Dobaradaran, Dariush Ranjbar Vakil Abadi, Rahim Tahmasebi</i>	
Enhancing Environmental Sustainability in the Building Industry: The Re-use of Natural Stone Waste	104
<i>C. Furcas, G. Balletto</i>	
Environmental Issues with Best Management Practices in Energy and Mineral Production.....	116
<i>Gurdeep Singh</i>	
The Use of Power Industry Wastes for Mineral Sequestration as a Method of CO₂ Emissions Reduction in the Energy Sector	131
<i>Lidia Gawlik, Alicja Uliasz-Bochenczyk, Eugeniusz Mokrzycki</i>	
Using an Expert System Approach to Identify Alternative Solutions to Environmental Degradation Caused by Artisanal Small-Scale Mining	139
<i>E. Griessl, C. Drebendstedt</i>	
Economic Feasibility and Sensitivity Analysis of Integrating Industrial-Scale Mineral Carbonation into Mining Operations	147
<i>Michael Hitch, G. M. Dipple</i>	
Review and Prospect of Subsidence Land Reclamation in China Coal Mining Areas.....	167
<i>Zhenqi Hu, Wu Xiao</i>	
Application of Chain Conveyor Cutter (CCC) to Landfill Construction and Reinforcement	175
<i>S. Ikuta, Y. Masuda, K. Matsui, H. Shimada, T. Sasaoka</i>	
Arsenic Removal from Ground Water – A Low Cost Filter Media.....	187
<i>Shailesh Kumar Jha, Yashvi Agrawal</i>	
Selection of Mining Equipment for Use in Indian Mines Based on Their Vibration Hazard Potential.....	193
<i>B. B. Mandal, P. K. Sishodiya</i>	
Feasibility Study of a Deep Geological Repository for High Level Radioactive Waste (HLW) in Central Australia	203
<i>N. Melkoumian, C. Xu, M. Karakus, P. Cox, R. I'Anson, J. Stojakovich, O. Ciancio</i>	
Underground Mine Run-Off Water Treatment at Pongkor Gold Mine	214
<i>Muhidin, Setia Hendrawan</i>	
Modeling of Multi – Ion Transport in Cementitious Materials Coupled with Surface Complexation and Phase Equilibrium Reactions	222
<i>Toyoharu Nawa</i>	
Chemical Considerations in the Thermal Desorption Remediation of Soils	233
<i>Darryl R. Nelson, S. N. Platts</i>	
Evaluation of Methods used to Reduce Leaching of Harmful Substances from Residual Fly Ash Fraction after Washing	243
<i>Désirée Nordmark, Anders Lagerkvist, Elisabet Lindgren, Maria Vamling</i>	

Impact of Coal Mining on Water Resources and Environment in Meghalaya.....	252
<i>O. P. Singh</i>	
Evaluation of the Influence of Drilling in the Lifetime of a Blast Furnace	261
<i>J. A. R. Pasqual, J. G. Drury, P. S. Assis</i>	
Removal of Heavy Metals from Acid Mine Water Using Fly Ash and Fly Ash Zeolite	271
<i>Bablu Prasad, B. K. Tewary</i>	
Risk Analysis of Mine Closure Considering Sustainable Planning	282
<i>M. Rahmanpour, M. Osanloo</i>	
Mine Rehabilitation Monitoring Using a High-Resolution Satellite Image	293
<i>S. Raval, D. Laurence</i>	
Soil and Groundwater Contamination – An Overview of South African Law Development.....	305
<i>S. Redelinghuys</i>	
An Analysis of the History of Water Elements in the Landscape, with a View to Minimizing Radioactive Contamination Risks	319
<i>S. Semerádová, J. Skaloš, E. Pecharová</i>	
Micro and Nanoscale Iron for the Remediation of Contaminated Aquifers: Transport Tests and Modeling.....	326
<i>R. Sethi, T. Tosco, F. Gastone, B. Stekkova</i>	
Environmental Impacts of Coal Fired Electricity Generation in India: Using LCA As a Tool	332
<i>B. Shah, S. Unnikrishnan, N. Naik</i>	
Practical Environmental Protection in Central German Lignite Mining New Methods for the Determination of Geogenic Acid Mine Drainage and Buffering Potentials and Applications in Mining Operation.....	343
<i>A. Simon, N. Hoth, C. Drebendstedt, J. Rascher, P. Jolas</i>	
Sustainable Development and Coal: Economical and Balanced Energy Preference for Developing Country.....	354
<i>Sanjay Kumar Singh, Vijay Prakash Singh</i>	
Which Habitats Adopted for Post-mining Landscape Rehabilitation Are Preferred from Visual Point of View?	366
<i>Petr Sklenicka, Kristina Molnarova</i>	
Relationship of Fluoride with Some Inorganic Constituents in Groundwater Villages of Dashtestan, Iran	384
<i>Rahim Tahmasebi, Sina Dobaradaran, Dariush Ranjbar Vakil Abadi</i>	
Several Abandoned Mine Land Reclamation Applications in Turkey.....	389
<i>M. Tombul, S. Kulaksiz</i>	
Kinetic And Degradation Efficiency Of Trichloroethylene (TCE) From Contaminated Water By Photochemical Process	397
<i>Dariush Ranjbar Vakilabadi, Sina Dobaradaran, Rahim Tahmasebi</i>	
The Northern Territory's Uranium Industry: Past, Present and Future	412
<i>Peter Waggitt</i>	
Porous Carbon Materials Made of Rice Hulls.....	422
<i>S. Yefremova, Yu. Sukharnikov, L. Bunchuk, K. Anarbekov, A. Terlikbayeva, A. Zharmenov</i>	
Assessment of Australian Iron Ore Resources: Production Trends, Sustainability Issues and Future Prospects.....	433
<i>Mohan Yellishetty, Gavin M. Mudd, Leah Mason, Damien Giurco, Steve Mohr, Timothy Prior</i>	
3D Finite Element Analyses of a Corner at Aitik Tailings Dam in Sweden	444
<i>M. A. Zardari, H. Mattsson, S. Knutsson</i>	
Towards Sustainable Waste and Water Management: Sulphide Resources	454
<i>B. K. C. Chan, A. W. L. Dudeney, J. L. Huisman</i>	
Performance Evaluation of fly ash Composite Material in Mine Haul Road	475
<i>Soumya Ranjan Mallick, Manoj K. Mishra, Kalpataru T. Parida</i>	
Functional Changes in the Landscape of Sokolov (1842 and 2010)	487
<i>E. Pecharová, I. Kašparová, J. Skaloš, T. Sedmidubský</i>	
360 Degree Approach in Mining Industry with Special Reference to Carbon Balancing.....	493
<i>Binay Dayal, Anurag Tiwari, Kushagra Vashishth</i>	
Author Index	