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
Carmen Mihaela Neculita

Maria Menegaki
Anil Mehrotra

ISBN: 978-1-62993-279-8
# TABLE OF CONTENTS

- Geothermal Heat Recovery from Mine Water in Active Mines; Example of Thompson, Canada ................................................................. 1
  Farzana Abbasy, Faramarz P. Hassani, Katarina Kofos, Seyed Ali Ghooreishi Madiseh

- Hydraulic Conductivity of Tailings Sand Used for Dam Construction at Aitik Mine in Sweden ............................................................... 12
  Aymiro Abiteb, Amin Zeinali, Sven Knutsen

  Désirée Nordmark, Anders Lagerkvist, Elisabet Lindgren, Maria Vamling

- Drill-and-Blast Tunneling in Very Sensitive Areas: Assessing the Din 4150-3 Standard’s Performance .......................................................... 33
  A. Benardos, D. Kaliampakos, D. Mavromichalis

- Mineral Carbonation – A Mining Opportunity for Large Scale CO₂ Storage ................................................................. 44
  G. F. Brent

- Use of Waste Plastic and Tires Into Coke and Charcoal Blast Furnaces ........................................................................................................... 51

- Effect of Amendments on Multi-metal Extraction by Andrographis Paniculata from Iron Ore Tailings .............................................................. 62
  N. Chaturvedi, N. K. Dhal

- The Evolution of Coal Mine Waste Management Practices in Western Canada ................................................................. 77
  Fred Clarke, Wex Foonk, Lee Martin

- Occupational Exposure to Airborne Dust in Mine Reclamation ...................................................................................................................... 87
  V. Dentoni, G. Massacci, L. Piras

- Bioassay Study of Trichloroethylene (TCE) Toxicity on Daphnia Magna After Photolysis and Ultrasound Processes ........................................... 94
  Sina Dobaradaran, Dariusch Ranjbar Vakil Abadi, Rahim Tahmasebi

- Enhancing Environmental Sustainability in the Building Industry: The Re-use of Natural Stone Waste .......................................................... 104
  C. Furcas, G. Balletto

  Gardeep Singh

- The Use of Power Industry Wastes for Mineral Sequestration as a Method of CO₂ Emissions Reduction in the Energy Sector ............................ 131
  Lidia Gawlik, Alicja Uliasz-Bohenczyn, Eugeniusz Mokrzycki

- Using an Expert System Approach to Identify Alternative Solutions to Environmental Degradation Caused by Artisanal Small-Scale Mining ............................................................. 139
  E. Griessl, C. Drebenstedt

- Economic Feasibility and Sensitivity Analysis of Integrating Industrial-Scale Mineral Carbonation into Mining Operations ............................ 147
  Michael Hitch, G. M. Dipple

- Review and Prospect of Subsidence Land Reclamation in China Coal Mining Areas ................................................................. 167
  Zhenggu Hu, Wu Xiao

- Application of Chain Conveyor Cutter (CCC) to Landfill Construction and Reinforcement ................................................................. 175
  S. Ikuta, Y. Masuda, K. Matsui, H. Shimada, T. Sasaoka

- Arsenic Removal from Ground Water – A Low Cost Filter Media ........................................................................................................... 187
  Shailesh Kumar Jha, Yashvi Agrawal

- Selection of Mining Equipment for Use in Indian Mines Based on Their Vibration Hazard Potential ............................................................. 193
  B. B. Mandal, P. K. Sishodiya

- Feasibility Study of a Deep Geological Repository for High Level Radioactive Waste (HLW) in Central Australia .................................................. 203
  N. Melkouman, C. Xu, M. Karakas, P. Cox, R. F’Anson, J. Stojakovich, O. Ciancio

- Underground Mine Run-Off Water Treatment at Pongkor Gold Mine ................................................................................................. 214
  Mahidin, Setia Hendrawan

- Modeling of Multi – Ion Transport in Cementitious Materials Coupled with Surface Complexation and Phase Equilibrium Reactions ....................... 222
  Toyosharu Nawa

- Chemical Considerations in the Thermal Desorption Remediation of Soils ............................................................................................. 233
  Darrel R. Nelson, S. N. Piats

- Evaluation of Methods used to Reduce Leaching of Harmful Substances from Residual Fly Ash Fraction after Washing ........................................... 243
  Désirée Nordmark, Anders Lagerkvist, Elisabet Lindgren, Maria Vamling
Impact of Coal Mining on Water Resources and Environment in Meghalaya
O. P. Singh

Evaluation of the Influence of Drilling in the Lifetime of a Blast Furnace
J. A. R. Pasqual, J. G. Drury, P. S. Assis

Removal of Heavy Metals from Acid Mine Water Using Fly Ash and Fly Ash Zeolite
Babli Prasad, B. K. Tewary

Risk Analysis of Mine Closure Considering Sustainable Planning
M. Rahamanpour, M. Osanloo

Mine Rehabilitation Monitoring Using a High-Resolution Satellite Image
S. Raval, D. Laurence

Soil and Groundwater Contamination – An Overview of South African Law Development
S. Redelinghuys

An Analysis of the History of Water Elements in the Landscape, with a View to Minimizing Radioactive Contamination Risks
S. Semerádová, J. Škalová, E. Pecharová

Micro and Nanoscale Iron for the Remediation of Contaminated Aquifers: Transport Tests and Modeling
R. Sethi, T. Tosco, F. Gastone, B. Stekkova

Environmental Impacts of Coal Fired Electricity Generation in India: Using LCA As a Tool
B. Shah, S. Unnikrishnan, N. Naik

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
A. Simon, N. Hoth, C. Drebenstedt, J. Rascher, P. Jolas

Sustainable Development and Coal: Economical and Balanced Energy Preference for Developing Country
Sanjay Kumar Singh, Vijay Prakash Singh

Which Habitats Adopted for Post-mining Landscape Rehabilitation Are Preferred from Visual Point of View?
Petr Sklenicka, Kristina Molnarova

Relationship of Fluoride with Some Inorganic Constituents in Groundwater Villages of Dashtestan, Iran
Rahim Tahmasebi, Sina Dobaradaran, Dariush Ranjbar Vakil Abadi

Several Abandoned Mine Land Reclamation Applications in Turkey
M. Tombul, S. Kulaksiz

Kinetic And Degradation Efficiency Of Trichloroethylene (TCE) From Contaminated Water By Photochemical Process
Dariush Ranjbar Vakil Abadi, Sina Dobaradaran, Rahim Tahmasebi

The Northern Territory’s Uranium Industry: Past, Present and Future
Peter Waggitt

Porous Carbon Materials Made of Rice Hulls
S. Yefremova, Yu. Sukharnykov, L. Bunchuk, K. Anarbekov, A. Terlikbayeva, A. Zharmenov

Assessment of Australian Iron Ore Resources: Production Trends, Sustainability Issues and Future Prospects
Mohan Yellishetty, Gavin M. Mudd, Leah Mason, Damien Giurco, Steve Moir, Timothy Prior

3D Finite Element Analyses of a Corner at Aitik Tailings Dam in Sweden
M. A. Zardari, H. Mattsson, S. Knutsson

Towards Sustainable Waste and Water Management: Sulphide Resources
B. K. C. Chan, A. W. L. Dudeney, J. L. Huisman

Performance Evaluation of fly ash Composite Material in Mine Haul Road
Soumya Ranjan Mallick, Manoj K. Mishra, Kalpataru T. Parida

Functional Changes in the Landscape of Sokolov (1842 and 2010)
E. Pecharová, I. Kašparová, J. Škalová, T. Sedmidubský

360 Degree Approach in Mining Industry with Special Reference to Carbon Balancing
Binay Dayal, Anurag Tiwari, Kushagra Vashishth

Author Index