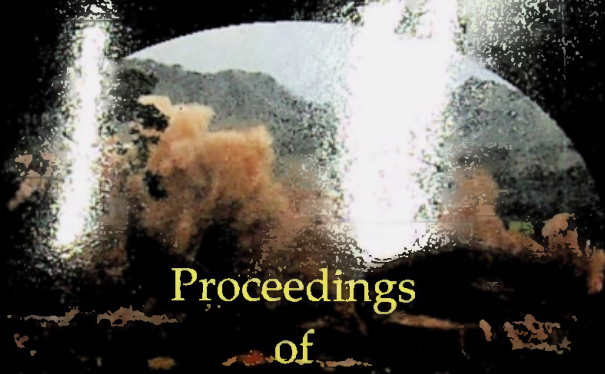




**ERE 2008**



Proceedings  
of  
3<sup>rd</sup> Annual Conference on  
“Mining for Sustainable Development”  
A Multi-disciplinary Approach



2008

Department of Earth Resources Engineering  
Faculty of Engineering  
University of Moratuwa

## **Proceedings of**

ERE 2008

3<sup>rd</sup> Annual Conference on Mining for Sustainable Development  
– A Multi-disciplinary Approach

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9<sup>th</sup> May 2008

Department of Earth Resources Engineering  
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University of Moratuwa  
Sri Lanka

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## WELCOME FROM THE CONFERENCE COORDINATOR

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"Sustainable Development... meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED, 1987, p.8).

It's a privilege to welcome you to the third annual conference organized by the Department of Earth Resources Engineering, University of Moratuwa, on the theme of "Mining for sustainable development".

Integration of economic, environmental, and social considerations into all decision making and fostering of intra-generational equity through the alleviation of poverty by concentrating the benefits of development in lesser developed areas have been identified as important aspects of sustainable development in any industry. It is high time, the mining industry in Sri Lanka take up this challenge and seriously pays attention to consider the needs of future generations when exploiting limited natural resources, so as to ensure that inter-generational equity exists.

We sincerely hope this conference will contribute towards the renewal of vision and give insight into the future of a sustainable mining industry in Sri Lanka to foster creative solutions for the 21<sup>st</sup> century. Further, we believe that this conference will provide a forum for identifying and exchanging ideas on current and potential future issues and developments in the wise use of mineral resources for a better tomorrow.

The of members of the editorial board of the conference proceedings and organizing committee deserve a special mention for their dedication and contribution to make this 3<sup>rd</sup> annual conference organized by the department a successes. This gathering would not have been possible without the assistance and determined efforts of our generous sponsors.

Dr. Shiromi Karunaratne

Conference Coordinator  
ERE 2008

9<sup>th</sup> May 2008

## MESSAGE FROM HEAD OF DEPARTMENT

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I am very pleased to provide a message to the Proceedings of the ERE 2008 - Third Annual Conference organized by the Department of Earth Resources Engineering, Faculty of Engineering, The University of Moratuwa with the generous sponsorship of World Bank funded project for Improvement of Relevance and Quality of Undergraduate Education (IRQUE), Maga Engineering Pte Ltd and Geological Survey and Mines Bureau (GSMB). The theme of the conference is "Mining for Sustainable Development - A Multi-Disciplinary Approach".

Minerals provide us with most of our material requirements for our lives on earth. Thus mining and mineral processing is a very important area for sustainable development and for exploration of new frontiers in technology. This Annual Conference on Mining for sustainable development organized by our Department is an attempt to focus attention on this very important topic, and create awareness among the industry, academia and policy-makers on this aspect. This volume of proceedings carries publications resulting from the research and project works of the departmental staff and students, concerning the fields of minerals and mining.

I wish to use this opportunity to present a brief overview about our Department. The Department presently offers a four-year full time degree course in Earth Resources Engineering. M.Sc., M.Phil and Ph.D degrees by research are also available for deserving graduates in collaboration with relevant industries. The key areas covered by the Earth Resources Engineering Degree course are Mineral Exploration, Mining Engineering, and Mineral Processing. The Department also offers two part time courses in Gemmology and Geology at certificate level.

The Department offers the industry and other external organizations many services, such as the designing and planning of underground mines and quarries and bulk material handling, designing of drilling and blasting operations, environmental impact assessments, site investigations, geological and engineering geological mapping, slope stability assessment, geophysical investigations for groundwater and minerals, resource management using RS & GIS, geological natural disaster management, designing of mineral processing plants, heat treatment and processing of precious stones, gem identification and valuation, and industrial waste water treatment.

Prof. U.G.A. Puswewala  
Head, Department of Earth Resources Engineering

9<sup>th</sup> May 2008



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Improvement of Relevance and Quality of  
Undergraduate Education  
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**CONFERENCE PROGRAM**

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- 9.00 – 9.30 Registration
- 9.30 – 9.40 Opening ceremony
- 9.40 – 9.45 Welcome address by the Head, Department of Earth Resources Engineering, University of Moratuwa
- 9.45 – 9.55 Address by the Dean, Faculty of Engineering, University of Moratuwa
- 9.55–10.05 Address by the Vice Chancellor, University of Moratuwa
- 10.05-10.40 Key note address - Captain MG Kularatne, Chairman, Maga Engineering Pte Ltd.  
(Topic - Mining for a better future; The future of the mining industry in Sri Lanka)
- 10.40- 11.00 Sponsor presentations
- 11.00- 11.15 Tea break

**Morning session**

**Session I - Theme - Advancements in the mining industry in Sri Lanka**

- 11.15- 11.30 **Designing an Underground Ventilation System and Fan Selection;**  
Authors - Widisinghe SD, Silva WJMPGS, Jayakody JASP, Konsal J, Rasika WGP, Welideniya HS and Ekanayake K
- 11.30- 11.45 **Development of a Methodology for Selection of Industrial Grade-A Quarry Site for Coarser and Finer Aggregates;**  
Authors - Maduranga HGS, Sinthuja S, Soundararajan P, Kumara MHCM, Amadoru T, Wimal MD and Abeyasinghe AMKB
- 11.45 – 12.00 **Tunnel Design for Fractured Rocks and Suitable Support Selection;**  
Authors - Senthilkumar M, Senadhira AMADM, Giriwaksan S, Welideniya HS and Dharmaratne PGR
- 12.00 – 12.15 **Design and Fabrication of Hydrocyclones Using Krebs Mathematical Model;**  
Authors - Hettiarachchi RNDS, Liyanaarachchi KR, Lokubalasooriya LBAM, Merza AAMIMA, Thinesh S and Fernando WLW
- 12.15 – 12.30 Discussion time
- 12.30 13.30 **LUNCH**



### Afternoon session

**Session II- Theme - In search of the true mineral processing potential in Sri Lanka; are we ready for the future challenges?**

**13.30 - 14.00 Fragmentation Modelling For an 'A' Grade Quarry;**  
Authors - Brahmanage IR, Thusharana SD, Wanniarachchi WAAC, Anjana PMN, Welideniya HS and Daharmarathne PGR

**14.00 - 14.15 Design and Fabrication of a Spiral Classifier for Off-shore Sand Washing;**

Authors - Udawatte NBB, Siriwardene HP, Samaratunga SPND, Udayanga WAC, Rupasinghe SN, Theeparuban B, and Fernando WLW

**14.15 - 14.30 Investigation of Salt Water Intrusion along the Bolgoda Estuary;**  
Authors - Jayamali KVSD, Wijayawardhana HMJT, Rajakaruna RMCM, Indika JPR, Rambukwella UDP and Ratnayake NP

14.30 - 14.45 Discussion time

14.45 - 15.00 EVENING TEA

### Evening Session

**Session III- Topic - Environmental considerations for a sustainable mining industry; Do we have to rethink?**

**15.00 - 15.15 Assessing different methods of salt removal techniques from Offshore Sand;**

Authors - Ilankoon IMSK, Jayarathne LGR, Karunanayake KDP, Thamilinpamalar N, Wimalarathna WMNJ, Vijitha AVP and Ratnayake NP

**15.15 -15.45 Feasibility Studies of a Constructed Wetland to Treat Contaminated Water;**

Authors - Weerasooriya UK, Dilrukshi RAN, Adikari AMHV, Rajeeth A, Achchuthan P and Karunarathne S

**15.45 - 16.00 Seasonal Changes and Coastal Erosion in the South Western Part of Sri Lanka;**

Authors - Subramaniam DN, Amarakoon GGNN, Gunathunga SGAS, Pathinayaka RC, Indeewara VGD, Vijitha AVP and Rathnayake NP

16.00 - 16.15 Discussion time

16.15 - 17.00 Closing Ceremony and vote of thanks

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