



University of
South Australia



Barbara Hardy
Institute

Mizanur Rahman

Research Profile

Research Area Specialisation

Mizanur's area of research is within soil mechanics and geotechnical engineering. He has developed fundamental mechanics for geotechnical design for use with problematic and unusual materials (e.g. sand with fines, tailings etc.). Mizanur also conducts research on the use of recycled construction and demolition (C&D) materials for pavement construction.

Contributing to a better and sustainable environment

Mizanur's contribution to the mechanics of soil stability analysis will led to easy and economical design for tailings storage. The fundamental characterisation of tailings (e.g. coal ash) will enable them to be used as major construction materials. The discrete element method and bio-cementation process will led to sustainable ground improvement practice and avoid the use of undesirable foreign materials and chemicals in the long term.

In the future Mizanur's research should develop a better understanding of engineering characterisation of tailing materials for constitutive modelling and non-commercial but user friendly soil tailing design software with built in probability concepts.



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*Great Research
into Sustainability*

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People

- Our researchers are scientists, engineers and social scientists
- We work collaboratively on real-world issues
- Over 100 researchers and 130 research students

Projects

- Multidisciplinary projects focused on sustainability
- We work in partnership with government, industry and academia
- Extensive testing and evaluation services and consultancy expertise
- Our work is underpinned by community participation and education

Research Abstract

Mizanur is researching many projects including: 1) Instability behaviour of natural ground slope; 2) Static liquefaction behaviour of coal tailings; 3) Application of Discrete Element Modelling (DEM) Micro Mechanical Analysis; 4) Automated and optimised geotechnical design; and 5) Use of re-cycled pavement material such as Recycled Concrete Aggregate (RCA) and Recycled Crushed Clay Masonry (RCM) as construction materials.

Research areas of interest

- Soil stability/liquefaction framework
- Innovative application of bio-engineering and nano-technology to improve waste materials
- Material parameters and probabilistic design

Barbara Hardy Institute

The Barbara Hardy Institute supports its members with workshops and individual assistance to submit funding applications.

Keywords to describe Mizanur's research

- Soil stability/liquefaction
- Waste materials
- Probabilistic design



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“The discrete element method and bio-cementation process will lead to a sustainable ground improvement practice.”