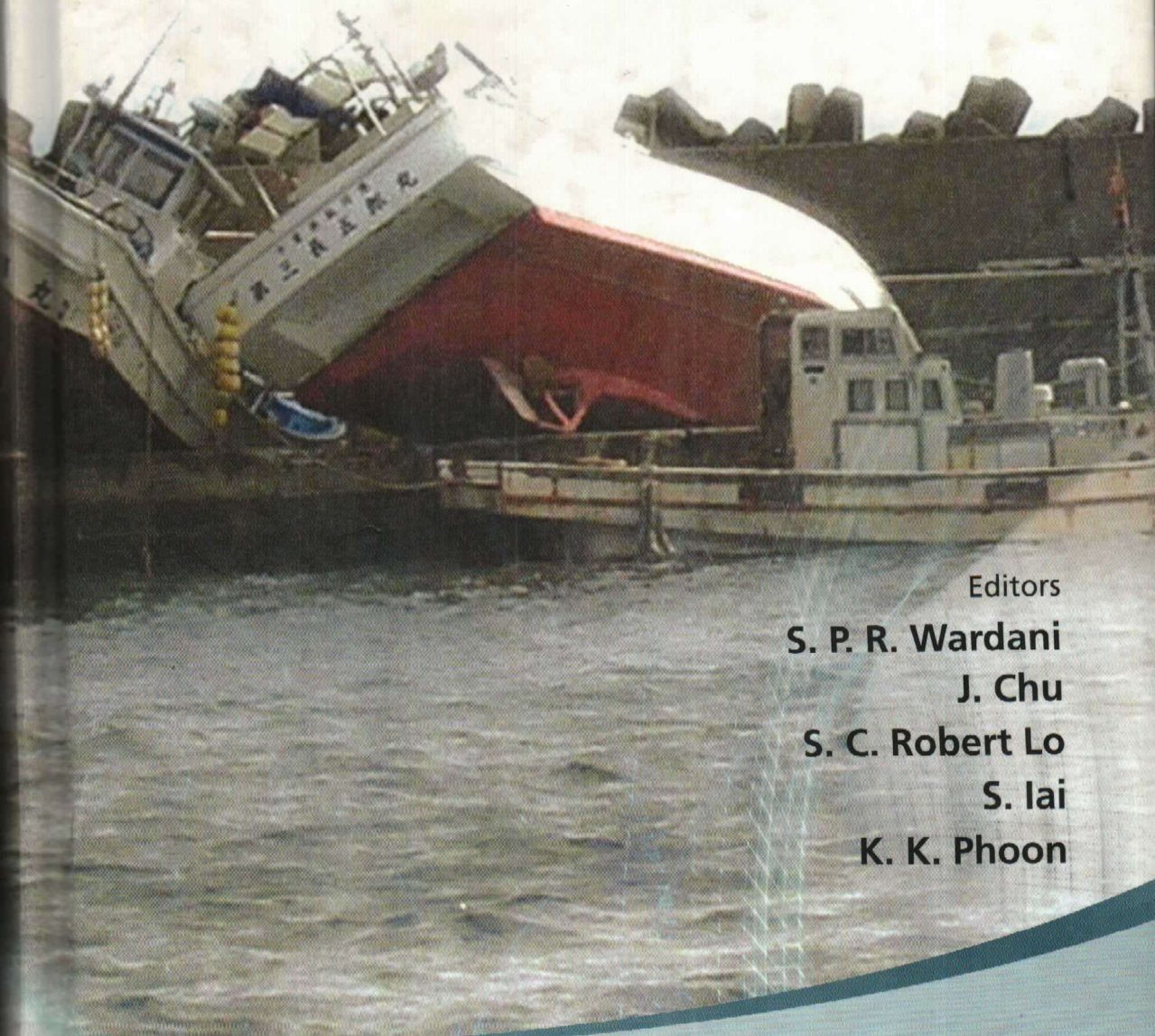


Proceedings of the 3rd International Conference on  
**Geotechnical Engineering for  
Disaster Mitigation and Rehabilitation 2011**

*combined with the 5th International Conference on*  
**Geotechnical and Highway Engineering  
– Practical Applications, Challenges and  
Opportunities**



Editors

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**Proceedings of the 3rd and 5th International Conference**

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## Preface

The Third International Conference on Geotechnical Engineering for Disaster Mitigation and Rehabilitation (3ICGEDMAR 2011) together with the Fifth International Conference on Geotechnical and Highway Engineering — Practical Applications, Challenges and Opportunities (5ICGHE) are held at the Gumaya Tower Hotel in Semarang, Indonesia, from 18 to 20 May 2011. This is the third conference in the GEDMAR conference series. The first was held in Singapore from 12 to 13 December 2005 and the second in Nanjing, China, from 30 May to 2 June 2008.

The conference is jointly organized by The Joint Working Group on Geotechnical Engineering for Disaster Mitigation and Rehabilitation (JWG-DMR), Diponegoro University, Indonesia, Ministry of Public Works of the Republic of Indonesia and Indonesian Road Development Association. This has been the fifth time for Semarang to host an international conference on geotechnical engineering since 2002. The conference is held under the auspices of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) Technical Committee TC-303: Coastal and River Disaster Mitigation and Rehabilitation, TC-203: Earthquake Geotechnical Engineering and Associated Problems, TC-302: Forensic Geotechnical Engineering, TC-304: Engineering Practice of Risk Assessment and Management, TC-213: Geotechnics of Soil Erosion, TC-202: Transportation Geotechnics, TC-211: Ground Improvement, Southeast Asian Geotechnical Society (SEAGS), Association of Geotechnical Societies in Southeast Asia (AGSSEA), and Road Engineering Association of Asia & Australasia (REAAA). The conference is also supported by other national and international organizations and universities.

The response for the call for abstracts for the 3ICGEDMAR & 5ICGHE was overwhelming. More than 150 abstracts were received. After a rigorous review process of both the abstracts and full papers, eventually over 89 papers from 25 countries and regions are accepted for publication in this proceedings. These papers have been categorized into sub themes as follows:

1. Case Studies on Recent Disasters
2. Soil Behaviours and Mechanisms for Hazard Analysis
3. Disaster Mitigation and Rehabilitation Techniques
4. Risk Analysis and Geohazard Assessment
5. Innovation Foundations for Rail, Highway, and Embankments
6. Slope Failures and Remedial Measures

The proceeding also includes 14 Keynote Lectures & 17 invited lectures written by internationally renowned experts. It is hope that this proceedings will be a useful source of reference to researchers and practitioners in the field of geotechnical and highway engineering, and other disaster related fields.

### *Editors*

S. P. R. Wardani,  
J. Chu,  
S. C. Robert Lo,  
S. Iai,  
K. K. Phoon

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