Geo-disasters in Relation with Climate Change: 
Student’s Perspective via a Course-embedded Project

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Abstract

The unresolved debate over the effect of climate change on the occurrence of geo-disasters has led to the relevance of incorporating the issue in geo-education today. To cultivate active learning, this was achieved with an embedded project in the engineering technology undergraduate course of Soil Mechanics and Foundations. The primary parameter examined was rainfall intensity. Students worked in groups to gather information, make careful judgment and identify links between rainfall intensity pattern over the years with localized landslide and flooding respectively. The students also conducted interviews with locals of the selected site for first-hand information and eye witness accounts. It was found that these geo-disasters were partially caused by a change in the rainfall pattern over the years, while other anthropogenic activities have also contributed to the recurring and seemingly worsening disasters. In conclusion, the project has effectively killed two birds with one stone: (1) identified the severity of climate change impact on geo-disaster occurrence in certain localities, and (2) engaged students (future engineers and technologists) in a scientific research exercise pertaining to a current issue very relevant to the course. From the education perspective, the undertaking has enabled students to hone their investigative skills in addressing a technical problem, encouraging them to adhere by their social responsibilities while performing their professional tasks.

Keywords 
engineering education, landslide, flooding, rainfall, climate change

Acknowledgements

The work described was funded by the Contract Research Grant (U022) by Universiti Tun Hussein Onn Malaysia.

Biography

Chee-Ming Chan is an Associate Professor with the Civil Engineering Technology Department, Faculty of Engineering Technology, Universiti Tun Hussein Onn Malaysia. She is presently holding the office of Deputy Dean
in Academic and Research at the Centre for Graduate Studies in the University. Her area of expertise includes sustainable geotechnical engineering solutions and geo-materials, engineering education and higher education improvement. More recently, Dr. Chan’s current work on dredged materials from Malaysian waters has gained momentum and support from the Ministry of Science, Technology and Innovation and Department of Marine, Malaysia. She is also involved in professional bodies, including the Society for Engineering Education Malaysia (SEEM), Malaysian Geosynthetics Society (MyIGS), Institution of Engineers Malaysia (IEM), Board of Engineers Malaysia (BEM), and is an education quality auditor for the Malaysian Qualification Agency (MQA). From 2009-11, Dr. Chan served as a Postdoctoral Research Fellow at the Port and Airport Research Institute (PARI), Japan.

**Alina Shamsuddin** is currently an Associate Professor (Technology Management) with the Faculty of Technology Management and Business of Universiti Tun Hussein Onn Malaysia. Being a founding member of her faculty, Dr. Alina is not only knowledgeable on the immediate related fields of performance measurement, production and management, she is also an expert on educational quality assessment and assurance, with 5-year experience as an auditor for the Malaysian Quality Agency (MQA). Her research concerns are myriad but inter-related, encompassing higher education quality assurance and reforms, effective teaching and learning, as well as innovative technology adoption for SMEs. Currently heading the Unit of New Programmes Development, Dr. Alina is consolidating her effort to make a difference in the quality of programme design and delivery in the overall higher educational arena, institutionally and nationally.

**Azeanita Suratkon** is currently a Senior Lecturer at the Faculty of Civil and Environmental Engineering, and leads the Department of Building and Construction Engineering. Dr. Azeanita had a multi-national education background: bachelor’s at UTM (Malaysia), Master’s at Herriot-Watt University (Scotland) and PhD at Chiba University (Japan). Her international exposure has given her the leverage for a multi-facet approach in her chosen field of study, which primarily revolves around construction management, risk assessment and procurement issues. Dr. Azeanita also aims to improve the current engineering education practice, in line with the nation’s Outcome-based Education philosophy, by drawing on her rich multi-discipline background. Her continuous effort in enriching construction management and higher educational reforms are driven forward in collaboration with Japanese counterparts too.