

Proposal of Model on Preventive Measures to Landslide Disaster Occurrences in Penang State, Malaysia

Mohamad Ghozali Hassan, Che Azlan Taib and Muslim Diekola Akanmu

School of Technology Management and Logistics
Northern University of Malaysia
06010, Sintok, Kedah, Malaysia

ghozali@uum.edu.my, c.azlan@uum.edu.my, adiekola@gmail.com

Ahmad Afif Ahmarofi

School of Quantitative Science
Northern University of Malaysia
06010, Sintok, Kedah Malaysia

afifphd@gmail.com

Abstract

Based on the frequently unanticipated occurrences of natural landslide disaster across Malaysia, it can be seen that Malaysia is still not fully prepared for occurrences of natural landslide disaster. The lack of predictive and warning systems for the disaster in the country is creating panic and apprehension among citizens alongside with both economic and property losses. The general objectives of this research are: to identify the meteorological factors that cause landslide natural disaster occurrences in Malaysia and to develop a predictive model for landslide disaster occurrence in Malaysia. This research therefore explored modelling disasters occurrences in order to predict, warn, and prevent huge impact of landslide disasters in Penang, Malaysia. This research shall make use of data from Malaysian Meteorological department considering climatic parameters such as daily mean temperature and daily rainfall only. Data mining and Artificial Neural Networks (ANN) shall be developed to predict landslide disaster occurrences in Malaysia. Thus, the need for a predictive model for occurrence of landslide natural disaster is imperative to the safety of lives and protection of both environmental and economy of the region.

Keywords

Landslide, Natural disaster, Artificial Neural Network, Malaysia, predictive model

Acknowledgements

We would like to express our gratitude to *Research and Innovation Management Centre (RIMC)*, Universiti Utara Malaysia (UUM) for giving us the opportunity to conduct this beneficial research through CoE Research Grant (S/O code 13734).

Biographies

Mohamad Ghozali Hassan is a Senior Lecturer at the School of Technology Management and Logistics, Universiti Utara Malaysia (UUM). His primary teaching interests is in technology and operation management. He has taught courses of this nature, both at the bachelor and master levels for the past 10 years. His main research interest is in the area of inter-organizational relations, antecedent factors of supplier-manufacturer relationship, outsourcing management, and environmental dynamism. Currently, he is the Principal of Residential Colleges at UUM. He is former Director of MSc Programme, OYA Graduate School of Business, UUM (2012-2013).

Che Azlan Taib is a Doctor of Philosophy in Quality Management from Northern University of Malaysia. Currently he is the Director of Disaster Management at Northern University of Malaysia. He also served as Deputy Director, Quality Management Institute, UUM for 3 years, and Associate Fellow at Testing Center, Measurement and Evaluation and Research Fellow at Testing Center for Technology and Logistics Management. In the respect of research activities, he has been a Head of Research in several research projects. He was appointed as a Research Fellow for the Technology & Supply Chain Excellence Institute (TeSCE), and Associate Fellows at the Testing, Measurement & Evaluation Center (CeTMA). He has experience in practicing ISO 9001-Quality Management System, QS 9000, AQL (Acceptance Quality Level), SPC (Statistical Quality Control), QCC (Quality Control Circle), Process Capability (CPK), Six Sigma, and problem solving.

Muslim Diekola Akanmu is a Doctoral Researcher at Universiti Utara Malaysia, Sintok, Kedah, Malaysia specializing in Technology, operations and logistics Management. He earned his Master's degree in Technology Management from Universiti Utara Malaysia and Bachelor of Technology (B.Tech) in Agricultural Engineering at Ladoke Akintola University of Technology, Ogbomosho, Nigeria. He has worked as Teacher and Administrator under National Youth Service Corps at Mary Immaculate grammar school, Ado-Ekiti, Ekiti State, Nigeria where he taught engineering aspects of Agricultural Science and assisted in administrative works from July, 2012 to June, 2013. He is a graduate member of Nigeria Society of Engineers. Currently, he has been assigned as research assistant at School of Technology Management and Logistic, UUM.

Ahmad Afif Ahmarofi is currently a fulltime PhD candidate with research interests in the Artificial Neural Networks and System Dynamics under sponsorship of Ministry of Higher Education (Malaysia) at Universiti Utara Malaysia (UUM). Mr. Ahmarofi holds M.Sc. in Decision Science from UUM and a Bachelor of Manufacturing Engineering from International Islamic University Malaysia. While doing his PhD, he is also appointed as a research assistant at School of Technology Management and Logistic, UUM. Mr. Ahmarofi has eight years' experience in industrial sector as a Production Control Planner with a well-known multinational manufacturer in audio speaker product.