

RAS Index as a Tool to Predict Sinkhole Failures in Limestone Formation Areas in Malaysia

Damanhuri Jamalludin

Samsuri Mohd Salleh

Ahmad Kamal Md. Issa

Mohd Farid Ahmad

Anas Ibrahim

Faculty of Civil Engineering

Universiti Teknologi MARA (UiTM), Malaysia

Email: daman466@ppinang.uitm.edu.my

Roslan Zainal Abidin

National Soil Erosion Research Centre

Universiti Teknologi MARA (UiTM), Shah Alam

ABSTRACT

Sinkhole is a costly recurring problem faced by many countries such as Malaysia especially within areas having limestone with underground cavities as the bedrock. In major sinkhole failures, economic losses or damages of properties and loss of lives occurred. In this study, the seven days rainfall data before a sinkhole failure occurred were taken and used to calculate the value of ROSE (after the name of researchers Roslan & Ezani) Index. Based on the ROSE Index Method, RAS (after the name of researchers Roslan, Ahmad Kamal, Damanhuri & Samsuri) classification of sinkhole failure risk index is established successfully. By using the RAS classification method, the prediction of sinkhole occurrences can easily be made by simply knowing the weekly rainfall especially in areas having limestone as the bedrock. The weekly rainfall data is required and RAS Index is then calculated and compared to give an indication to the public as well as the government agencies the likelihood on the degree of sinkhole occurrences on their land that can cause damage to their properties and loss of lives.

Keywords: *Sinkhole, rainfall intensity, RAS classification*

ISSN 1675-7939

© 2009 Universiti Teknologi MARA, Pulau Pinang and Universiti Teknologi MARA (UiTM), Malaysia.