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NEWSLETTER

I-GEO
IUKL Geo Disaster Research Centre

IGEO Disaster Research Centre
Infrastructure University Kuala Lumpur (IUKL)
VOL 1/2016

What's Inside

Seminar on Landslide Forecasting and Control Technology

Natural Disasters namely floods, landslides, tsunami, sinkholes and earthquake are very frequent this days and it brings immense loss to lives and property. The International Strategy for Disaster Reduction (ISDR) defines a disaster as a serious disruption of the functioning of a community or a society involving wide spread human, material, economic or environmental lossess and impact which exceeds the ability of the affected comunity or society.....

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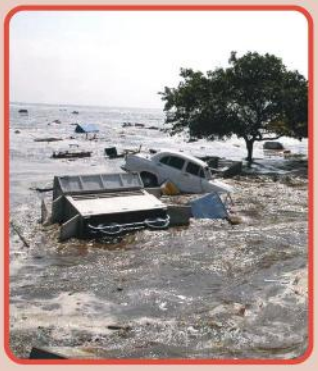

Seminar on Tsunami and Earthquake Risk in Malaysia

Most Malaysian would believe that this country is not prone to tsunami and earthquakes. But this is totally not true since the experts have different views based on their knowledge and research. One of the evidence is the occurrence of terrific attacked of tsunami on 26 December 2004 which affected northern coastal areas in Peninsular Malaysia and outlying islands like Langkawiand Penang. This natural disaster was caused by earthquake in the Indian .....

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"Earthquake Risk in Malaysia: Past, Present and Future"

Earthquake is one of the most devastating natural disasters on earth. Earthquake effects can cover hundreds of thousands of square kilometers; cause damage to structures or infrastructures facilities; result in loss of life and injury to hundreds of thousands of people; and disrupt the social and economic functioning of the affected area. Although it is impossible to prevent earthquake from occurring, it is possible to mitigate .....

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MESSAGE from DIRECTOR

IUKL Geo Disaster Research Center (I-GEO) was officially endorsed on December 23, 2013 by the Board of Governance, IUKL. The main task of this centre is to become the main reference centre in geo disaster research not only in Malaysia but to the world at large. From a small step to a giant leap, this centre has evolved from a few staaff members to 16 staff members till to this date and from an internal grant with a small amount of RM 2500 to a regional grant amounting to more than RM 75,000.

This centre has developed its niche expertise in geo disaster research since its establishment. The word "Geo" refers to the discipline knowledge of earth science. Thus, I-GEO has developed its expertise in landslides, erosion, flood, sedimentation, environmental disasters and many others which are related to earth science. Our nation has endured difficult times currently; from extreme climate to odd climate phenomenon. These changes have brought tremendous effect to earth surface and created various hazards such as landslide, flooding, tsunami, earthquake, erosion haze and many others. The main focus of this centre is to make predictions of those hazards and propose the real time monitoring approach which can benefit the government and policy makers in the future .

Besides research, the I-GEO Disaster research centre has undertaken many series of professional talks and seminars. Up to date, 6 seminar series and 2 professional talks have been organized from 2013 till 2015. The topics vary; from hazard prediction, assessment and mitigation. These series of seminars and talks have attracted more than 500 participants all over the county including Sabah and Sarawak. Such seminars, talks and hands-on courses will be conducted extensively this year onwards to offer service and share knowledge on hazard issues. At current, I-GEO has built linkages with various national and international agencies. These include the Humid Tropic Centre (HTC), Department of Irrigation and Drainage (DID), Malaysia, under the auspicious of UNESCO Jakarta and the International Research Training Centre on Erosion and Sedimentation (IRTCES), Beijing, China. These linkages provide avenues for researchers to apply for grants, promote their research and engage in collaboration with the relevant agencies both at national and international arena.

Prof. Dr. Roslan Zainal Abidin,
Director
I-GEO Disaster Research Centre
Infrastructure University Kuala Lumpur

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RESEARCH ASSOCIATES

SPECIAL TASK FORCE

I-GEO
DISASTER RESEARCH CENTRE

was established on
December 23, 2013

and parked under
Civil Engineering Department, Faculty of Engineering and Technology Infrastructure (FETI)

"I"
stand for
Infrastructure University Kuala Lumpur.

"GEO"
means discipline of study related to **solid earth** such as earth surface science, **geomorphology, hydrology** and **paleoclimate**.

Disaster refers to sudden event of **natural catastrophe** that cause great damage or loss of life such as **landslides, debris flow, flood, earthquake, tsunami and typhoon.**

I-GEO
IUKL Geo Disaster Research Centre

Designed by;
Architect Aimi Ramizah Roslan
Asas Reka Arkitek Sdn. Bhd.
Subang Jaya, Selangor, Malaysia

RED
Represent the
EAGER,
AGGRESIVENESS
and
EFFECTIVENESS
to innovate and invent for the benefit of mankind

WHITE
Represent the
EXCELLENCE
for research and
REFERENCE
in disaster research for the world in line with the IUKL vision and philosophy

PHILOSOPHY

I-GEO believes that available specialist and quality research undertaken will provide better future for the nation and enhance quality of life amid uncertainty of environmental turmoil.

MISSION

to be the world class authorized international disaster research centre of excellence for disaster prediction and prevention.

VISION

to produce competent professionals in disaster prediction and prevention who are capable of conducting consultancy and giving expertise advice to the nation.

OBJECTIVES

Act as a centre of reference in the research areas related to disaster prediction and prevention for the whole nation.

Bridging of research collaborations, conducting research and consultancy services related to disaster both nationally and internationally.

Producing new intelligence inventions, innovations, design, techniques and product capable in contributing to the development of nation and worldwide for the prosperous of mankind

TITLE	GRANTING AGENCY	AMOUNT (RM)	RESEARCH LEADER & MEMBER
Comparative Studies of Applying Ecohydrology and IWRM for Upscaling Water Security in Asia & Africa through UNESCO Category 2 Water Centre. (March 2016)	HTC, DID Malaysia	12,000 (ongoing)	Prof. Dr. Roslan Zainal Abidin Naimah Yusoff Mohd Sofiyan Sulaiman
A Novel Approach To Reuse Alum Sludge In Manufacturing Of Soil Erosion Protection Bricks/ Blocks And Building Materials Using Admixtures And Thermal Curing (August 2015)	HTC, DID Malaysia	174,000 (Completed)	AP Dr Faris Naimah Yusoff Prof Dr Roslan Zainal Abidin
Workshop on (In house Training on river bank erosion prediction) (May 2015)	HTC, DID, Malaysia	19,900 (Completed)	Prof Dr Roslan Zainal Abidin Naimah Yusoff Noorbaya Mohd Salleh
Workshop on (In House Training on river bank erosion prediction) (April 2015)	DID Perlis, Malaysia	29,800 (Completed)	Prof Dr Roslan Zainal Abidin Naimah Yusiff Noorbaya Mohd Salleh
Workshop on "ROM" dan "ROSE" software (May 2014)	DID Terengganu, Malaysia	20,000 (Completed)	Prof Dr Roslan Zainal Abidin Naimah Yusoff Wani Kasmiah Mohd Sapuan
Directory of soil erodibility profile at Muda River and Muar River (June 2013)	DID Kedah, Malaysia	18,748 (Completed)	Naimah Yusoff Prof Dr Roslan Zainal Abidin Wani Kasmiah Mohd Sapuan Noorbaya Mohd Salleh
Erosion Categorization along Langat River (May2013)	HTC, DID Malaysia	180, 000 (Completed)	Prof. Dr. Roslan Zainal Abidin Naimah Yusoff

1th I-GEO SEMINAR SERIES - 4 APRIL 2014
SEMINAR ON LANDSLIDE FORECASTING AND CONTROL TECHNOLOGY

Natural Disasters namely floods, landslides, tsunami, sinkholes and earthquake are very frequent this days and it brings immense loss to lives and property. The International Strategy for Disaster Reduction (ISDR) defines a disaster as a serious disruption of the functioning of a community or a society involving wide spread human, material, economic or environmental lossess and impact which exceeds the ability of the affected comunity or society to cope using its own resources.

In tropical countries like Malaysia, most landslides are triggered by heavy rainfall. From 1973 - 2012, the total economic loss due to landslides was estimated above US $1 billion. More than 100 hill slopes had been identified by Malaysian Public Works Department (PWD) as risky for possible landslides. One of the sectoral report of Malaysia clearly mentioned about 49 landslides cases out of which 88% are recognized with mandmade slopes. It also declares that along with poor designing, incompetency, casualness, raw input data are also contributing in this frequent fact of slides. The key problem which the control of landslide hazard is the prediction of landslide fatalness, successful landslide forecast can consumedly decrease the loss caused by landslide hazard.

However, these effects could be minimized and considerable losses of life and property could be avoided through improved risk assessment, early warning, disaster forecasting and monitoring. Risk assessment provides information about the combined effect of hazard and vulnerability, allowing improved risk reduction and mitigation. The outcome of early warning information on the onset of potential disasters can improve preparedness in the affected area.

The main objectives of the seminar are as follows:

- To generate public awareness on landslide disaster in Malaysia.
- To provide a platform for experts to share experiences and knowledge of the best professional judgement of landslides forecasting and controlling technology.

2th I-GEO SEMINAR SERIES - 17 JUNE 2014
SEMINAR ON FORECASTING FLOOD AND CONTROL TECHNOLOGY

Floods in Malaysia are regular natural disasters which happen every year during the monsoon season. Besides due to its geographical location, Most floods that occur are a natural result of cyclical monsoons during the local tropical wet season that are characterized by heavy and regular rainfall that strikes from October to March. Inadequate drainage in many urban areas also enhance the effects of heavy rain, though efforts are underway to resolve this. Floods cause damage to properties and also endanger lives and preparedness of the community and government agencies to handle an emergency flood situation is important to minimize losses.

Flood forecasting is an important component of flood warning, where the distinction between the two is that the outcome of flood forecasting is a set of forecast time-profiles of channel flows or river levels at various locations, while "flood warning" is the task of making use of these forecasts to make decisions about whether warnings of floods should be issued to the general public or whether previous warnings should be rescinded or retracted.

Preparing the public for emergency flood response is outside the scope of hydrology although in an emergency flood situation, Department of Irrigation and Drainage Malaysia (DID) vehicles, boats and personnel are sometimes mobilized to assist in evacuation and related activities. To DID, in particular to the Hydrology Division, flood preparedness would mean preparedness to provide flood warning and forecasting services. For the purpose of flood forecasting, DID has set up a central Flood Forecasting Centre (FFC) at DID Ampang. This centre manned 24 -hours by teams working on shifts should there be any indication of impending severe floods in the country.

The main objectives of the seminar are as follows :

- To highlight the flood forecasting procedure and technology available.
- To identified various available flood control technology in arresting flood impact.

3rd I-GEO SEMINAR SERIES - 20 OCTOBER 2014
SEMINAR ON TSUNAMI AND EARTHQUAKE RISK IN MALAYSIA

Most Malaysian would believe that this country is not prone to tsunami and earthquakes. But this is totally not true since the experts have different views based on their knowledge and research. One of the evidence is the occurrence of terrific attacked of tsunami on 26 December 2004 which affected northern coastal areas in Peninsular Malaysia and outlying islands like Langkawi and Penang. This natural disaster was caused by earthquake in the Indian Ocean with the magnitude about 9.0 on the Richter scale. Total number of deaths in Malaysia were estimated almost 70 people and many houses in the fishing village were damaged. Therefore, it is very important to cultivate public awareness and consciousness about the risk of this hazard since it is no more trivial tragedy to be snubbed.

Besides, there are few more evidences on the occurrence of mild earthquakes in Malaysia. Back in 2012, the Malaysian Meteorological Department (MMD) had detected eight earthquakes in the eastern part of the country, in Sabah and Sarawak with the Richter scale between 2 and 4.5. There were about six earthquakes had occurred in Sabah (Tambunan, Kota Marudu, Kudat, Beluran, Kunak and Keningau) and two earthquakes had occurred in Belaga, Sarawak. In Malaysia history, the strongest earthquakes recorded was believed had occurred in 1976 in Lahat Datu, Sabah with a magnitude of 5.8 on the Richter scale.

Research findings also stated that the construction of major dams and reservoirs, or the pumping of pollutants deep in the subsurface, can alter the stress and strain on the earth's crust, creating "induced seismicity" which can cause minor earthquakes and tremors. The basis of the earthquakes design for the buildings in Malaysia are now should be considered, experts stated about the probabilistic seismic hazard assessment for Malaysia including the Peninsular Malaysia, Sarawak and Sabah. The study concluded that seismic design should be considered for high rise buildings on deep or soft soil site on the western side of the Peninsular Malaysia and for all buildings in Sabah.

The main objectives of the seminar are as follows :

- To cultivate public awareness and highlight the geological formation and potential risk of earthquake and tsunami in Malaysia
- To discuss the control technology on warning system of tsunami and earthquake design criteria for buildings in Malaysia.

4th I-GEO SEMINAR SERIES - 27 APRIL 2015
PAVEMENT INDUSTRY IN MALAYSIA – PRESENT AND FUTURE!!

Pavement industry is one of the backbone industries contributing to the prosperity of the nation and mobility of business and social network by providing and maintaining reasonable road infrastructure. The seminar is designed to focus on the development of pavement industry in Malaysia encompassing several aspects including policy and technology, design and maintenance, construction and quality assurance/quality control (QA/QC) as well as equipment and machineries used. Papers written by personnel representing relevant government agencies, practitioners and players of the industry will be presented and discussed, touching on the perspective of the industry, present and future and perhaps the way forwards.

The main objectives of the seminar are as follows :

- Better understanding of government policy and technology.
- Academic perspective on the pavement industry.
- Identifying the important factors in pavement design and maintenance

5th I-GEO SEMINAR SERIES - 15 JUNE 2015
"LANDSLIDE HAZARDS AND DISASTER MANAGEMENT"

Millions of people are affected by natural and human induced environmental hazards and disasters every year, and the impact can be calamitous. From the destruction of building to the spread of disease, it can devastate entire countries overnight. The unplanned growth of urban populations and economies drives exposure to natural hazards ever higher. At the same time poor natural resource management and urban expansion create environmental stresses that exacerbate the impact of hazards such as floods and landslides.

Going forward, the future holds new challenges as climate patterns change. Some of question we hope to answer for each possible natural disaster are: Where is each type of hazard likely to be present and why? What scientific principles govern the processes reasonable for the disasters? How often do these hazards develop into disasters? How can each type of disaster be predicted and/or mitigated?. Disaster risk management includes risk assessment, disaster prevention and mitigation and disaster preparedness. It is used in the international debate to underscore the current trend of taking a proactive approach to hazards posed by extreme natural phenomena.

The intention is a comprehensive reduction in disaster risk accounting for all the factors that contribute to risk management in relation to the respective disaster as opposed to a focus on each individual danger.

The main objectives of the seminar are as follows:

- To generate public awareness on landslide hazards in Malaysia.
- To provide a platform for experts to share experiences and knowledge of the best professional judgments of disaster management.

"EARTHQUAKE RISK IN MALAYSIA: PAST, PRESENT AND FUTURE"
5th OCTOBER 2015

Earthquake is one of the most devastating natural disasters on earth. Earthquake effects can cover hundreds of thousands of square kilometers; cause damage to structures or infrastructures facilities; result in loss of life and injury to hundreds of thousands of people; and disrupt the social and economic functioning of the affected area. Although it is impossible to prevent earthquake from occurring, it is possible to mitigate the risk and to reduce loss of life, injuries and damage.

Earthquake risk was a big issue when the worst earthquake disaster in the modern years occurred in North Sumatra at Banda Aceh. The great Sumatran earthquake occurred on the 26th December 2004, measuring at 9.3 on the Richter Scale, had created tsunami that killed 283,100 people from surrounding countries, including Malaysia with 68 people died. With this incidence, Malaysia need to be prepared to confront with such earthquake disasters which not only originate from our country but also from countries nearby. As a part of earthquake risk mitigation strategy, a lot of research activities in the field of earthquake engineering are urgently required even in the country with low to moderate seismic activity level such as Malaysia. Lessons learned from the 1985 Mexican earthquake and the 1957 San Francisco earthquake phenomena have shown that earthquake can have significant effects although at longer distance due to long period component of shear waves.

Hence, the earthquake engineering research is needed in order to predict the possibility of earthquake in the future that can cause damages to the buildings and structures as well as to find the solution for mitigating the effects. The research should cover the investigation and solution of the problems created by damaging earthquakes, and consequently the work involved in the practical application of these solutions, i.e. in planning, designing, constructing and managing the earthquake risk of earthquake-resistant structures and facilities.

Title of Publication	Name of Journals/ Proceedings/Conference	Year Published
The Challenges in Implementing Building Information Model (BIM) For SME's Contractor in the Construction Industry *A, K. Firdaus and Z.A, M.H.Idzuwan*	Infrastructure University Kuala Lumpur research Journal IUKLRJ, Vol 3 No 1	2016 Under Review
Incinerated Domestic Waste Sludge Powder as Sustainable Replacement Material for Concrete. *Kartini, K.*, Dahlia Lema, A.M., Dyg. Siti Quraisyah, A.A., Anthony, A.D., Nuraini, T. and Siti Rahimah, R.*	Pertanika J. Sci. & Technol. 23 (2): 193 – 205. ISSN: 0128-7680 © 2015 Universiti Putra Malaysia Press.	2015
Occurrence of Bed Load Transport in the Presence of Stable Clast *Sulaiman, M.S.; Sinnakaudan, S.K.; Ng. S.F. and Strom, K.*	International Journal of Sediment Research (Q2 journal)	2015 accepted for publication
Forecasting River bank Erosion with regards to rainfall erosivity and soil erodibility *Y, Naimah and Z. A., Roslan*	In S.M. Sener, C.A. Brebbia & S. O. Ozcevik (Eds.),Disaster Management and Human Health Risk IV, WIT Press. Presented at 4th International Conference On Disaster Management and Human Health: Reducing risk, improving outcomes, Istanbul, Turkey	2015 Pg 67-77
Durability Performance of Polymeric Waste Crumb Rubber as Fine Aggregates Replacement in Concrete. *Dyg. Siti Quraisyah Abg Adenan* and Kartini Kamaruddin.*	15th International Congress on Polymers in Concrete, Singapore. Advance Materials Research. Trans Tech Publications, Switzerland Vol. 1129, pp 508 - 515.	2015
River bank degradation with regards to soil erodibility *Y.Naimah and Z.A Roslan*	2015 Seoul International Conference on Engineering and Applied Science	8-10 January 2015
Evaluation of Total Load Equation for Malaysian Mountain Rivers *Sinnakaudan, S.K.; Shukor, M.R.; Sulaiman, M.S.; Ismail, S.I.H and Mohamed, M.*	International Symposium on Flood Research and Management	5-7 October 2015
Application of Automated Grain Sizing Technique (AGS) for Bed Load Samples at Rasil River: A case study for Supply Limited Channel *Sulaiman, M.S; Sinnakaudan, S.K.; Ng, S.F. and Strom, K.*	CATENA (Q1 Journal)	2014 Vol. 121, Pg: 330-342
Nomograph of Different Soil Matrix With Respect to Erodibility and Erosivity Coefficients *H, N.Azidawati; A, Junaidah, Y, Naimah*	Infrastructure University Kuala Lumpur Research Journal IUKLRJ	2014 Vol. 2 No. 1 Pg. 31-37

Title of Publication	Name of Journals/ Proceedings/Conference	Year Published
Soil erosion features assessment along Langat River bank *Y.naimah and Z.A Roslan*	International Infrastructure Conference, IICON	3 - 4 December 2014
Nomograph of Different Soil Matrix With Respect to Erodibility and Erosivity Coefficients *H, N.Azidawati; A, Junaidah, Y, Naimah*	International Infrastructure Conference, IICON	3 - 4 December 2014
Effectiveness of Cationic Polyelectrolyte in Treating Detergent Wastewater *Kien Tat, W.; Ying, L.M.; Sulaiman, M.S.; Azhari, N.N. and Birima, A.H*	International Infrastructure Conference, Kuala Lumpur	3 - 4 December 2014
Accuracy of Automated Grain Sizing (AGS) Technique to Extract Grain Size Distribution (GSD) *Sulaiman, M.S. and Husin, M.N*	International Infrastructure Conference, Kuala Lumpur	3 - 4 December 2014
Prediction of Bed Load Occurrence using Logistic Regression Analysis *Sulaiman, M.S.; Kien Tat, W. and Azhari, N.N*	International Infrastructure Conference, Kuala Lumpur	3 - 4 December 2014
The Stabilization of Compressed Earth Block Using Laterite Soil *N. Mohd Salleh, T.O.Chimuanya, T.A.Raja Hussin*	International Infrastructure Conference, Kuala Lumpur	3 - 4 December 2014
River bank erosion with regards to rainfall erosivity *Y, Naimah and Z. A., Roslan*	Infrastructure University Kuala Lumpur research Journal IUKLRJ, Vol 1 No 1	2013 Pg 46-52
River bank Erosion with regards to soil erodibility *Y, Naimah and Z. A., Roslan*	In C.A. Brebbia (Eds.),River Basin management VII., Boston: WIT press. Presented at River Basin Management 2013, New Forest UK	2013 Pg 289-297
Soil erosion risk potential with regards to rainfall erositivity *Y, Naimah and Z. A., Roslan*	In S. Fukuoka, H. Nakagawa, T. Sumi & H. Zhang (Eds.),Advanced in River Research Sediment, CRC press., Taylor and Francais Group. Presented at 12th International Symposium on River Bank Erosion, Kyoto, Japan	2013 Pg 289-297
Evaluation Of Dowel-Bearing Strength For Wood Dowel Using "Spring Theory" *Rohana Hassan, Tengku Anita Raja Hussin*	International Civil and Infrastructure Engineering Conference (INCIEC) 2013	22 September 2013

AWARDS	NAME OF COMPETITION	CONFER BY
BRONZE MEDAL AWARD **The Dynamics Of Stabilized Earth Block** *N. Mohd Salleh, T.O.Chimuanya, T.A.Raja Hussin* (4-6 December 2015)	International Conference and Exposition on Inventions by Institutions of Higher Learning (PECIPTA)	Ministry of Higher Education Malaysia
GOLD MEDAL AWARD **Transport of Sediment: Local Scale vs Reach Scale Approach** *M.S.Sulaiman* (9 September 2015)	Infrastructure University Innovation and Invention Competition	IUKL
SILVER MEDAL AWARD **The use of image-processing technique to Characterize grain-size distribution** *M.S.Sulaiman, N.N.Azhari* (21-23 May 2015)	International Invention & Innovation Exhibition (ITEX)	Malaysian Invention and Design Society
GOLD MEDAL AWARD **"RON" Classification for forecasting river bank erosion** *Naimah Yusoff, Prof Dr Roslan Zainal Abidin, Ir Mohamad Ayob* 10 September 2014	Pertandingan Rekacipta dan Inovasi InstitusiPengajian Tinggi Swasta 2014 (PERINTIS2014)	Ministry of Higher Education Malaysia
HONG KONG INTERNATIONAL BEST INVENTION AWARD - BEST BOOTH AWARD **"RON" Classification for forecasting river bank erosion** *Naimah Yusoff, Prof Dr Roslan Zainal Abidin, Ir Mohamad Ayob* 10 September 2014	Pertandingan Rekacipta dan Inovasi InstitusiPengajian Tinggi Swasta 2014 (PERINTIS2014)	Ministry of Higher Education Malaysia
SILVER MEDAL AWARD **The Dynamics Of Stabilized Earth Block** *N. Mohd Salleh, T.O.Chimuanya, T.A.Raja Hussin* 10 September 2014	Pertandingan Rekacipta dan Inovasi InstitusiPengajian Tinggi Swasta 2014 (PERINTIS2014)	Ministry of Higher Education Malaysia
BRONZE MEDAL AWARD **Best Thesis Award in Water Resources and Hydrology 2013** *Naimah Yusoff, Prof Dr Roslan Zainal Abidin* 2013	UNESCO-IHP Malaysia, Department of Irrigation and Drainage, UNESCO-Humid Tropic Centre KL	UNESCO

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