"SENARIO TANAH RUNTUH DI MALAYSIA"
- PELAN INDUK CERUN NEGARA

NURSALBIAH BINTI HAMIDUN

CAWANGAN KEJURUTERAAN CERUN

JABATAN KERJA RAYA MALAYSIA

Kandungan

- Pengenalan Organisasi
- Peranan dan Tanggungjawab CKC
- Pelan Induk Cerun Negara(PICN)
  - Kesedaran Dan Pendidikan Awam (PAE)
  - Pemetaan Bahaya dan Risiko Cerun
  - Dasar dan Kerangka Institusi

Pengenalan Organisasi

Arahan Kabinet

CAWANGAN KEJURUTERAAN CERUN, JKR telah ditubuhkan selepas kejadian gelongsoran batu di Bukit Lanjan pada 6 Nov. 2003

02nd February 2004

CKC diberi mandat untuk **MENGURUS, MENGAWAL,** dan **MEMANTAU** semua cerun di kawasan lereng bukit di Malaysia.

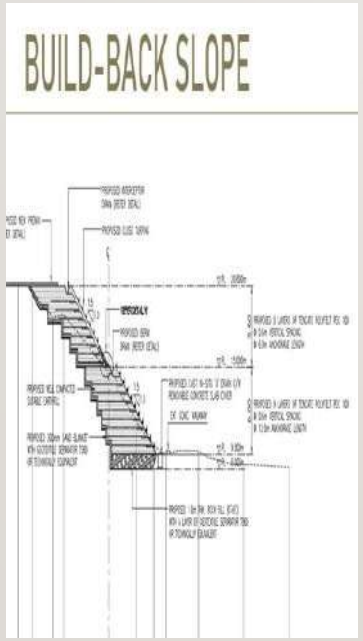
Peranan & Tanggungjawab CKC

1

Kerja rekabentuk dan penyiasatan forensik tanah runtuh

2

Kerja Pembaikan, pencegahan and *Kerja-kerja kecemasan* di Jalan Persekutuan. Jalan Negeri dan Premis Kerajaan.

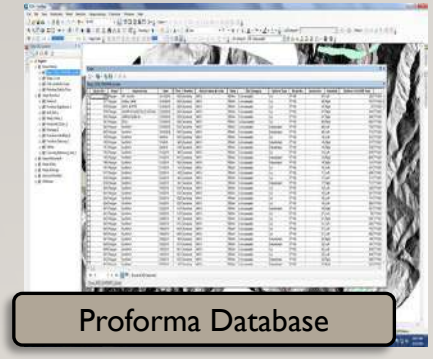


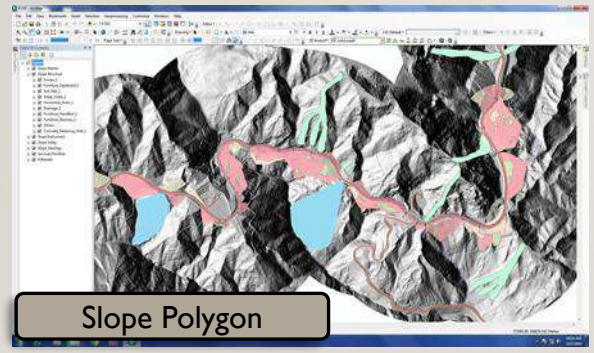
Peranan & Tanggungjawab CKC

3 **Consultancy** – Nasihat teknikal dalam pembangunan tanah tinggi

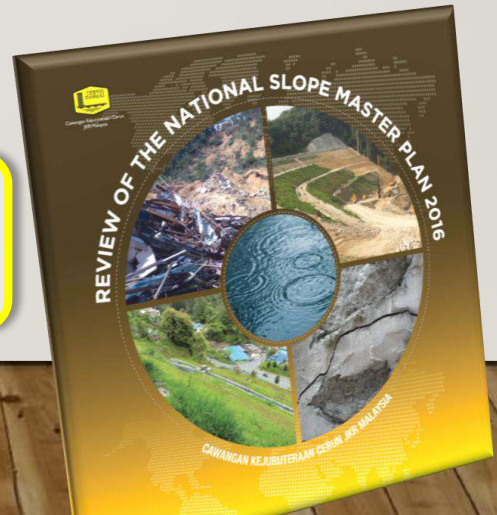
5 Memupuk kesedaran awam **(PAE)** keselamatan cerun

4 **Pengumpulan Data** - PBRC


Proforma Database


Slope Polygon

6 **Pelan Induk Cerun Negara**



PELAN INDUK CERUN NEGARA

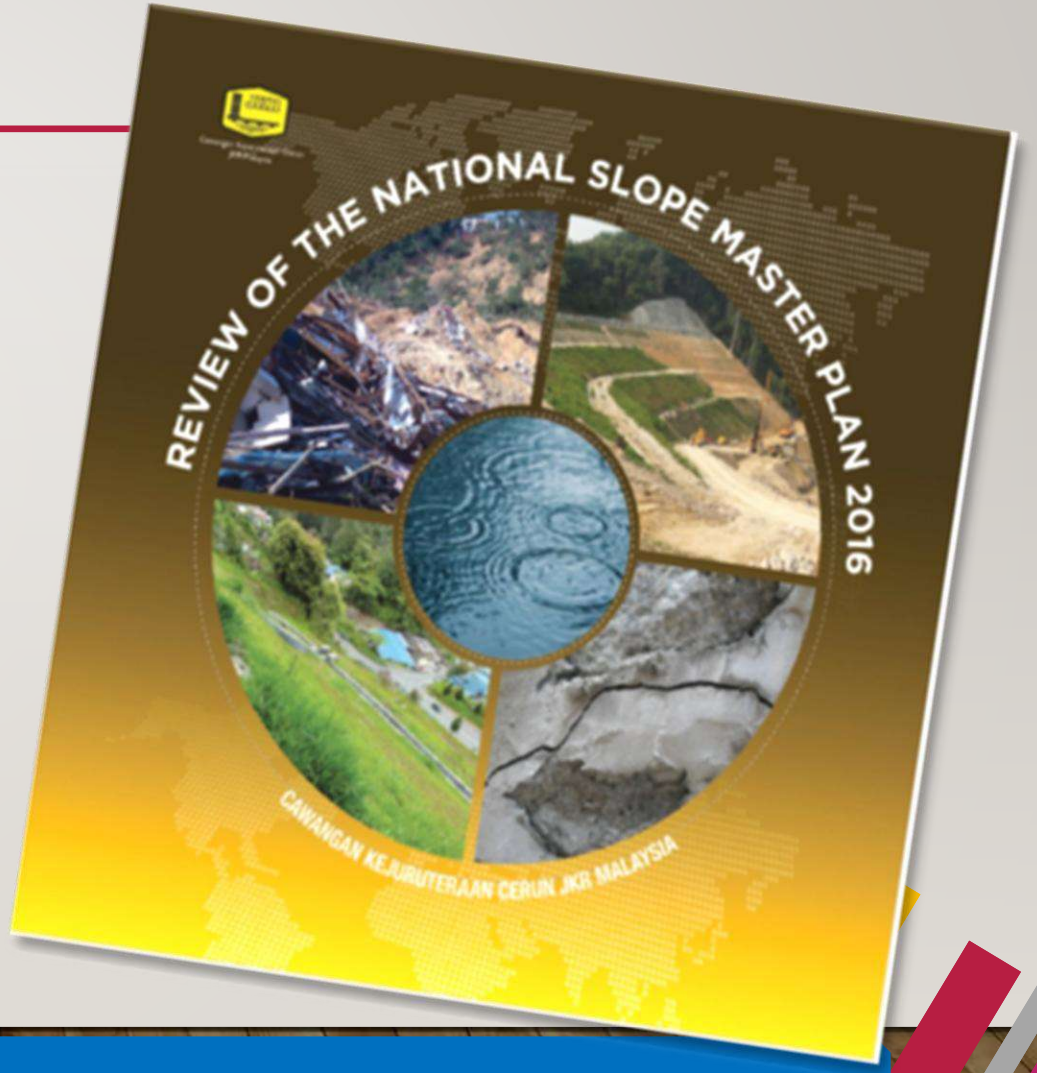
Matlamat Utama :

- **Mengurangkan risiko & kerugian akibat tanah runtuh.**
- **Mengadakan suatu dasar bagi rangka kerja yang menyeluruh & berkesan, strategi serta pelan tindakan.**

PELAN INDUK CERUN NEGARA

2016 – Kajian semula PICN
(11 komponen, 29 strategi utama, 66 Pelan Tindakan)

PICN telah dilanjutkan sehingga 2030 selari dengan UNDRR, Sendai Framework for Disaster Risk Reduction (2015-2030)



OBJEKTIF
PELAN INDUK CERUN NEGARA

1. Menghasilkan **polisi & rangka kerja** untuk mengurangkan risiko & kerugian akibat kejadian tanah runtuh

2. Membangunkan **inventori** kawasan bahaya & berisiko tanah runtuh

3. Mewujudkan sistem **perkongsian maklumat** tanah runtuh yang berkesan

4. Membangunkan pelan bagi langkah-langkah pencegahan tanah runtuh

5. Membangunkan garis panduan & program **latihan**

6. Meningkatkan **kefahaman tentang mekanisma tanah runtuh**

7. Membangunkan program **kesedaran dan pendidikan awam**

PELAN INDUK CERUN NEGARA

Kandungan

11 KOMPONEN

29 STRATEGI UTAMA

66 PELAN TINDAKAN

1. Dasar dan Rangka Kerja Institusi
2. Pemetaan dan Penilaian Bahaya
3. Sistem Amaran Awal dan Pemantauan Masa Nyata
4. Taksiran Kerugian
5. Pengumpulan Maklumat, Pentafsiran, Penyebaran dan Penyimpanan
6. Latihan
7. Kesedaran dan Pendidikan Awam
8. Langkah Pencegahan Tanah Runtuh
9. Kesiapsediaan, Tindak Balas dan Pemulihan Kecemasan
10. Penyelidikan dan Pembangunan
11. Amalan Cerun Mampan

JKR

INTER-GOVERNMENTAL COMMITTEE ON SLOPE MANAGEMENT (ICSM)

ICSM ditubuhkan pada 2011 bagi membincangkan isu-isu yang berkaitan dengan pengurusan cerun di Malaysia.

Keanggotaan ahli ICSM ini merentas kementerian dan agensi luar yang terdiri daripada pelbagai agensi kerajaan, pihak swasta, dan lain-lain yang berkaitan.

Peranan ICSM dalam PICN :

- Menyelaras Pelaksanaan Pelan-pelan Tindakan di dalam PICN di antara agensi kerajaan dan agensi berkaitan.
- Menjadi platform untuk koordinasi pengurusan cerun termasuk isu keselamatan dan pencegahan, perkongsian data, kesedaran awam, pembangunan, standard, polisi dan garis panduan

ICSM Membership

NADMA

KEMENTERIAN KERJA RAYA

AGENSI ANGKASA MALAYSIA

KEMENTERIAN KESIHATAN MALAYSIA

KEMENTERIAN PERUMAHAN DAN KERAJAAN TEMPATAN

JABATAN PERDANA MENTERI
JABATAN WILAYAH PERSEKUTUAN

- Bahagian Perancang Ekonomi Negeri (BPEN)
  - BPEN Selangor
  - BPEN Perak
  - BPEN Pulau Pinang
- Unit Pengurusan Bencana Negeri Selangor (UPBN)

ISU BERKAITAN TANAH RUNTUH

- 1993-2011, Sejumlah 28 bilangan tanah runtuh yang besar.
- Jumlah kehilangan telah melebihi 100 nyawa.
- 1973-2007, Jumlah Kerugian mencecah US $ 1 billion – PICN, 2007.

Jalan Raya Terputus Hubungan

Kerugian Harta Benda

Kehilangan Nyawa

Ekonomi Terjejas

ACHIEVEMENT NATIONAL SLOPE MASTER PLAN

PUBLIC AWARENESS & EDUCATION (PAE)

PUBLIC AWARENESS & EDUCATION(PAE)

1 Program

- Community Based Disaster Risk Reduction

2 Advertorial

Raising awareness through the electronic and printed media

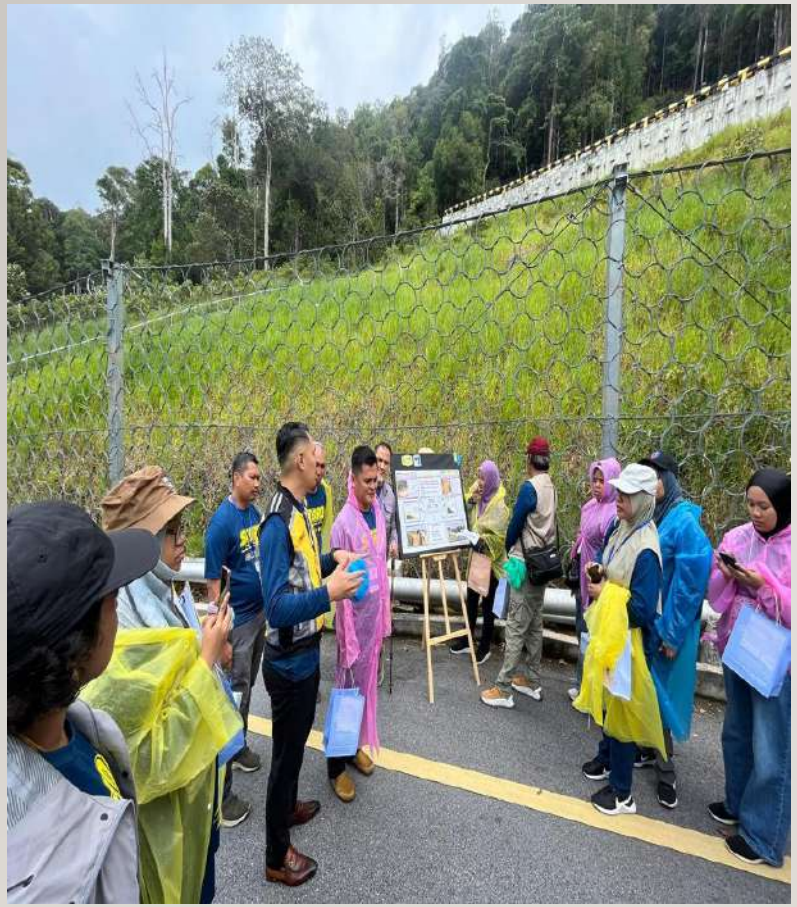
3 Social Media

Awareness of landslides delivered through Twitter & Facebook

Public Awareness & Education(PAE)

Community programme with Native People of Kampung Pawong, Perak on 6 Sept 2020 and PAE programme at SK Seri Layang, Genting

Public Awareness & Education(PAE)



International Workshop and Field Practices on Disaster Risk Management (IDRM Yan 2024)

-

SCIENCE AND TECHNOLOGY FOR DISASTER RISK REDUCTION AND RESILIENCE (STDR3) WEEK

17 – 19 August 2024 @ Jerai Geopark (Yan District, Kedah State)

Theme:-
"Mainstreaming geo-resilience, geo-heritage, and geo-tourism into Local Disaster Risk Reduction and Resilience (DR3) Agenda"

INTERNATIONAL WORKSHOP AND FIELD PRACTICAL ON DISASTER RISK MANAGEMENT (IDRM)

Supporting events:
COMMUNITY-LED DISASTER RISK REDUCTION (CLDRR)
SCHOOL RESILIENCE AND DISASTER EDUCATION (SRDE)

In commemorating a 3-year geological disaster in Yan, Kedah

Prepared by:-

Disaster Preparedness and Prevention Center
Malaysia-Japan International Institute of Technology Malaysia
Universiti Teknologi Malaysia (UTM) Kuala Lumpur

In Partnership with:-

Malaysia-Japan Linkage (MJL) Office
Japan International Cooperation Agency (JICA)
National Research Institute for Earth Science and Disaster Prevention (NIED) Japan
Asian Disaster Reduction Center (ADRC) Kobe Japan
Nippon Koei Co. Ltd. Japan
Asian Civil Engineering Coordinating Council (ACECC), TC21
Universitas Gadjah Mada (UGM), Yogyakarta, Indonesia
Asian Disaster Preparedness Center (ADPC) Thailand
Geo Things Inc. Taiwan
Hesotech GmbH, Germany & Rwanda
Faculty of Geoinformation Science and Earth Observation (ITC)
University of Twente, The Netherlands

Multi-tier Dialogue Session 2: Early Warning for All
(Global Target G, Sendai Framework)

Sediment-induced disaster risk: From monitoring and forecasting to anticipatory action and risk reduction

Moderated by:-

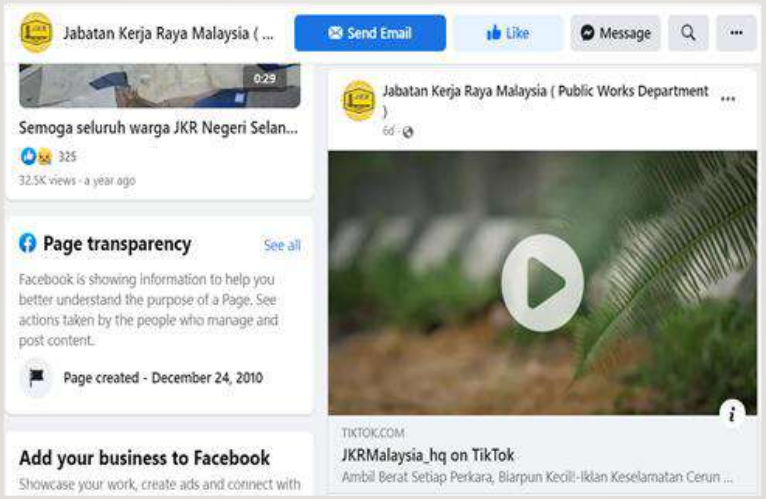
Assoc. Prof. Ir Ts. Dr Sumiaty Ambran
Associate member, Disaster Preparedness and Prevention Center (DPPC), Malaysia-Japan International Institute of Technology (MJIIT), Universiti Teknologi Malaysia (UTM) Kuala Lumpur

Panelists:-

1. Dr Collins B Kukunda, Hesotech Rwanda*
2. Department of Public Work (JKR)
3. Department of Mineral and Geoscience (JMG)
4. Department of Irrigation and Drainage (JPS)
5. Malaysia Civil Defence Force (APM)

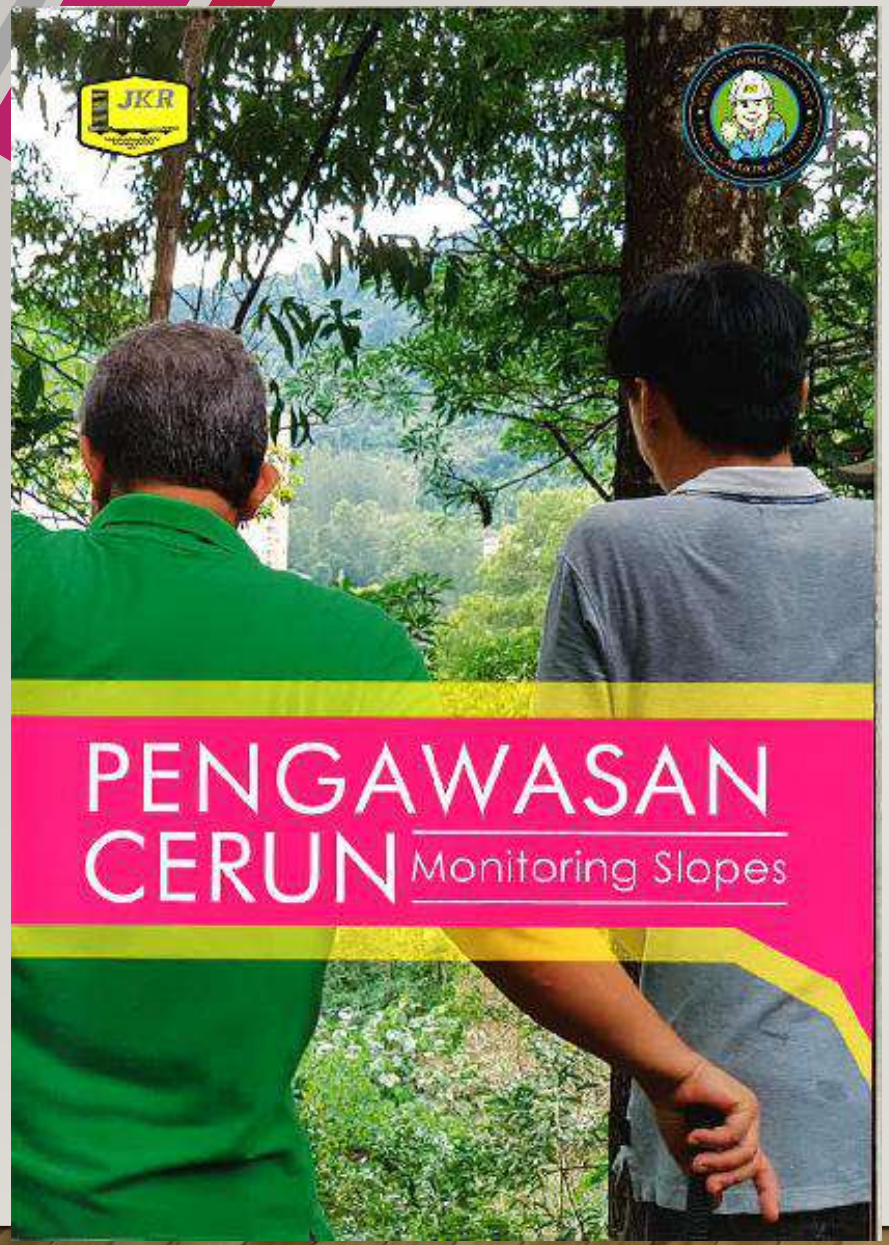
Public Awareness and Education(PAE)

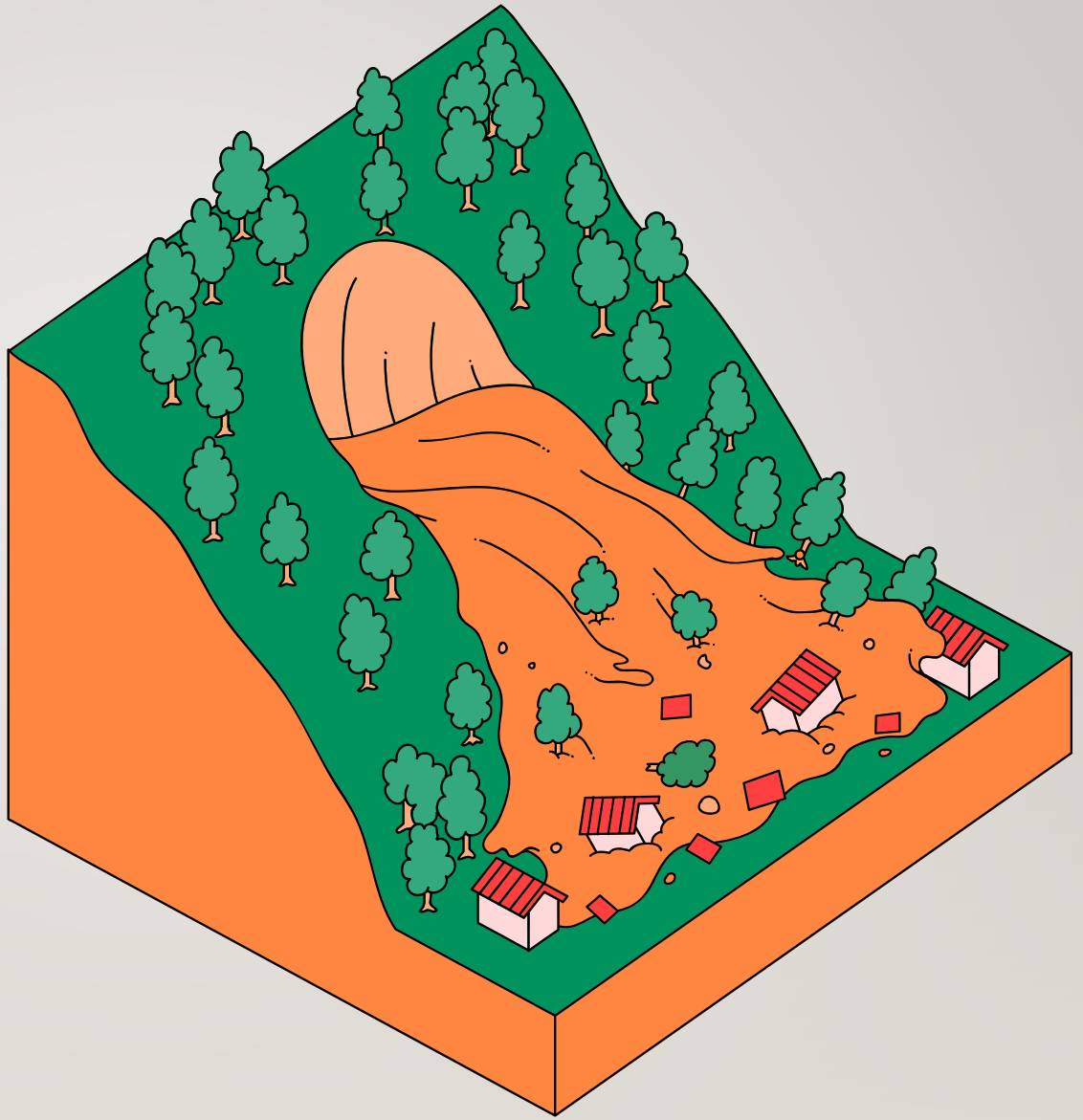
Video Iklan : Ambil Berat Setiap Perkara, Biarpun Kecil! – Iklan Keselamatan Cerun JKR 2016 di Youtube



Sharing public awareness and education on landslides and slope safety through Twitter, Facebook

Sharing through Media Social


JKR
PENGAWASAN
CERUN
Monitoring Slopes



Kenapa kita perlu mengawasi cerun?

Pelajari bagaimana cara mengawasi cerun di persekitaran anda dan mengenalpasti tanda-tanda cerun yang tidak selamat dan tanah runtuh

TANDA AWAL TANAH RUNTUH

Bonjolan pada kaki cerun / tembok penahan

Rekahan di permukaan cerun

TANDA AWAL TANAH RUNTUH

Air keluar melalui permukaan tanah di lokasi baru

Pagar/ tiang /pokok atau tembok penahan kelihatan condong di kawasan cerun

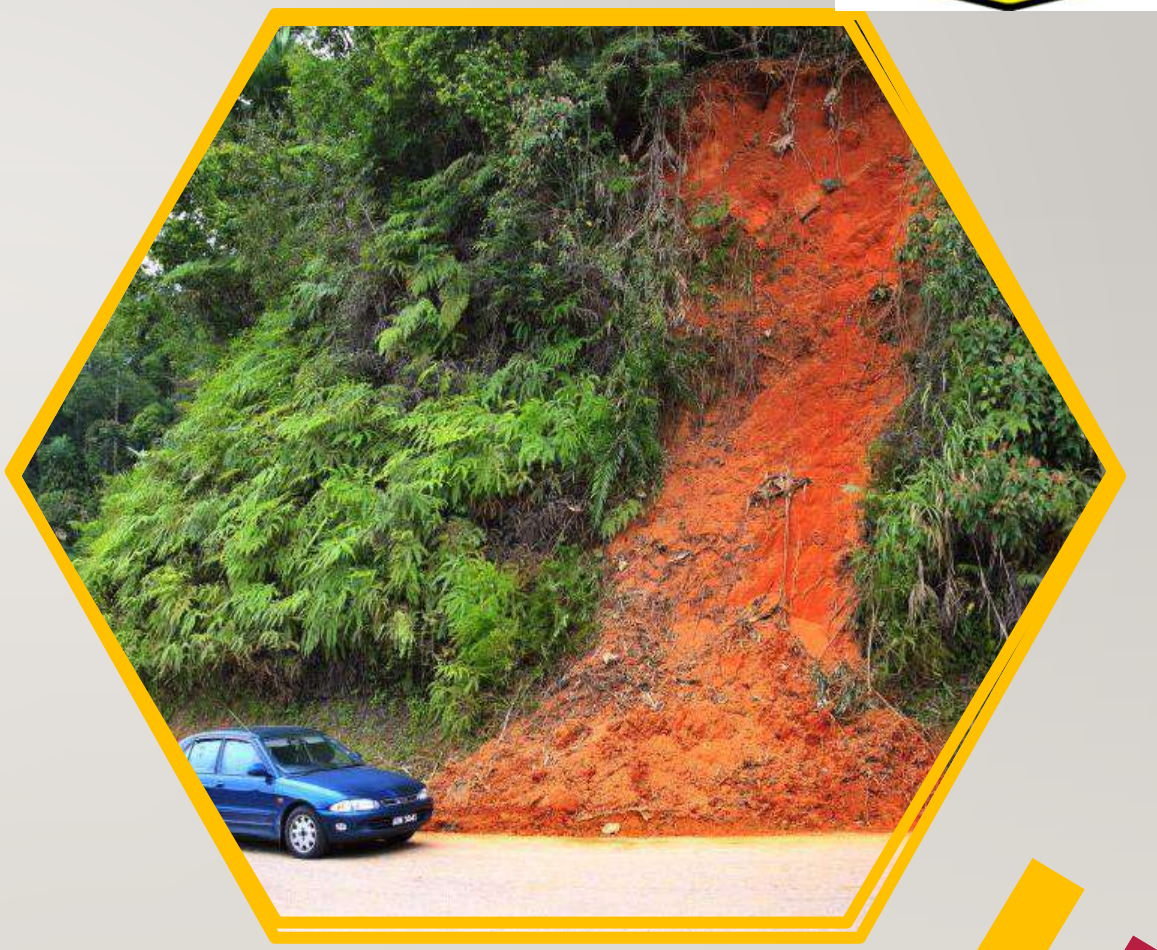
Tanda awal TANAH RUNTUH

Retakan pada lantai atau bangunan berhampiran cerun

Longkang retak atau beralih daripada posisi asal

Tanda awal TANAH RUNTUH

Tebing jalan retak/mendap/jatuh



Terdapat hakisan/pergerakan tanah/runtuhan kecil

Tanda awal TANAH RUNTUH

Pintu atau tingkap yang melekat

Paip air yang pecah

PERKARA YANG PERLU ANDA KETAHUI

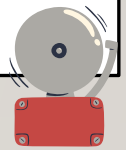
SENTIASA BERWASPADA

SEGERA KELUAR DARI KEDIAMAN sekiranya terlihat tanda-tanda tanah runtuh.

BUAT LAPORAN

SEGERA LAPORKAN sekiranya terlihat tanda-tanda tanah runtuh.

SISTEM AMARAN AWAL



Komuniti bekerjasama menubuhkan program atau sistem amaran awal. Hubungi **999** **segera** jika berlaku **KECEMASAN.**

ACHIEVEMENT NATIONAL SLOPE MASTER PLAN

HAZARD MAPPING AND ASSESSMENT (HMA)

HAZARD AND RISK MAPPING (PBRC)

1 Slope Hazard & Risk Mapping

- JMG - Area based
- JKR - Linear based

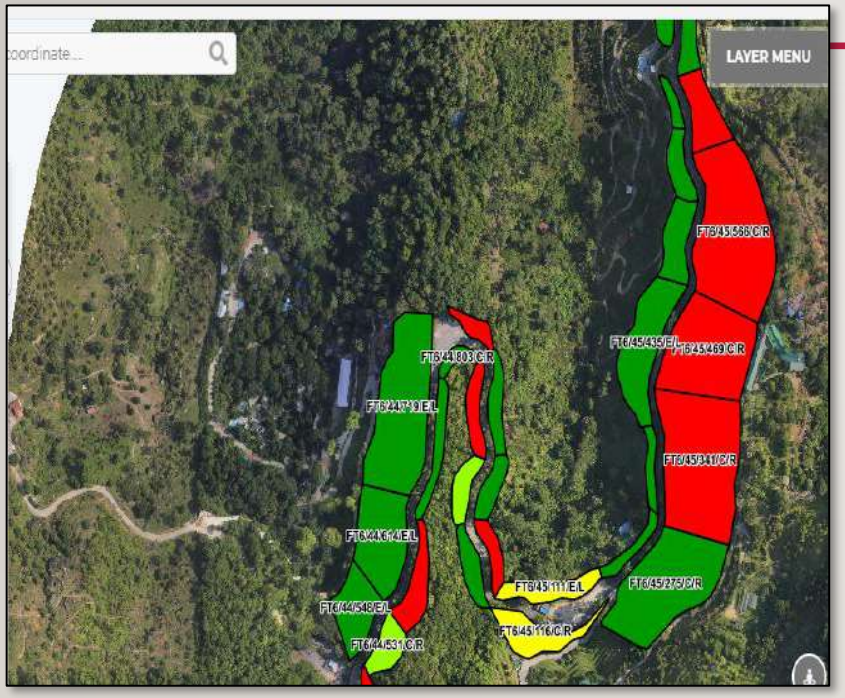
2 Standard Guidelines

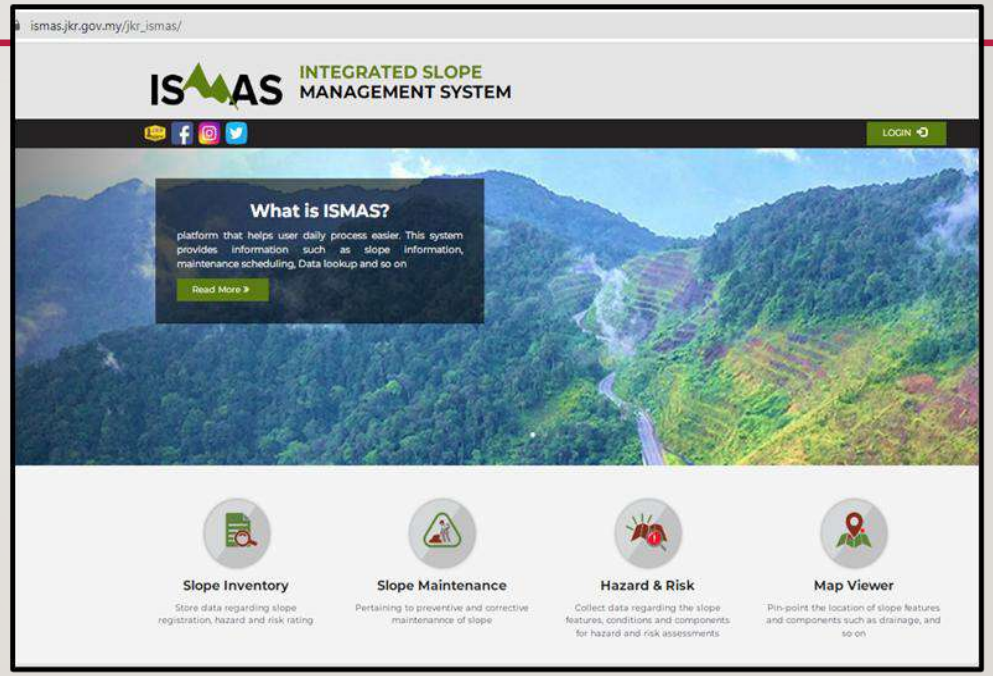
- Develop guideline for landlside hazard and risk mapping
  - *(Linear-Based)* by JKR
  - *(Area-Based) by* JMG

3 Slope and Landslide Inventories

Data collection on slope and landslide inventories

Hazard and Risk Mapping(PBRC) – Linear Based





ISMAS merupakan satu sistem pengurusan cerun bersepadu yang beroperasi secara web-based. Mempunyai empat (4) modul fungsi utama iaitu Inventori Cerun, Peta Bahaya dan Risiko Cerun (PBRC), Penyenggaraan Cerun serta *Map Viewer*.

26,791

https://ismas.jkr.gov.my

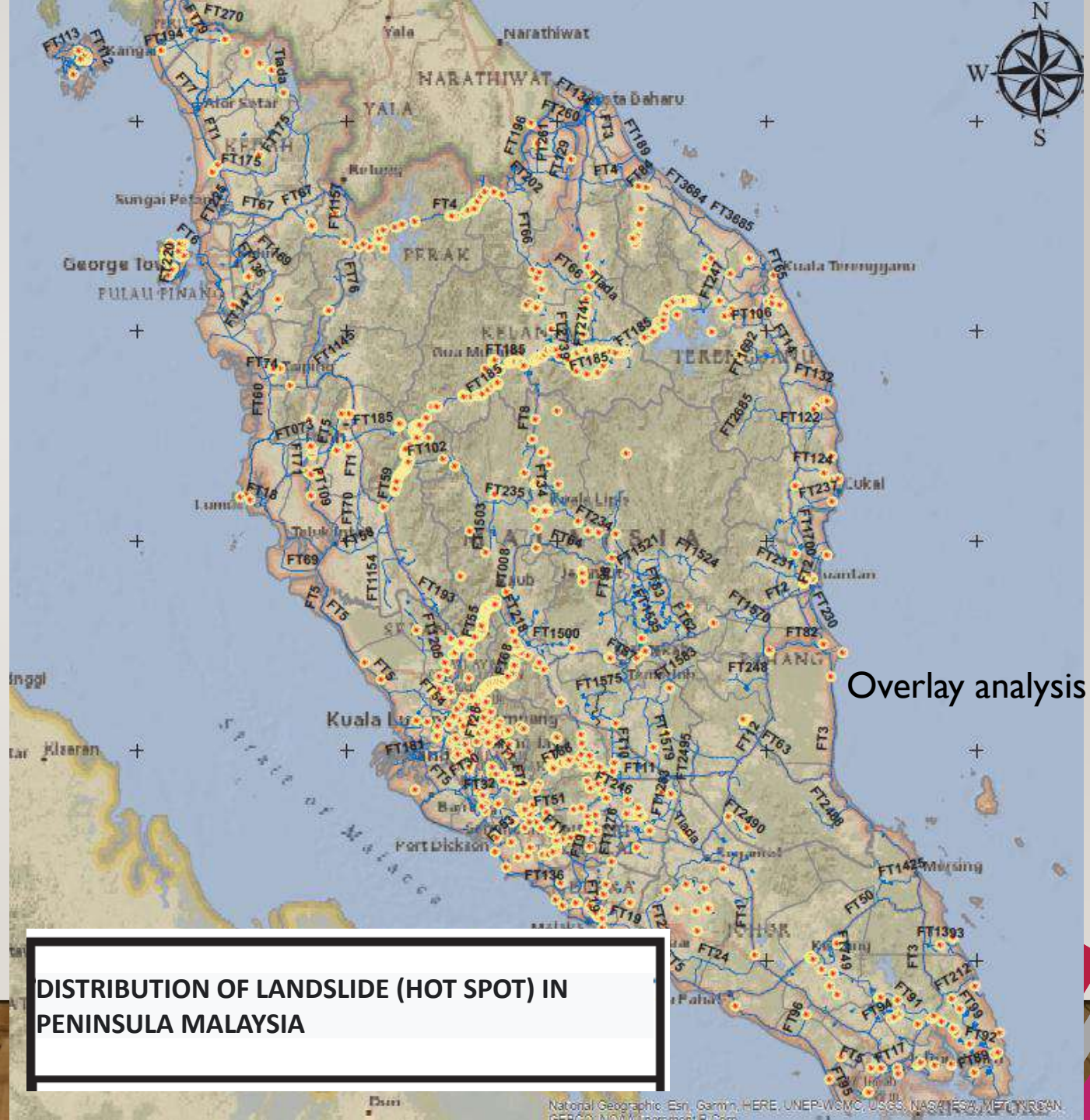
helpdesk: ismas.admin@jkr.gov.my

SOURCE : JABATAN KERJA RAYA

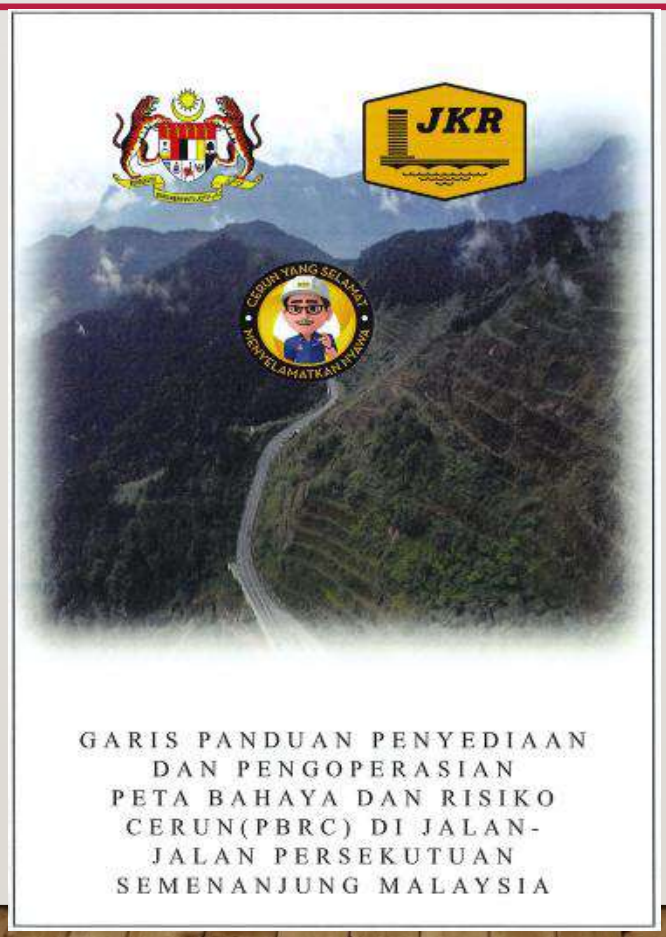
OUTPUT FROM INCIDENT PROFORMA

Bil.	No. Laluan	Nama Jalan
1	FT4	JALAN LUNAS - KUPANG - GERIK - JELI - MACHANG - PASIR PUTIH
2	FT6	JALAN MENGELILINGI PULAU PINANG
3	FT8	JALAN BENTONG - GUA MUSANG - KUALA KRAI
4	FT36	JALAN ARING 8-KENYIR-KUALA JENERIS
5	FT55	JALAN KUALA KUBU BARU - GAP - TRANUM
6	FT56	JALAN GAP - BUKIT FRASER
7	FT59	JALAN TAPAH - CAMERON HIGHLANDS
8	FT68	JALAN KUALA LUMPUR - BENTONG (JALAN BENTONG LAMA)
9	FT86	JALAN SEREMBAN - KUALA KLAWANG - SIMPANG PERTANG
10	FT 102	JALAN POS BETAU - LEMBAH BERTAM
11	FT148	JALAN GAP BARU - FRASER'S HILL
12	FT185	JALAN SIMPANG PULAI - BLUE VALLEY - GUA MUSANG
13	FT220	JALAN BAYAN LEPAS - PEKAN AIR HITAM

This information will be update from time to time



Pemetaan Bahaya & Risiko Cerun (PBRC) – Linear Based



Garis Panduan Pemetaan Bahaya dan Risiko Cerun, JKR 2021

Memfokuskan cerun di sepanjang jalan (Jalan Persekutuan, Jalan Negeri dan lain-lain jalan)

PENCAPAIAN KUMPULAN 1 :
Pemetaan Bahaya & Risiko Cerun (PBRC) – Area Based


GARIS PANDUAN

PEMETAAN BAHAYA DAN RISIKO CERUN
(*AREA-BASED*)

ICSM.GP.01

KUMPULAN KERJA PEMETAAN BAHAYA DAN RISIKO CERUN

JAWATANKUASA ANTARA AGENSI KERAJAAN BAGI PENGURUSAN CERUN
(INTER-GOVERNMENTAL COMMITTEE ON SLOPE MANAGEMENT – ICSM)

PELAN INDUK CERUN NEGARA 2009 - 2023

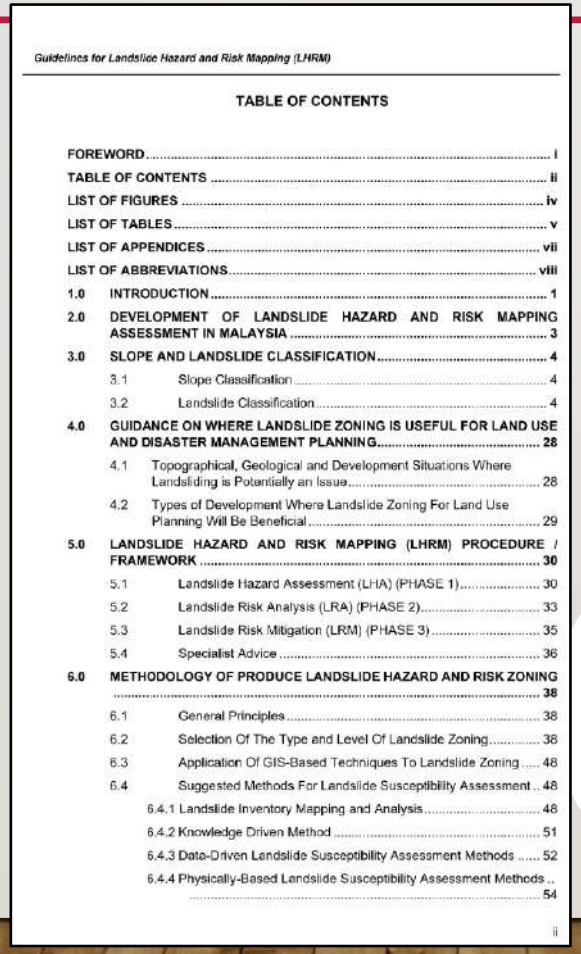
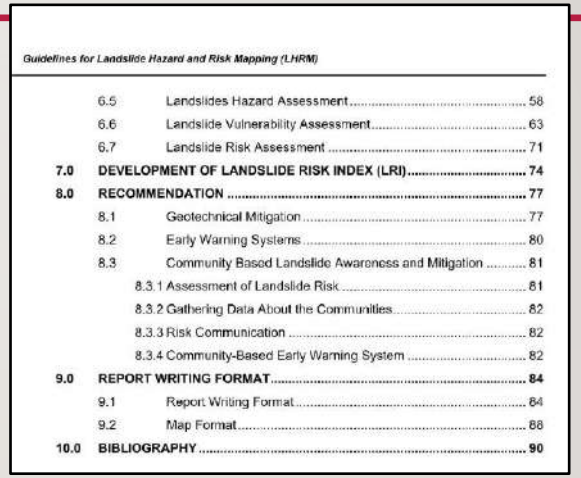

Guidelines for Landslide Hazard and Risk Mapping (LHRM)

TABLE OF CONTENTS


Guidelines for Landslide Hazard and Risk Mapping (LHRM)

Garis Panduan Pemetaan Bahaya dan Risiko Cerun, JMG 2021

- An area-based guideline focusing on slope across the Peninsula, Sabah & Sarawak

ACHIEVEMENT NATIONAL SLOPE MASTER PLAN

POLICY AND INSTITUTIONAL FRAMEWORK

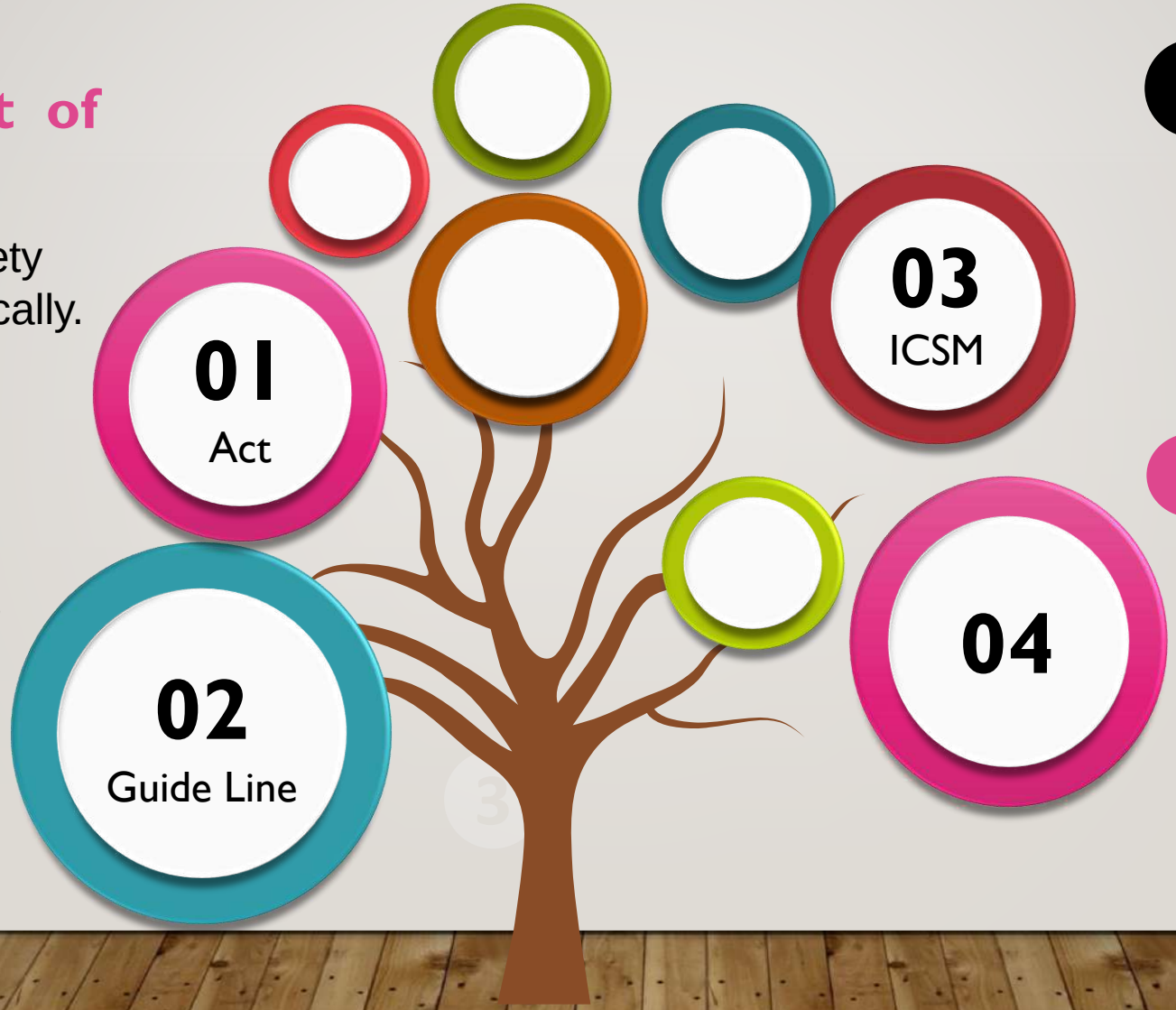
POLICY AND INSTITUTIONAL FRAMEWORK

1 Amendment of Act 133

Considering slope safety and inspection periodically.

2 Guide Lines

- Involving various agencies



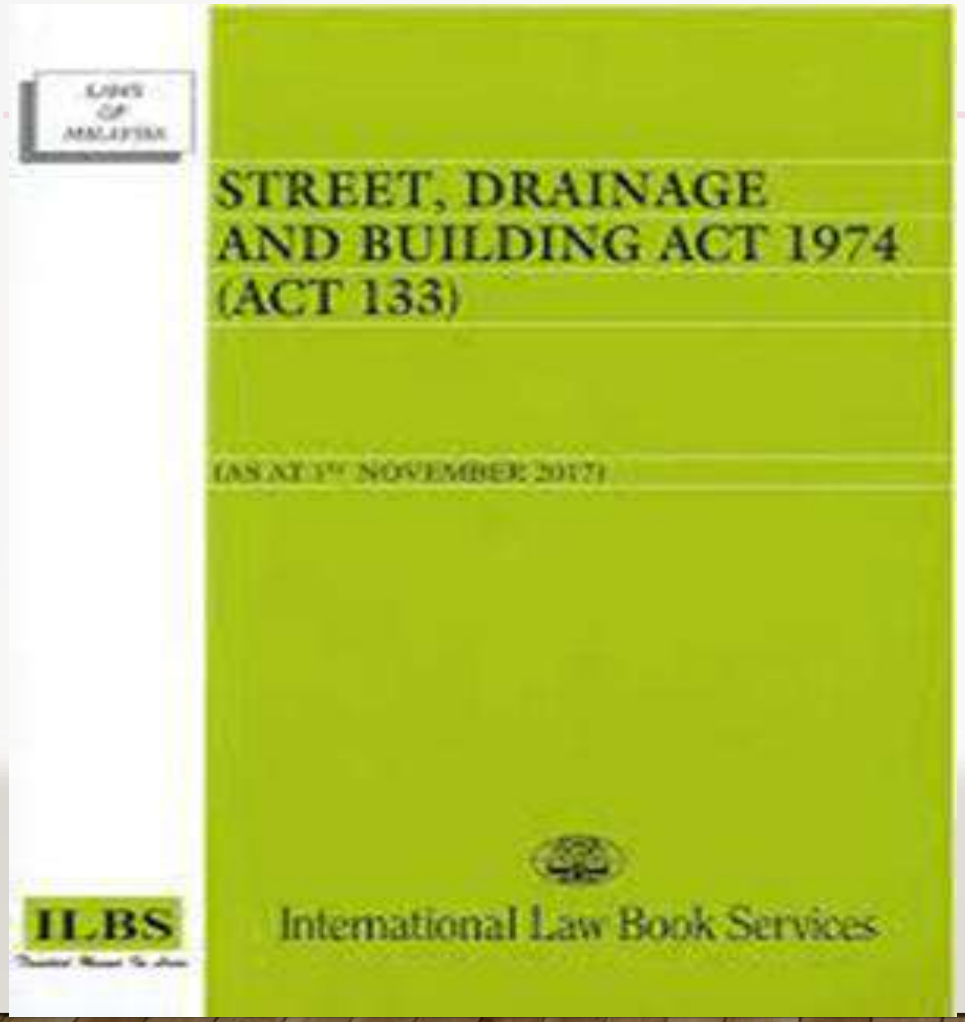
3 ICSM

- A cross sector committee

4 Established Slope Division under local Authority

- Majlis Bandaraya Pulau Pinang
- Dewan Bandaraya Kuala Lumpur
- Majlis Perbandaran Ampang Jaya

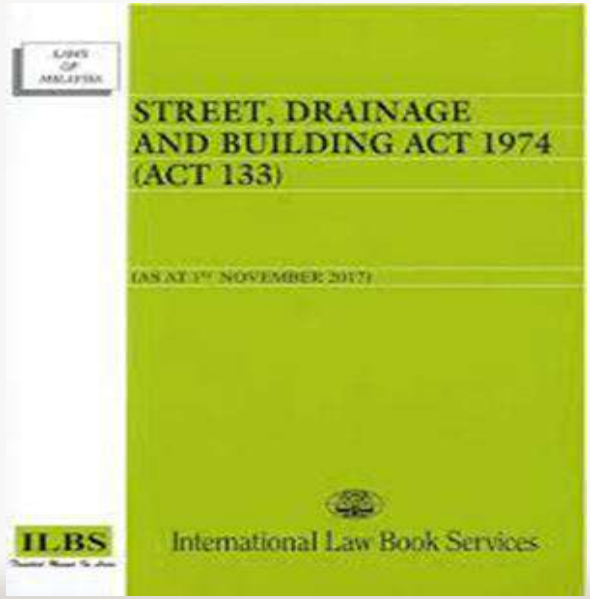
Policy and Institutional Framework



AMMENDMENT OF ACT 133 – JALAN, PARIT DAN BANGUNAN 1974 (Pindaan 2019)

Mengambilkira keselamatan cerun dan penyelenggaraan secara berkala.

The Street, Drainage and Building Act 1974

Regulation and Act	Laws
The Street, Drainage and Building Act 1974 	• (Section 70) was revised to include the provision of the geotechnical report which shall be verified by an accredited checker. • (Section 70B) was revised to include provisions of slope safety and stability review in the course of building erection. • 1974 (Section 85A) was revised to include provisions of periodic slope inspection. • (Section 133) was revised to include provisions of by-laws for slope inspection.

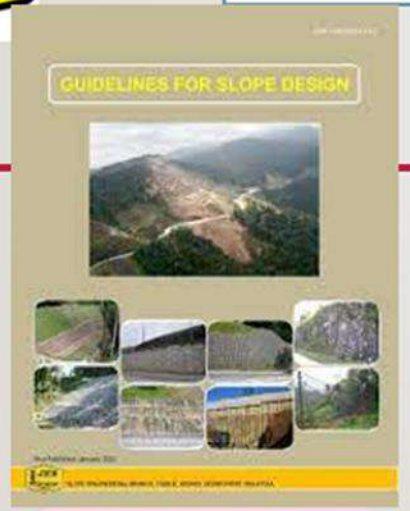
KUMPULAN 3 :
Policy and Institutional Framework

Bil.	Garis Panduan	Agensi
1.	Garis Panduan Perancangan Pembangunan Di Kawasan Bukit & Tanah Tinggi	Kementerian Pembangunan Kerajaan Tempatan, 2009
2.	Garis Panduan Perancangan Pemuliharaan dan Pembangunan Kawasan Sensitif Alam Sekitar (KSAS)	PLANMalaysia, 2017
3.	Garis Panduan Pengurusan Cerun di Kawasan Pihak Berkuasa Tempatan	Kementerian Pembangunan Kerajaan Tempatan, 2021
4.	Garis Panduan Perancangan Pembangunan di Kawasan Bukit dan Cerun bagi Wilayah Persekutuan Kuala Lumpur	Kementerian Wilayah Persekutuan, 2010
5.	Rancangan Tempatan Daerah Cameron Highlands 2030	Plan Malaysia
6.	Garis Panduan Perancangan Pembangunan di Kawasan Bukit dan Tanah Tinggi Negeri Selangor	Plan Malaysia Negeri Selangor, 2015
7.	Standard Operating Procedure (SOP) Pengurusan Cerun	Jabatan Kerja Raya, 2021
8.	Garis Panduan Kerja Bio-Kejuruteraan Cerun	Jabatan Kerja Raya, 2012
9.	Garis Panduan Penyenggaraan Cerun	Jabatan Kerja Raya, 2006

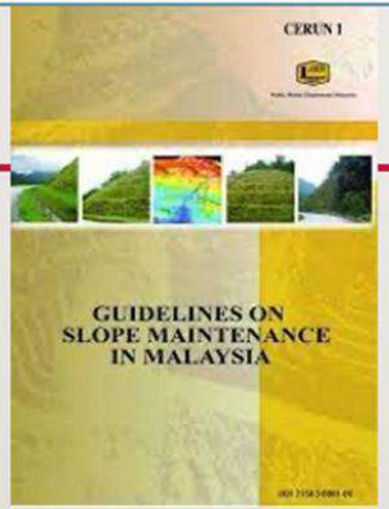
KUMPULAN 3 :
Policy and Institutional Framework

Bil.	Garis Panduan	Agensi
10.	Garis Panduan Reka Bentuk Cerun	Jabatan Kerja Raya, 2010
11.	Pulau Pinang Safety Guideline for Hillsite Development	Plan Malaysia Pulau Pinang, 2020
12.	Garis Panduan Keselamatan Aktiviti Pertanian di Kawasan Berbukit, Pulau Pinang	Majlis Bandaraya Pulau Pinang, 2021
13.	Garis Panduan Pembangunan Pertanian di Tanah Bercerun	Jabatan Pertanian , 2020
14.	Erosion and Sediment Control Plan (ESCP) Guidelines For Agricultural Activities in Hilly Area	Jabatan Pengairan & Saliran, 2018
15.	Garis Panduan Perancangan Bandar Berdaya Tahan Bencana di Malaysia	Plan Malaysia, 2019
16.	Guidelines on Land Disturbing Pollution Prevention and Mitigation Measures (LDP2M2)	Jabatan Alam Sekitar
17.	Technical Guidance On Scoping Preparation Of EIA Report For Development On Hill Development On Hill And Slope Area	Jabatan Alam Sekitar

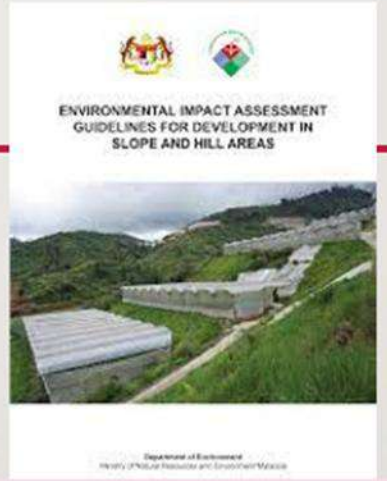
KUMPULAN 3 :
Policy and Institutional Framework



Garis Panduan Reka Bentuk Cerun, JKR, 2010

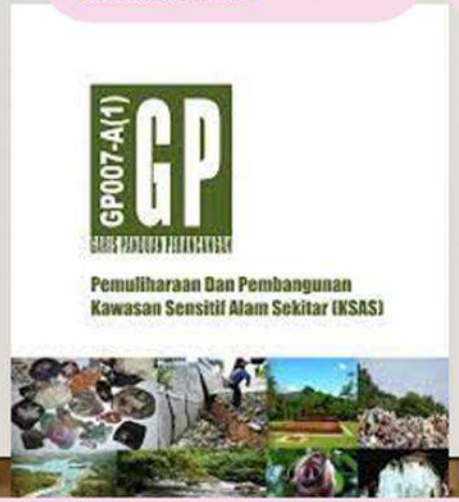


Garis Panduan Penyenggaraan Cerun, JKR 2006

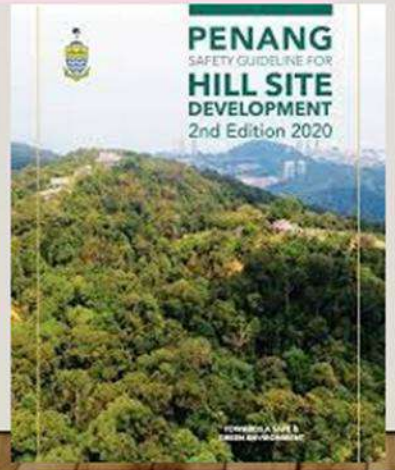


Garis Panduan Pembangunan Tanah Tinggi, KPKT 2009

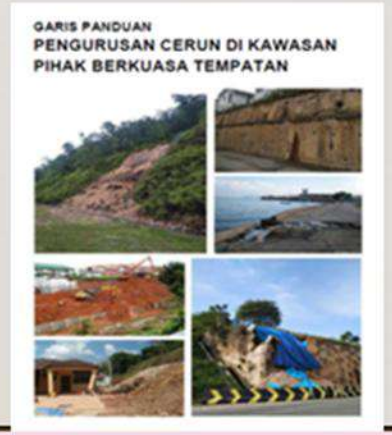
Standard Operating Procedure (SOP) Pengurusan Cerun, JKR 2021



Garis Panduan Pembangunan Kawasan Sensitif Alam Sekitar, KPKT 2017



Garis Panduan Pembangunan Tanah Tinggi – Penang 2020



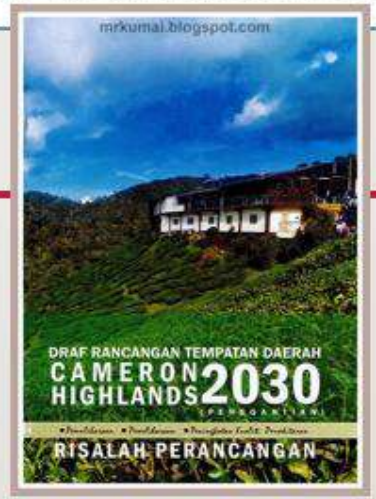
Garis Panduan Pengurusan Cerun di Kawasan Pihak Berkuasa Tempatan, KPKT 2021

Rancangan Tempatan Daerah, PLANMalaysia

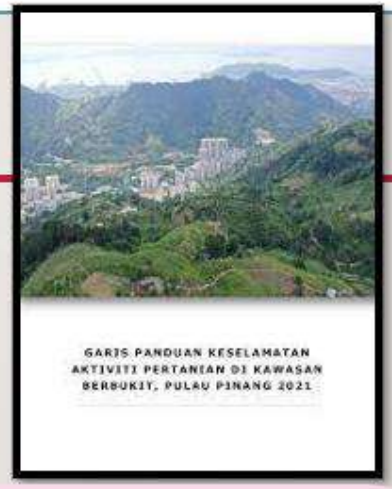
KUMPULAN 3 :
Policy and Institutional Framework

Garis Panduan Kerja Bio-Kejuruteraan Cerun, JKR, 2012

Garis Panduan Perancangan Pembangunan Kawasan Bukit dan Cerun bagi Wilayah Persekutuan Kuala Lumpur, KWP, 2010

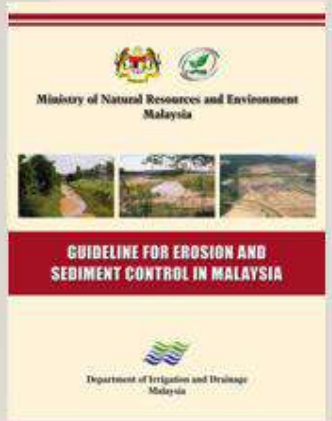


Rancangan Tempatan Daerah Cameron Highlands 2030, Plan Malaysia

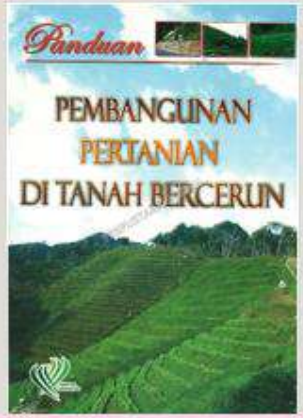


Garis Panduan Keselamatan Aktiviti Pertanian di Kawasan Berbukit, Pulau Pinang, Majlis Bandaraya Pulau Pinang, 2021

Garis Panduan Pemetaan Geologi Terain, JMG, 2021



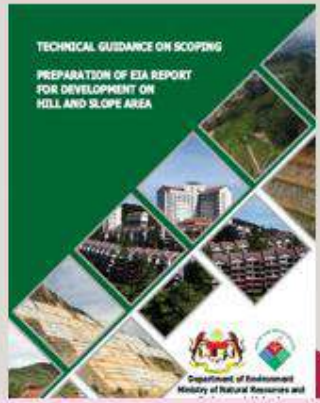
Erosion and Sediment Control Plan (ESCP) Guidelines For Agricultural Activities in Hilly Area, JPS 2018



Garis Panduan Pembangunan Pertanian di Tanah Bercerun, Jabatan Pertanian, 2020

Garis Panduan Perancangan Bandar Berdaya Tahan Bencana di Malaysia, Plan Malaysia, 2019

Guidelines on Land Disturbing Pollution Prevention and Mitigation Measures (LDP2M2), JAS



Technical Guidance On Scoping Preparation Of EIA Report For Devlopment On Hill Development On Hill And Slope Area, JAS

ACHIEVEMENT NATIONAL SLOPE MASTER PLAN

EMERGENCY PREPAREDNESS, RESPONSE AND RECOVERY

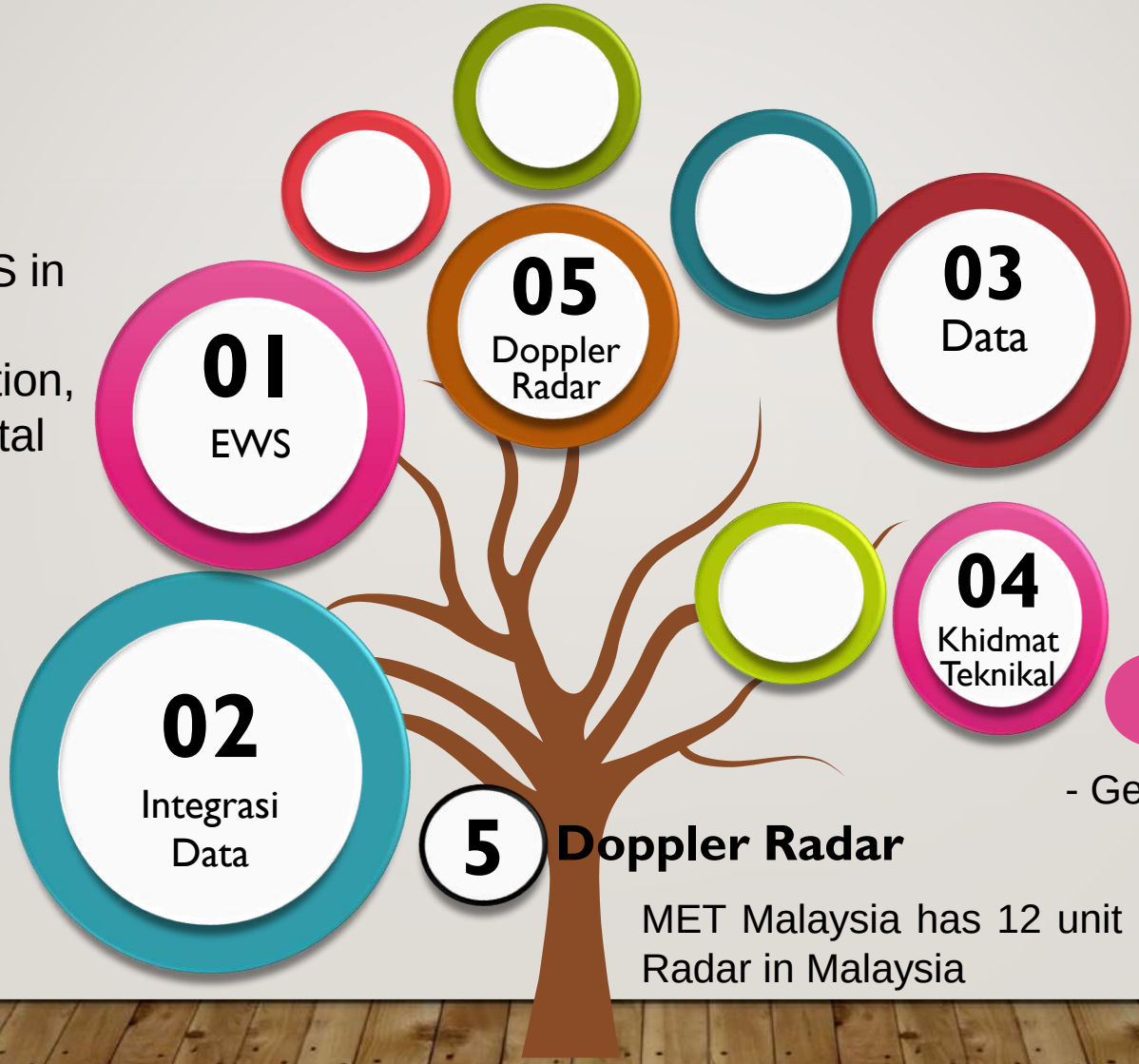
EMERGENCY PREPAREDNESS, RESPONSE AND RECOVERY

1 EWS

The installation of EWS in critical slopes.
(Eg. : Rain Gauge Station, Tilt Sensor, Robotic Total Station)

2 Data Integration

Rain data integration between agencies -JKR, METMalaysia, LLM, PLUS, JPS



3 Data Sharing

Data sharing between agencies Eg.PBRC used for mitigation, prevention and land use planning under Local Authorities.

4 Technical Advisor

- Geotechnical, Forensic & Geology

5 Doppler Radar

MET Malaysia has 12 unit Doppler Radar in Malaysia

Preparedness, Response and Recovery

SISTEM PENGURUSAN CERUN

EWS for landslide is developed by Agencies involve in slope management monitoring

Bil	SISTEM PENGURUSAN CERUN	AGENSI
1.	Integrated Slope Management System (ISMAS)	Jabatan Kerja Raya
2.	Sistem Amaran Awal Tanah Runtuh (SAATR) -Tolok Hujan And Robotic Total Station	Jabatan Kerja Raya
3.	Sistem Maklumat Geospatial Terain Dan Cerun Negara (NATSIS)	Jabatan Mineral & Geosains
4.	Sistem Total Expressway Maintenance Management System (TEMAN-ESMAS)	PLUS
5.	KULSIS	Dewan Bandaraya Kuala Lumpur

Source : Sistem ISMAS, JKR

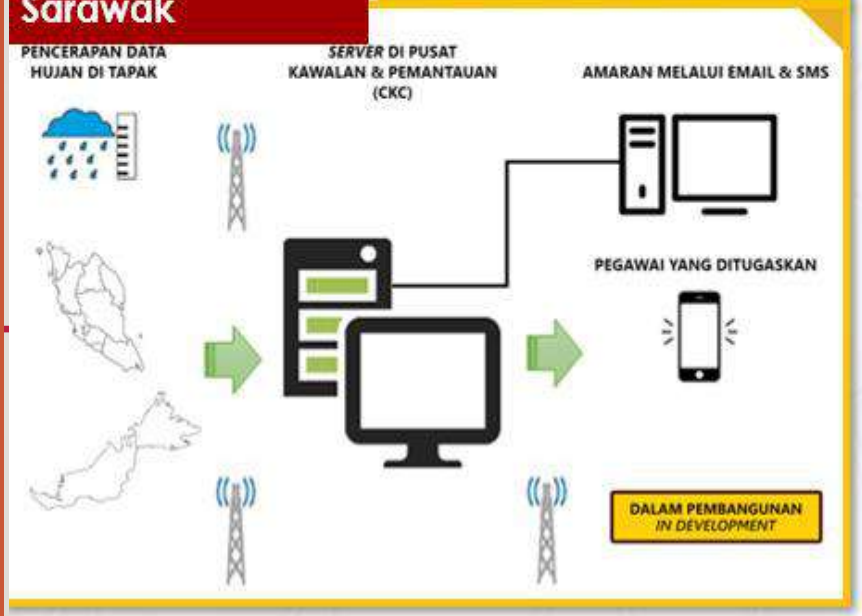
Source : Sistem NATSIS, JMG

Source : Sistem (Teman-ESMAS), PLUS

Preparedness, Response and Recovery

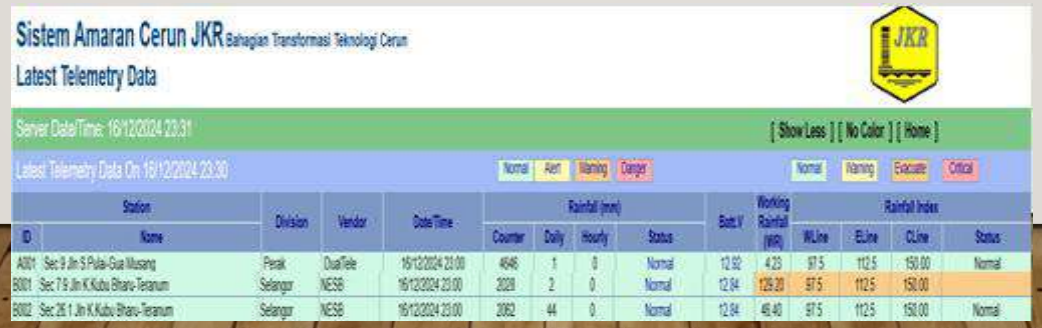
EARLY WARNING SYSTEM – RAIN GAUGE STATION

50 stesen tolok hujan di Malaysia
-38 stesen di Semenanjung
-12 stesen di Sabah dan Sarawak



Lokasi	Bil.
Kedah	2
Perak	11
Selangor	4
WPKL	1
Pahang	14
Kelantan	3
Sabah	9
Sarawak	3
Pulau Pinang	2
Negeri Sembilan	1
Jumlah	50

LOKASI
Jalan Gunung Raya (F278)
Jalan Tapah - Cameron Highland (FT59)
Jalan Simpang Pulai - Gua Musang (FT185)
Lebuh raya Timur - Barat (Gerik - Jeli) FT004
Jalan Kuala Kubu Baru - Gap (FT055)
Taman Hillview, Ampang
Ibu Pejabat JKR
Jalan Tapah - Cameron Highland (FT59)
Jalan Bukit Fraser 2 (FT148)
Stesen Pakej 3G & 3H, CSR Pahang (FT034)
Jalan Ringlet - Sungai Koyan (FT102)
Rumah Transit Bukit Fraser
Jalan Simpang Pulai - Gua Musang (FT185)
Lebuh raya Timur - Barat (Gerik - Jeli) FT004
Jalan Seremban - Simpang Pertang, Jelebu (FT86)
Jalan Tamparuli - Ranau (FT22)
Jalan Kota Kinabalu - Tambunan (FT500)
Jalan Serian - Tebedu (FT21)
Bletek Reservoir, Kapit
Bukit Kanada, Miri



Preparedness, Response and Recovery

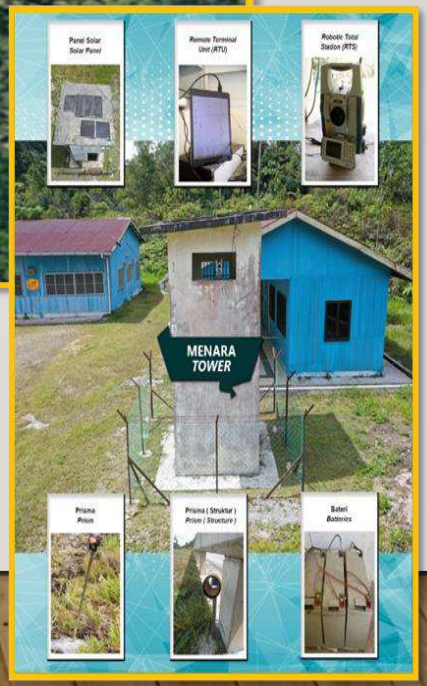
EARLY WARNING SYSTEM – ROBOTIC TOTAL STATION (RTS)

Monitoring surface movement of slope

Alarm Level	Typical Velocity Limit	Proposed Response
Level 1 (Normal Situation)	Less than 2 mm/hour (Slow)	Daily data monitoring
Level 2: Yellow (Advisory)	2 mm/hour to 9 mm/hour (Slow)	Continuous monitoring, data analysis & review, field observation
Level 3: Orange (Watch)	9 mm/hour to 18 mm/hour (Slow)	Increase preparedness, continuous data analysis, inform police / preparedness team
Level 4: Red (Danger)	>18 mm/hour (Moderate)	Continuous monitoring, decision to be made (to evacuate / close the road)

Jamaludin S., 2012

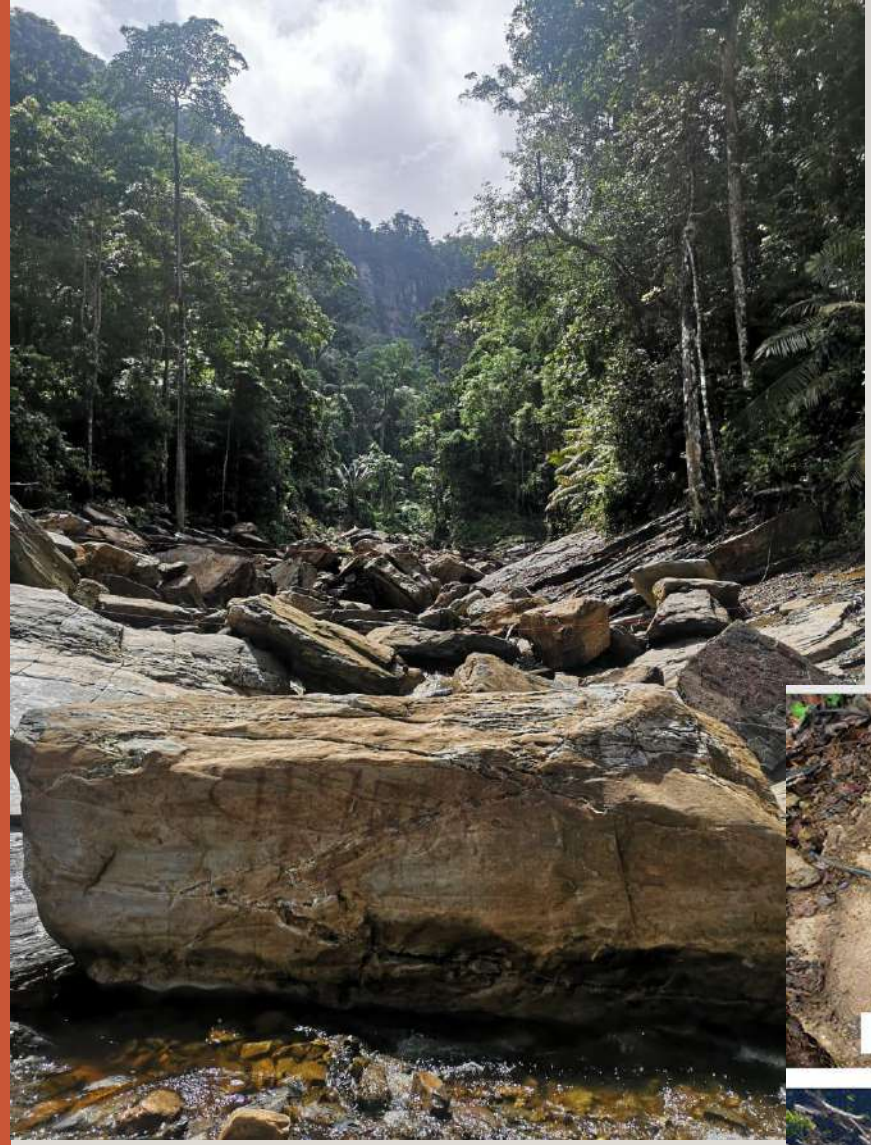
FT 185, SEKSYEN 44, JALAN SIMPANG PULAI –CAMERON HIGHLANDS



Preparedness, Response and Recovery

SISTEM AMARAN AWAL TANAH RUNTUH (EWS) DI GUNUNG JERAI

- EWS for *Debris Flow disaster combines vibration sensor detector and* wire



ACHIEVEMENT NATIONAL SLOPE MASTER PLAN

RESEARCH & DEVELOPMENT

RESEARCH & DEVELOPMENT

The location for Slope Erosion Control study through Bio-Engineering at Seksyen 42.8, Jalan Simpang Pulai – Blue Valley , is in good condition and fertile with plant species such as periuk kera, resam, lalang, orkid, paku pakis and others.

RESEARCH & DEVELOPMENT

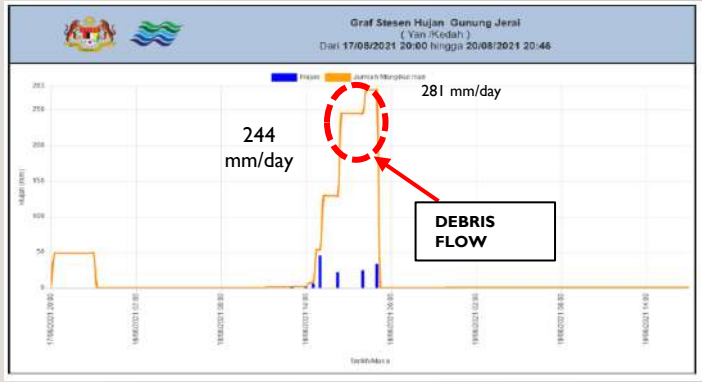
he location for Slope Erosion Control study through Bio-Engineering at KM 12 Jalan Seremban – Kuala Klawang, Negeri Sembilan, is in good condition and fertile with wild plant species such asresam, aksia, petai belalang, paku gajah, senduduk bulu and others.

MAJOR SLOPE FAILURE EVENT

DEBRIS FLOW MOUNT JERAI, YAN, KEDAH (18 AUGUST 2021)

DEBRIS FLOW INCIDENT

- Debris flow incident was occured due to very heavy rainfall (281mm/day) on 18th August 2021 exceeded average recurrence interval (ARI) in that area for 70 years of return period (278mm/day).



- Contributing Factor :

i. Geological formation of residual soil from quartzite rock and thin layer of schist is easily eroded when heavy rain occured.
ii. Slope gradient more than 60°.
iii. High water level.
iv. Rock foliation was inclined towards road

SUMBER : JPS (2021)

LOCATION 1 : TITI HAYUN

Several location of the landslide scar that triggered the debris flow at Titi Hayun catchment areas. Concave slope morphology with a gradient exceeding 60°

SUMBER : JMG KEDAH/PERLIS/PULAU PINANG (2021)

LOCATION 2 : BATU HAMPAR

Several location of the landslide scar that triggered the debris flow at Batu Hampar catchment areas.
Concave slope morphology with a gradient exceeding 60°

SOURCE : JMG KEDAH/PERLIS/PULAU PINANG (2021)

LOCATION 3 :SERI PERIGI

Damages to the infrastructures

FT252 MOUNT JERAI ROAD

Landslide at FT252 road

BEFORE

AFTER

Rockfall Netting and Rock Fall Fencing

Tie Back Wall

Slope Failures and Remedial Works

	BEFORE (2021)	AFTER (2022)
Jalan Kuala Kedah-Yan, Jerai Hill, Kedah.		
	Slope Failure	**Rockfall Netting and Rock Fall Fencing**

SIMPOSIUM CERUN NEGARA 2025

INTRODUCTION

The National Slope Master Plan (NSMP) serves as the authority and main reference source between Federal and State agencies concerning the management of the nation's slopes. It represents the government's commitment at the international level in alignment with the Sendai Framework for Disaster Risk Reduction 2015-2030.

The goal of NSMP is to reduce the risks and losses caused by landslides and to establish a national policy for a comprehensive framework that includes effective strategies and action plans. Through NSMP, the Slope Engineering Branch of the Public Works Department (JKR) of Malaysia, as the country's technical agency, is responsible as the main coordinator of this policy and also serves as the Chairman of the Inter-Agency Committee on Slope Management (ICSM), with members from various agencies including Local Authorities (PBT), NGOs, academics, and industry players. The outcomes of NSMP will support the National Disaster Management Agency (NADMA) as the leading agency in administering and coordinating landslide disaster management.

PROGRAMME OBJECTIVES

1) Achieve the goal of sustainable national slope management:

The goal of NSMP is to reduce the risks and losses caused by landslides and to establish a national policy for a comprehensive framework that includes effective strategies and action plans. This seminar is organized to raise awareness and understanding among participants about the importance, achievements, impact, and strategic core of NSMP in the management of national slopes.

2) Optimize the seminar and exhibition platform for the sharing of knowledge, experiences, and best practices related to slope engineering:

This seminar serves as a platform for sharing knowledge, experiences, and best practices through the presentation of research and development results, as well as discussions with technical experts in forum sessions on adapting to climate change and reducing landslide disaster risks, while strengthening the resilience of local communities. Additionally, it provides an opportunity for industry players to explore the latest technologies and innovations, particularly in the field of slope engineering.

3) Empowering collaboration and coordination between agencies:

Building an integrated strategic collaboration network with support from various agencies, stakeholders, industry players, and academia to coordinate efforts in implementing the NSMP action plan.

WITH THE COLLABORATION OF ICSM AGENCIES

- Bahagian Perancangan Ekonomi Negeri (Selangor, Perak, Pulau Pinang)
- Unit Pengurusan Bencana Negeri Selangor

SCAN ME

THANK YOU

JKR