TERM OF REFERENCE

FOR CONSULTANCY SERVICES

GUIDELINES FOR LANDSLIDE VULNERABILITY ASSESSMENT AND DEVELOPMENT OF RISK INDEX FOR CRITICAL INFRASTRUCTURE (CI) IN MALAYSIA

FOR

CONSTRUCTION RESEARCH INSTITUTE OF MALAYSIA (CREAM)

Subsidiary of the CIDB Malaysia

TERM OF REFERENCE: CONSULTANCY SERVICES

1.0 Project Title

Guidelines for Landslide Vulnerability Assessment and Development of Risk Index for Critical Infrastructure (CI) in Malaysia.

2.0 Background

Landslide occurrences have been the most critical issues in Malaysia. Frequency, size and impact the community kept on increasing. Landslide do normally occurs due to human or nature activities. According to the National Slope Master Plan (NSMP) 2009-2023, Selangor and Federal Territory have experienced the most landslides since the 1970s followed by Pahang, Penang and Sabah. 600 deaths recorded since 1961 and the highest fatality for a single landslide was recorded on 26 December 1996 where 302 people killed in Keningau, Sabah. Economic losses from landslide total almost RM 3 billion from 1961 to 2007. Human activities including immense population growth, sprawling development and megacities are among the contribution factor that leads to disasters. In time of uncertainties, the risk and vulnerabilities exposed by natural hazards and disasters rise at accelerating pace add sense of urgency to the challenge of being resilience. Moving forward, resilience features need to be enhanced in multi-disciplinary actions. The Sendai Framework for Disaster Risk Reduction 2015 to 2030 (SFDRR) adopted in 2015 echoes global commitment to address Disaster Risk Reduction (DRR) and the building of resilience to disasters with renewed sense of urgency (United Nations, 2015). Align with the global agenda, Malaysia government under the Eleventh Malaysia Plan (11th MP) aims to strengthening resilience against climate change and natural disaster. Building the culture and practice of disaster resilience will require focused action within and across multi sectors.

3.0 Objectives

The objectives of landslide vulnerability assessment and development of risk index for critical infrastructure in Malaysia is:

3.1 To identify issues related to vulnerability assessments and risk index for critical infrastructures.

3.2 To review the best practices of vulnerability assessments in other countries (Japan, Hong Kong, and Taiwan) and provide benchmarking/ comparative analysis to Malaysia.

3.3 To assess and develop the parameters/indicators of landslide vulnerability assessment and risk index of critical infrastructures and assigning level for each parameter.

3.4 To produce manual and guidelines for landslide vulnerability assessment and development of risk index.

4.0 Work Scope

The proposed scope of work are as follows:

4.1 Review issues regarding landslide vulnerability assessments and risk index on critical infrastructures for urban, urban highlands, sub-urban and rural areas including active tectonic zone in Malaysia.

4.2 Data collection should be focused on the landslide vulnerability assessment method and development of landslide risk index for critical infrastructures in Malaysia (urban, urban highlands, sub-urban, rural and active tectonic zone).

4.3 The output to this data collection will be used as indicators/ parameters for landslide vulnerability assessment and development of landslide risk index for critical infrastructures.

4.4 Document analysis for vulnerability assessment and development of landslide risk index for critical infrastructures.

4.5 Final draft guidelines for Landslide Vulnerability Assessment and Development of Risk Index for Critical Infrastructure in Malaysia

5.0 Duration

The duration of the consultancy services is maximum 9 months without extension upon official date of letter appointment from CREAM.

6.0 Referral Document for Appointed Consultant

Consultant will be responsible to obtain any referral documents from the reliable sources.

7.0 Deliverables Submission Format

All deliverables are submitted in English and Bahasa Malaysia. The completed progress and final report should be submitted to CREAM in **5 copies of Hardcopy and 5 copies of softcopy** and **the original format (editable)**.

8.0 Schedule of Payment

The Consultant is required to submit a Progress Payment for the completed services for each work submission.

8.1 Any expenses (other than consulting costs) can not be claimed by the consultant.

8.2 CREAM reserves the right to change the payment scheme and payment schedule as follows:

	Deliverable	Time Allocation	% Payment	RM
	Deliverable 1: Inception report (Objective 1)	2 weeks upon appointment	10	
	Deliverable 2: Interim report 1 (Objective 2)	Week 6	20	
	Deliverable 3: Interim report 2 (Objective 3)	Week 18	20	
	First draft report (Objective 4) + Industry engagement	Week 30	10	
	Draft final report:	Week 32	10	
	Final report	Week 34	30	

9.0 Intellectual Property Rights

9.1 Deliverables and sub-deliverables prepared and submitted by the consultants under the terms of reference (TOR) are the intellectual property of CREAM. No part or parts need to be reproduced in any form without prior permissions by CREAM. CREAM reserves the right to alter, modify, or change any information if it deems so.

9.2 CREAM is responsible to take all reasonable steps to protect confidential information (if any) specified by one of the parties.

9.3 Non-Disposure Agreement (NDA).

10.0 Agreement of Consulting Services

10.1 A consultant will be given a copy of the agreement stating the terms and conditions of the consultant's services shortly after the consultant agrees to the appointment to the reception of the consultant's appointment.

10.2 The consultant is required to provide the minutes of the meeting and distribute it to the Technical Working Group (TWG) appointed by CREAM and relevant parties.

11.0 Termination of Consulting Services

CREAM has the right to terminate the consulting services if:

a) The consultants fails to produce results with the agreed timeline without a valid reason

b) The consultant fails to perform task for the identified scope with a high level of commitment

c) The consultant fails to attend at least 4 meetings in 9 months or workshop that were agreed upon in advance

12.0 Estimated cost

A total of **RM 200,000.00** is allocated for this consultancy service using the provision of MAMPAN- CREAM-CIDB.

Note: Kindly prepare proposal according to template given.

TEMPLATE FOR PROPOSAL

1.0 Title of project

2.0 Introduction

3.0 Background of project

4.0 Propose Methodology

5.0 Deliverable

6.0 Milestone

7.0 Consultancy cost

8.0 Research team

9.0 CV for each individual involve

10.0 Consultancy project experience and expertise related to landslide

11.0 List of previous project

Team Members

1. Geologist (7 years experience)
2. Engineer/ Geotechnical Engineer (7 years experience)
3. GIS Analyst (5 years experience)
4. Planner (7 years experience)
5. Project Manager (7 years experience)