

IPL New Project Proposal Form 2022

- Project Title: Study on Suitable Tools for Modeling and Analysing Rain Induced Slope failure in Sri Lankan Residual Soil**
- Main Project Fields** - Slope behavior modeling
- Name of Project leader** :
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Core members of the Project
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Mr. H. M. M. S. Jayaweera–B. Sc. (Geology Special),
Mr. T. S. Wickramasooriya– B.Sc(Civil Eng); CEng, MIESL
Mr. A. A. Virajh Dias –B.Sc(Civil Eng); CEng, PG.Dip; MASCE,MIESL
- Objectives**:
The objective of this research is to find out the applicability of available slope stability analysis tools for rain induced slope failure in Sri Lankan residual soil
- Background Justification**:
Considerable loss to lives and property are caused annually due to slope instability in Sri Lanka. This is mainly triggered by high rainfall. Conventional tools are used to analyse the problematic areas followed up by risk mitigation proposals. Effectiveness of the approaches greatly depends on the applicability of the tools used. Therefore a guide for selection of suitable tools for analysis will immensely benefit the society.
- Study Area**:
Mountainous area of Sri Lanka covering the Central, Sabaragamuwa, and Western province
- Project Duration**: Two years (January 2022-December 2023)

8. Resources necessary for the Project and their mobilization

Item	Description of Personnel and Facilities	Cost USD	Mode of Contribution
1	Filed sample selection, preparation, testing	4,000.00	50% by CECB and rest through a grant
2	Modeling, analysis and documentation	2,000.00	50% by CECB and rest through a grant
	Total USD	6,000.00	
	Total grantee contribution (USD)	3,000.00	By CECB
	Total expected through funding (USD)	3,000.00	Through a grant

9. Project Description:

The project proponent (CECB), World Center of Excellence on landslide disaster reduction for 2014-2017, 2017-2020 and 2020-2023 has involved in landslide analysis and mitigatory works since 1998. It has access to large amount of data through field studies, e-conference, IPL project work and other collaborative works. Therefore the sample locations can be selected and required preparation can be carried out aiming at achieving useful results. It is expected to select suitable locations in slopy areas for sample preparation and then expose to simulated rain conditions. Observations with respect to deformation and shear failure will be recorded.

Also CECB is capable of modeling the slopes using the results of investigations obtained through Laboratory and geotechnical investigation facilities. Then available tools will be used for analysis. Required modifications will be carried out for obtaining more accurate results. Recommendations on selection of suitable tools for analysis will be made based on the results.

10. Work Plan/Expected Results:

January 2022-December 2022:

(a) Literature review, data collection and Identifying the requirements (b) Selection of sample locations for models (c) Sample Testing, collection of subsurface data

January 2023-December 2023

(a) Modeling the slopes, analysis and comparison with results, (c) Re testing for clarifications and revised analysis (e) Development of recommendations

11. Deliverables/Time Frame:

May 2022: Sample locations and testing procedure
 December 2022: Results of sample testing and investigation(Pahse 1)
 March 2023: Results of Preliminary Analysis
 July 2023: Results of sample testing and investigation –(phase 2)
 September 2023: Results of revised analysis
 December 2023: Recommendations on suitable tools for analysis

12. Project Beneficiaries:

The landslide professionals, academics, researchers, planners and people residing in landslide prone areas in Sri Lanka are the beneficiaries of this project.

13. References

- ICL Landslide Teaching Tools (ISBN:978-4-9903382-2-0)
- Rain Triggered Slope Movement as Indicators of Landslide Dynamics, RK Bhandari, AAV DIAS
7th International Symposium on Landslides, Trondheim, Norway, 1996 1, 1515-1520
- Shallow modes of slope failure in road earth cuttings in Sri Lanka, HMJMK Herath, SSI Kodagoda,
AAV Dias