

IPL New Project Proposal Form 2017

1. Project Title: **Development of a Web Based Landslide Information System for the Landslides in Sri Lanka**

2. Main Project Fields - 1. Technology Development (database and hazard assessment)

3. Name of Project leader :

Ms. K. M. Weerasinghe - B. Sc. (Civil Engineering), M. Sc. (Geotechnical Engineering)

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Core members of the Project

Ms. J. M. K. Herath – B. Sc. (Geology Special), M. Sc. (Water Resources Management)

Mr. K. B. Attapattu – B.Sc (Town and Country Planning)

Mr. A. A. Virajh Dias – B.Sc(Civil Eng); CEng, PG.Dip; MASCE,MIESL

4. Objectives:

The objective of this research is to develop a web based database on landslides for Sri Lanka by collecting information through online tools such as ‘Google alert’ (<https://www.google.com/alerts>), other available databases (www.desinventar.lk) and field verification, and organizing the data in an user friendly manner.

5. Background Justification:

Individuals and institutions continuously carry out various studies on landslides, and collect landslide information at their own desired levels. Most of the collected information are kept in possession of the collectors and seldom shared among other users. Due to the very fact, an institution or an individual who requires landslide related information for decision making or for further research often face difficulties, as the information which can be obtained are limited. The Des Inventar database published by the Disaster Management Center of Sri Lanka (www.desinventar.lk) is the only online disaster database available in the country, and carries information only on the damages caused by different hazards. In the referred database also, information related to landslides have not been updated after the year 2011. This situation has impelled the necessity of developing an online comprehensive landslide database which is accessible to anybody who is in need of either technical or non-technical information on landslides.

6. Study Area:

Mountainous area of Sri Lanka covering the Central, Sabaragamuwa, Uva, Western and Southern

administrative provinces.

7. Project Duration: Three years (September 2017 –August 2020)
8. Resources necessary for the Project and their mobilization

Item	Description of Personnel and Facilities	Cost USD	Mode of Contribution
1	Database server and associated peripherals	200.00	By CECB
2	Field data collection	2,500.00	By CECB
3	Dissemination of Information	3,000.00	Research grant
	Total USD	5,700.00	
	Total grantee contribution (USD)	2,700.00	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 and 2017 – 2020, has studied several landslides which have been occurred in Sri Lanka and carries a certain amount of information which are needed to be organized into a comprehensive database. Harnessing the information carried by the Des Inventar database shall be carried out next and as it lacks technical information such as the dimensions of landslide, the average slope gradient, land use, geological and geotechnical information at the failure surface etc. adding those missing technical information by searching through past reports, and/or through field investigations are to be done. In the meantime, additional information can be continuously collected through the online tools such as Google Alert and field data verifications.

Since the database carries information collected through various sources, expressing the accuracy levels shall be done by developing an appropriate legend and/or color codes as applicable.

Ability for performing statistical analyses from the users' end shall be incorporated and the processed information shall be illustrated via graphs and/or maps. The possibility of downloading data in tabular and graphic form shall also be incorporated and finally a user friendly, web based comprehensive landslide information system shall be developed.

10. Work Plan/Expected Results:

September 2017-February 2018:

(a) Scrutinizing already available information and designing backend database architecture on a Mysql server, (b) Continuing collection of data, if new landslides occur, and (c) Field data verification

March 2018- August 2018:

(a) Harnessing Des Inventar database for information available on past landslides, (b) Field data verification on past landslides, where possible, (c) Continuing collection of data, if new landslides occur, (d) Continuing designing backend database architecture, (e)

Commence designing of user interfaces and front end architecture using PHP.

September 2018-February 2019:

(a) Continuing harnessing Des Inventar database for information available on past landslides, (b) collecting information carried by published reports on past landslides, (c) Field data verification on past landslides, where possible, (d) Continuing collection of data, if new landslides occur, and (e) Continuing designing of front end architecture using PHP, Java etc.

March 2019- August 2019:

(a) Continuing collection of information carried by published reports, (b) Field data verification on past landslides, where possible, (c) Continuing collection of data, if new landslides occur, (d) Development of appropriate legend for representing different accuracy levels, and (e) Development of tools for data analyses at the users' end.

September 2019-February 2020:

(a) Continuing collection of data, if new landslides occur, (b) Continuing development of tools for data analyses at the users' end, and (c) Performing unit testing, sub system testing and integration testing.

March 2020- August 2020:

Continuing collection of data, if new landslides occur, (b) Launching the Beta version of the comprehensive landslide information system, and (c) Performing performance testing and acceptance testing.

11. Deliverables/Time Frame:

February 2018: Mysql database on landslide information available at CECB
August 2018: Preliminary user interface for retrieving landslide information
February 2019: Improved user interface for retrieving landslide information
August 2019: Improved user interface with basic tools for data analyses at the users' end, Enriched database with appropriate legend for representing different accuracy levels
February 2020: Launching beta version of the landslide information system
August 2020: Launching final version of the comprehensive landslide information system

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

Devoli G., Strauch W., Chávez G., Høeg K., (2007), A landslide database for Nicaragua: a tool for landslide-hazard management, Journal on Landslides (Springer).

Des Inventar Disaster Information System, <https://www.desinventar.lk>.

Innocenzi, E., Greggio, L., Frattini P and Amicis M.de.,(2017), A Web-based Inventory of Landslides Occurred in Italy in the Period of 2012-2015, In: Advancing Culture of Living with Landslides, Vol 2, 1127-1133.

Weerasinghe, K.M., (2014), Utilization of Inferred Landslide Hazard Information as a Web Based Decision Making Tool for Landslide Disaster Risk Reduction and Early Warning, In: Landslide Science for a Safer Environment, Vol. 3, 319 - 332.