| Date of Submission | 22nd December, 2021 |

IPL New Project Proposal 2022

1. Project Title:

   Societal and Environmental Determinants of Landslide Risk Perception towards Landslide Disaster Risk Reduction; Case Study of Athwelthota Landslide, Baduraliya, Kaluthara, Sri Lanka.

2. Main Project Fields - 3. Capacity Building

3. Name of Project leader : **Ms. N. Nimesha Katuwala -** B.Sc. (Computational Chemistry), Reading for M.Sc. (Environmental Management), **e-mail: nkatuwala@gmail.com**

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   Core members of the Project :

   Ms. K. P. C. Perera – B.Sc. (Chemistry), Reading for M. Sc.(Environmental Science), CECB

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   Ms. M.K.P. Madushani – Reading for B.A. in Youth and Community Development, CECB

   Ms. A. A. Yasara Samiddhi – B. Sc. (Environmental Science)

   Volunteer Undergraduates from Universities of Sri Lanka

4. Objectives: The objective of this research is to identify the insights, perceptions and expectations from a cross section of the society towards the existing mitigation measures developed on landslide disaster risk reduction and to identify the environmental sensitivity on the same.

5. Background Justification: Social vulnerability to natural disasters is usually determined based on individual characteristics of the people including socio-economic status, gender, race, age, employment, occupation, residential property, infrastructure and lifelines, education and family structure [Kuhlicke, 2011 and Lin, 2008]. Even though there have been numerous risk mitigation strategies that have been undertaken on landslide prone areas, the loss of lives due to landslide continues. That means risk perceptions of the local people are rarely incorporated in the preparedness and control programme for landslide risk management. Besides fragility of the natural settings, environmental sensitivity, human mismanagements, location specific attraction and addiction to the locality have also paved the way for landslides risk in the area. Analysis of risk perception of disasters and natural hazards is imperative for devising policies for preparedness and mitigation actions. In such scenario it is important to identify the actual requirement of the society to identify the gaps and improvements needed to better cater the victims.

6. Study Area: Case study: The landslide occurred in Athwelthota area in Baduraliya District Secretariat Division, Kalutara at around 0500hr on 26.05.2017. Nine deaths were reported at the location while 4 houses were completely damaged due to the landslide disaster. Special landslide investigations were carried out by CECB (Weerasinghe, 2014) and NBRO at the location recommending evacuation, infrastructure remedial measures and bio engineering applications to reduce the landslide risk.

7. Project Duration: Four years (January 2022 –December 2025)

8. Resources necessary for the Project and their mobilization

Item	Description of Personnel and Facilities	Cost USD	Mode of Contribution
1	Survey (selected individuals in the landslide prone are) and associated peripherals	1,000.00	By CECB (survey will be done in online basis as well)
2	Field data collection	1,000.00	Research grant
3	Software licenses	2,000.00	Research grant
4	Dissemination of Information	2,000.00	Research grant
	Total USD	**6,000.00**	
	Total grantee contribution (USD)	1,000.00	By CECB
	Total expected through funding (USD)	5,000.00	Through a research grant

9. Project Description: Socio-economic characteristics of the households greatly affect their perceptions about landslides. Social vulnerability or socio-economic vulnerability is defined as the inability of the people, organizations and societies to combat the impacts of natural disasters [Myers, et.al., 2008]. The effects of risk perception and sense of place and the surrounding nature on disaster preparedness have been widely reported. In other words, prolong period of associated surrounding nature looks predominant factor on economic viability at which addiction to place dependence variables were more likely to adopt a greater number of disaster preparedness behaviors. Additionally, individual and household socioeconomic characteristics—education, loss, distance from hazard site, information acquisition channel, and housing material— were all related to household disaster preparedness behavior. Obtained Perceptions, views and expectations on Athwelthota Landslide Mitigation Measures from individuals from 6 potentially affected communities such as school children, Academic Professionals, Professionals from State Organizations, Commuters, Business Communities and affected communities from grass root levels. The questionnaire consists of questions regarding socio-economic characteristics of the respondents and risk perceptions about landslides. Due to the current pandemic situation, it is expected to carry out an online survey via Google forms to obtain the perception and views from schoolchildren to academics in landslide prone areas. Semi structured faced to face interviews and Focused Group Discussions are also planned to be conducted as they are the most effective method of conducting a perception survey. Considering the variations in geology, debris deposition, populations at risk, and economic development levels, the perception survey is focused on categories -adults and younger. These perception surveys will be analysed using a software- NVivo 12, to identify the actual requirement or the view of the majority so that it can be useful in future decision making. This study contributes to the current literature by improving the understanding of the relationships of risk perception and sense of place to disaster preparedness in farming households threatened by geological disasters in Athwelthota area at Baduraliya in Kalutara District.

10. Work Plan/Expected Results:

January, 2022- December, 2023

(a) The first step is to draw up a detailed questioner which includes preliminary data, disaster record, any records of damages, victims, social issues, relief and rehabilitation works and any other supportive information related to specific objectives.

(b) The questionnaire survey equally represents socio-economic and cultural differences among the respondents and their perceptions about landslide risk, the study area will be divided in to (i) most sensitive zone (ii) surrounding locality and threatened area due to the existing landslide and (iii) community of adjoin village.

(c) All contact be made with the people through their community leaders, mountain people, who are most often isolated, are very concerned by all that affects their customs and their land. Objective of this step is to find out community views/ insights/ perceptions of affected communities, etc.

January, 2024- December, 2025:

(d) Development of a detailed evaluation model using NVivo 12 software, one of the latest qualitative data analyzing technique which can be used to identify the impression of stakeholder communities having their statements provided during the surveys as input data for the software.

(e) Conduct the Cluster analysis which is an exploratory technique that can be used to visualize patterns which group the similar attribute values, which are coded similarly by nodes. Ultimately cluster analysis will provide a graphical representation of groups which have similarities and differences among them. (Result: Clusters with same attitudes either Negative attitude or a Positive attitude)

(f) Next the word frequency test can be conducted to identified groups in the cluster analysis, in order to identify frequently highlighted words (ideas) used by each group to express their attitudes towards the risk management projects undertaken by the government. (Result: Word Cloud)

(g) Then it is necessary to realize whether these attitudes are actual or whether it is just a fear due to inadequate awareness.

(h) Accordingly, actions should be implemented to provide solutions to actual scenarios and/or conduct empowerment campaigns to eliminate the identified fears. (Result: educated communities)

11. Deliverables/Time Frame:

January 2022 : Created Google forms/ questionnaires / Google forums for target group discussions

Dec 2023 : Collate the data obtained and use them as input data for NVivo 12 software.

January 2024 : Output of the cluster analysis and word frequency test and presenting the insights/perceptions/expectations of the focused groups.

January 2025 : Organizing empowerment programmes in webinar basis /physical sessions

Dec 2025 : Presenting the final output of the stakeholder perceptions after conducting the empowerment programmes

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

1. 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.

2. Kuhlicke C, Scolobig A, Tapsell S, et al. (2011) Contextualizing social vulnerability: findings from case studies across Europe. Nat Hazards 58: 789–810.

3. Lin S, Shaw D, Ho MC (2008) Why are flood and landslide victims less willing to take mitigation measures than the public? Nat Hazards 44: 305–314.

4. Myers CA, Slack T, Singelmann J (2008) Social vulnerability and migration in the wake of disaster: the case of Hurricanes Katrina and Rita. Popul Env 29: 271–291.