

Dear Sir/Madam,

It is with great pleasure that we share with you an update on the LANDSLIP project.

Our project consortium members from across India, UK and Italy have been working to progress the prototype landslide forecasting system in our study sites in Nilgiris and Darjeeling Districts. We now have developed prototype models (which require evaluation) and a draft system framework for the experimental landslide forecasting system. Our current focus has therefore moved onto evaluating and testing these prototype models and system.

The project has progressed on several fronts since our last communication in October 2019.

### Workshop on interpreting forecast information



In November 2019, LANDSLIP consortium members from the UK (British Geological Survey, Kings College London, and Practical Action) and Italy (Consiglio Nazionale delle Ricerche) visited Geological Survey of India (GSI) in Kolkata for a week of training and workshops. The main focus of the week was to review, adapt and capture the process of interpreting forecast data into information useful for District decision makers.



### District stakeholder meetings



In November and December 2019, several members of the LANDSLIP consortium team, led by GSI, met with District and selected sub-District officials in Darjeeling and Nilgiris to update them on the status of the project and next steps.

### Annual meeting focusing on legacy



In February 2020, over thirty members of the consortium met at the TERI retreat near Delhi for our LANDSLIP annual meeting. Consortium members reflected on the progress and achievements since the beginning of the project and mapped out our remaining ambitions and outputs. Legacy beyond the end of the project was the main focus of the workshop.





### **Landslide observation tracker**



LANDSLIP members have been working with our community partner organisations (Save the Hills and Keystone) to develop methods for recording landslide observations in our study sites. These methods include hard-copy recording as well as the development of a mobile App. The mobile App software is being developed by Amrita University. Recording landslide occurrences and associated information is vitally important to allow for evaluating and improving the prototype model.

### **COVID-19**

The LANDSLIP consortium is currently reviewing the potential impact of COVID-19 on the project and developing contingency plans to adapt to the evolving situation. The LANDSLIP team recognise the importance of adhering to government guidelines in order to prioritise the health, safety and well-being of its members and its stakeholders. As a consortium, and with our local partners, we are in discussions around how we evolve and adapt our plans to ensure the LANDSLIP project continues to deliver impact, despite the current, extreme circumstances.

### **Consortium lead update**

Dr Helen Reeves has moved position from BGS to an engineering geology consultancy firm in the UK. Whilst Helen will remain involved in LANDSLIP, through its external advisory board, her Co-PI duties are being formerly handed over to Emma Bee. During its annual meeting in February, the LANDSLIP consortium thanked Helen for her insight, vision and management of the project to date and wishes her every success in her new role.



## Next steps

The consortium's next steps will be to continue engagement with District level authorities in the two study sites, where we will share findings from the tool, how it could potentially be used beyond the project and to co-develop resources and guidance material to aid decision making. A main point of focus for the remainder of the project will be collecting landslide observation data in order to test and improve the forecasting skill of the system.

Please feel free to share this newsletter with interested colleagues.

**Best wishes,**

**Prof. Bruce Malamud and Emma Bee**  
Co-Leads of NERC/DFID LANDSLIP project

LANDSLIP (Landslide Multi-Hazard Risk Assessment, Preparedness and Early Warning in South Asia: Integrating Meteorology, Landscape and Society) is a NERC/DFID funded India-UK Collaborative Project.

The LANDSLIP project has as overall objective the development of a pilot early warning system for landslides in India and more broadly South Asia, with two pilot case studies: (i) Darjeeling/East Sikkim, (ii) Nilgiris.

This multi-institutional project consortium has 36 natural and social science researchers from internationally well-known government, research/academia and not-for-profit organisations: three from India including Geological Survey India (GSI), Amrita University and Practical Action Consulting, one from Italy (CNR-IRPI) and five from the UK (British Geological Survey, UK MetOffice, King's College London, Newcastle University, Practical Action Consulting). We also work closely with Save the Hills in Darjeeling and Keystone Foundation in Nilgiris, and their support helps us carrying out our work.

This project is unique in its approach to landslide early warning systems as it combines landscape, meteorological and social dynamics.

Further information is available on our [LANDSLIP website](#) and the [SHEAR website](#).

