

## IPL Project (IPL-Number) Annual Report Form

**Period of activity under report  
from 1 January XXX to 31 December xxx**

- 1. Project Number and Title:** Development of Landslides Risk Reduction Strategies for Protection and Safety of Heritage Sites
- 2. Main Project Fields**  
Select the suitable topics. If no suitable one, you may add new field.
  - (1) Technology Development
    - B. Hazard Mapping, Vulnerability and Risk Assessment
  - (2) Targeted Landslides: Mechanisms and Impacts
    - A. Catastrophic Landslides
  - (3) Capacity Building
    - B. Collating and Disseminating Information/ Knowledge
  - (4) Mitigation, Preparedness and Recovery
    - A. Preparedness
  - (5) Strategies for Reducing Landslides Risks to Heritage Sites / Structures
- 3. Name of Project Leader:** Dr. Surya Parkash Gupta  
Affiliation: Former Professor and Head, GMR Division, NIDM, Delhi  
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Core members of the Project:
- 4. Objectives** (5 lines maximum):
  - To identify the risks associated with landslide at heritage sites and structures
  - To develop Landslide Risk Reduction strategies for protection and safety of heritage sites and structures
  - To enhance human and institutional capacity for Landslide Risk Reduction and Resilience of Heritage Sites and Structures
- 5. Study Area:**  
The study area for the project extends throughout India, with particular focus on heritage sites and structures in the landslides prone areas of the hilly terrains in the Northwestern, Northeastern, Northern and Southern parts of the country.
- 6. Project Duration:** 3 year (1<sup>st</sup> January 2024 to 31 December 2026)

## 7. Report

### 1) Progress in the project (30 lines maximum)

The project has attempted to identify heritage buildings, structures and sites affected by landslides in the hilly terrains of India during the recent or past times, particularly in the northern, northwestern, northeastern, and southern parts of the country. As the heritage sites and structures have immense social, traditional and ethical values in human life and systems, it becomes a matter of great concern to ensure safety and protection of such intangible elements through strategic policies, plans, procedures and guidelines to establish standard operating procedures in public interest. Hence, the present study has been carried out to understand the potential risks to existing vulnerable heritage sites and structures that were exposed to the landslide hazards with focus on hilly terrains in India.

The present study relied on the secondary data and information obtained from various sources including the news, media reports and literature surveys published by different departments and organizations. It included Geological Survey of India, Archaeological Survey of India, National Remote Sensing Centre, Disaster Management Authorities as well as from the various publications including Anil Kathait et al (2020), COMOS & TICCIH (2022), NDTV (2023), Parkash Surya et al (2025), Parkash Surya (2023), Parkash Surya (2022), Parkash Surya (2015), Singh and Parkash (2019) etc.

Although the National Disaster Management Authority has released the national guidelines (2009) and strategies (2019) for landslides management in India yet the specific focus on heritage sites and structures did not get adequate attention due to its intangible asset values.

The outcomes of the study would include development of draft national strategies for safety and protection of heritage structures and sites in landslide prone terrains in India.

### 2) Planned future activities or statement of completion of the Project (15 lines maximum)

The planned future activities pertain to the field visits to the identified landslides affected heritage buildings, structures and sites with an aim to collect more information and validate the secondary information received from other sources. An attempt will be made to briefly document these cases along with relevant data and photographs of these places along with narratives of the eye-witnesses of the known landslides events. Broadly, it may lead to formulation of draft national level strategies for protection and safety of heritage buildings, structures and sites from the landslides impacts, reduce the risks and enhance resilience.

### 3) Beneficiaries of Project for Science, Education and/or Society (15 lines maximum)

The beneficiaries of the project outcomes would be local communities, concerned authorities from the archaeology department and disaster management professionals as well as other relevant stakeholders.

#### 4) Results (15 line maximum, e.g. publications)

The results of the current study would help in identification and assessment of the landslides related risks to heritage buildings, structure and sites as well as promote efforts towards protection and safety of heritage in the country through development of national strategies for landslides risk reduction and resilience of heritage buildings, structures and sites.

#### References:

- Anil Kathait, Surya Parkash, Harjeet Kaur and Raju Thapa (2020). National Interventions for Landslides Risk Reduction and Resilience, *Journal on Disaster and Development*, ISSN:0973-6700, Vol.8, No.1&2, January 2014 to December 2019, published by National Institute of Disaster Management, Ministry of Home Affairs, New Delhi, pp.110-117
- ICOMOS & TICCIH (2022). Advisory Mission Report on the Darjeeling Himalayan Railway. International Council on Monuments and Sites
- NDTV (2023, October 16). Shimla-Kalka toy train resumes months after landslide left tracks hanging. Retrieved from <https://www.ndtv.com/india-news/shima-kalka-toy-train-shimla-kalka-toy-train-resumes-months-after-landslide-left-tracks-hanging-4448583>
- Parkash, S., Singh, R., Badola, S. (2025). Assessing Landslide Disaster Risk Reduction and Resilience: Case Studies and Insights, India. In: Abolmasov, B., et al. *Progress in Landslide Research and Technology*, Volume 3 Issue 2, 2024. Progress in Landslide Research and Technology. Springer, Cham. Pp. 323-339, [https://doi.org/10.1007/978-3-031-72736-8\\_22](https://doi.org/10.1007/978-3-031-72736-8_22)
- Parkash, S. (2023). Lessons Learned from Landslides of Socio-economic and Environmental Significance in India. In: Alcántara-Ayala, I., et al. *Progress in Landslide Research and Technology*, Volume 1 Issue 2, 2022. Progress in Landslide Research and Technology. Springer, Cham. [https://doi.org/10.1007/978-3-031-18471-0\\_23](https://doi.org/10.1007/978-3-031-18471-0_23), Print ISBN 978-3-031-18470-3, Online ISBN 978-3-031-18471-0, pp.309-315
- Parkash Surya (2015). Some Socio-Economically Significant Landslides in Uttarakhand Himalaya: Events, Consequences and Lessons Learnt, Chapter 12 published in *Mountain Hazards and Disaster Risk Reduction* (eds.: Rajib Shaw and Hari Krishna Nibanupudi), Series on Disaster Risk Reduction - Methods, Approaches and Practices, published by Springer Japan, 2015, ISBN 978-4-431-55241-3, ISBN 978-4-431-55242-0 (eBook), pp.211-232
- Singh R and Parkash S (2019). Need of National Landslide Risk Management Strategy for Reducing Landslide Risk in India, *Journal Disaster and Development* 8(1&2):44–64. ISSN: 0973-6700