



The *re-construction* framework developed in previous phases of this project is published as a **Policy Brief** aimed at authorities, institutions and relevant stakeholders, explaining the methodology and identifying possible avenues of implementation.

We also developed a **Guidance Document** aimed at professionals and institutions working in disaster risk management, cultural heritage, and other related sectors responsible for post-earthquake recovery, covering the technical aspects of 3D documentation. These publications are available on the project's website:

[www.3d4heritageindia.com](http://www.3d4heritageindia.com)

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# 3D for Heritage India Phase 3

'Applicability and scalability of a sustainable *re-construction* framework for seismic-prone heritage areas of Gujarat, India'



University of  
Nottingham

UK | CHINA | MALAYSIA



This is a research project where we have developed a sustainable *re-construction* framework for heritage villages in seismic-prone areas of Gujarat, India, using a methodology based on advanced recording technologies such as 3D laser scanning, drone capture and interviews in the case study of Bela.

### There are three main outcomes:

- **Disaster Risk Management Plan** for Bela, led by GIDM, aimed to cover the mitigation strategies usually missing before an earthquake and other potential disasters.
- **A post-earthquake *re-construction* plan** for Bela, using the built environment data available to inform the type of actions required for buildings considering a visual damage assessment.
- **The retrofitting of the Bird Feeder (Chabutra)** at Bela, as a tangible example of strategies of repair and reinforcement that can be applied to other buildings. This has been led by the Hunnarshala Foundation, using the same amount allocated by the government to address housing repairs after earthquakes in Gujarat.

With these, we aimed to cover from the overall planning scale of the historic area to the smaller scale of each building, and their potential reinforcement, to raise awareness and develop preparedness for the next earthquake.

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Example of repair strategies



SCHOOL



EMERGENCY / EVACUATION MEETING POINT



MEDICAL FACILITY