A framework for earthquake assessment, *re-construction* and risk mitigation of buildings in historical settlements of Gujarat using advanced recording technologies

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Summary

This document presents a framework that could improve the chances of a rapid post-disaster damage assessment and effective response in case of an earthquake, enhance the possibilities of reusing existing structures, and increase preparedness and resilience in local communities, leading to sustainable *re-construction* and recovery.

It presents lessons from a pilot study of Bela in Kutch, Gujarat, using advanced recording technologies. The built environment of the historical area of that village was captured using 3D laser scanning—also known as LiDAR— in 5 days, resulting in an accurate and comprehensive digital data set in the form of a measurable 3D point cloud with precision of millimetres. This was combined with photographs, aerial drone capture, historical inquiry and social engagement through interviews with community members to create an enhanced digital model of Bela. This enables the digital documentation of heritage settlements and offers a platform for seismic risk assessment and the evaluation of the structural condition of buildings in a short period.

This framework is structured through a strategic partnership between academia, governmental institutions and NGOs to inform actions in conserving at-risk built heritage. This involves planning and building local capacity, relevant for its potential scalability and applicability in other similar seismic-prone heritage settlements.

By identifying key challenges in current legislations and policies regarding National Risk Disaster Management (DRM) and Heritage Management, this document proposes recommendations that could be relevant to inform the proposed framework's potential implementation.

Relevance

Vernacular housing in heritage settlements is liable to deterioration, damage and destruction due to disasters and human-induced hazards. Inhabitants mainly build this non-monumental heritage as an affordable response to local climatic and environmental conditions and their traditional ways of building and living. When located in seismic areas, this built heritage is at greater risk due to earthquakes posing a destructive and recurrent threat. Despite this, responses are usually triggered afterwards, lacking mitigation strategies to diminish destruction. The fastest and most common post-earthquake approach is to build anew, yet the most sustainable is to reuse, considering the building's embedded energy and heritage significance. However, there is a lack of relevant documentation for culturally sensitive recovery and preparedness, repairs are usually costly and slow, and large numbers of affected constructions make damage assessment difficult. To address these issues, we exploit advanced documentation technologies aiming towards a new approach to *re-construction*, to a culture of repair, reuse, adaptation and risk mitigation.

Contextual considerations

- Lack of proper methodologies for culturally sensitive post-earthquake damage assessment.
- Lack of provisions and standard methods for the seismic risk assessment of heritage structures.
- Lack of documentation of heritage settlements in the pre-earthquake phase, making recovery processes difficult
- When documentation is available, there is lack of accessibility to it.
- Limited use of technology for accurate documentation.
- Different departments and agencies are responsible for the varied dimensions of each particular settlement or building within the state's administrative structure. To coordinate criteria and actions between all stakeholders is difficult.
- Limited consideration of community's cultural perception by responsible authorities, which leads to making culturally important structures prone to replacement.
- Current tendency to incorporate contemporary solutions, disregarding traditional knowledge and indigenous practices.
- Reconstruction programmes are created after the earthquakes, failing to incorporate disaster risk mitigation strategies to prevent damage and destruction.

Previous post-earthquake responses

The Gujarat Earthquake Reconstruction and Rehabilitation Program, driven by the 2001 policy under the same name, was a comprehensive multi-sector program aimed at rehabilitating the people affected by the devastating earthquake that occurred on the 26th of January 2001, with a magnitude of 7.7 Mw. It referred to providing housing, social amenities, infrastructure and livelihood support based on a sustainable economy and ecology. The policy ensured a holistic risk-informed development of the affected areas. It offered the possibility to reinforce and repair houses and diminish relocation (see case study 1). Still, it could not ensure the continuity and revival of the culture, both tangible and intangible, the results of which can be seen in Anjar, Killari, Adhoi or Bela.

This is mainly because policies formulated at the state or the national level only provide guidance. They offer an overall "umbrella" for recovery under which reconstruction and rehabilitation were considered. In addition, in India, the disaster management machinery is decentralised with corresponding authorities at the state and district levels, making it difficult to track and evaluate.

Key insights

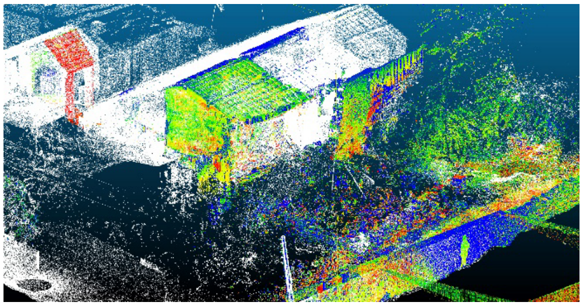
- The framework proposed is for the seismic risk management of heritage settlements and structures, covering digital documentation, structural evaluation and rapid post-earthquake damage assessment.
- This framework is scalable and replicable in other settlements of heritage value in Gujarat, India, and it could potentially be used as a basis for the other states in the country. In that case, local level contextualisation in terms of language, terminology, administrative structure and social acceptance is key to its success.
- The framework's successful implementation depends on institutional support and community engagement. Therefore, forging a network of key stakeholders is essential for its planning and execution in different contexts.
- Working towards implementing the proposed framework will help increase community members' and stakeholders' awareness of the future value of conserving culture and heritage.

1. Framework proposed

Considers *re-construction* as the repair, reinforcement and risk management of buildings instead of their complete replacement, a more sustainable alternative than building anew after each seismic event. For this, rapid and comprehensive documentation of the built heritage is required, based on 3D laser scanning, photography, aerial drone captures and interviews. It comprises four strategic guidelines:

(1) For immediate post-earthquake action: to simultaneously inform damage assessment at two different scales, the village and the individual buildings. The data obtained can help governing bodies and other concerned authorities assess the affected areas from macro to micro levels, an invaluable resource for planning new, effective measures. The information resources it offers make it faster and easier to understand the characteristics of a site after an earthquake, accelerating the response speed of the authorities.

(2) mid- and long-term study: including evaluation of previous earthquake responses, risk assessment and technology introduction to enhance preparedness and risk mitigation processes.



(3) community engagement and participation: critical for adequately contextualising the information obtained, validating it and getting local support for further actions. By sharing and discussing the work with the inhabitants, it is possible to incorporate local knowledge for the communities' risk preparedness and engage with the visual representations of their village to value their traditional environment.

(4) applicability via institutional partnerships: Implementation of the framework proposed requires active participation and coordination of multiple departments and agencies of the state, with technology introduction via training, resource and documentation accessibility, which requires specific technical skills. A partnership is recommended between academia, local NGOs, and governmental institutions.

Key benefits

- 3D technology ensures accurate recording of intricate physical and spatial information, which can be used for a structural safety audit, seismic risk assessment of heritage structures and digital conservation.
- The framework's focus on involvement and engagement with the community in the process ensures the integration of socio-cultural perceptions and increases its social acceptance.
- The framework proposed is suggestive and descriptive, leading to its adaptation to different contexts after due consideration.
- The network of partnerships proposed can lead to further interventions in this realm as spin-offs. For example, training National/State Disaster Response Forces (N/SDRF) in 3D technology for culturally sensitive post-disaster damage assessment, training a cadre of youth volunteers in using 3D technologies for seismic risk assessment of heritage structures, etc.

Key limitations

- Due to national and state-level legislation, one of the key issues in repairing heritage structures is their ownership. Different institutions are responsible for each structure, complicating coordination tasks within a heritage settlement.

- The technology used in the process would help assess heritage structures' structural safety, which can be extrapolated to understand their seismic risk. However, this would not be enough for a comprehensive seismic disaster risk assessment, which would need to include socio-cultural aspects that can be covered via the proposed community engagement, which is part of the methodology to be implemented.

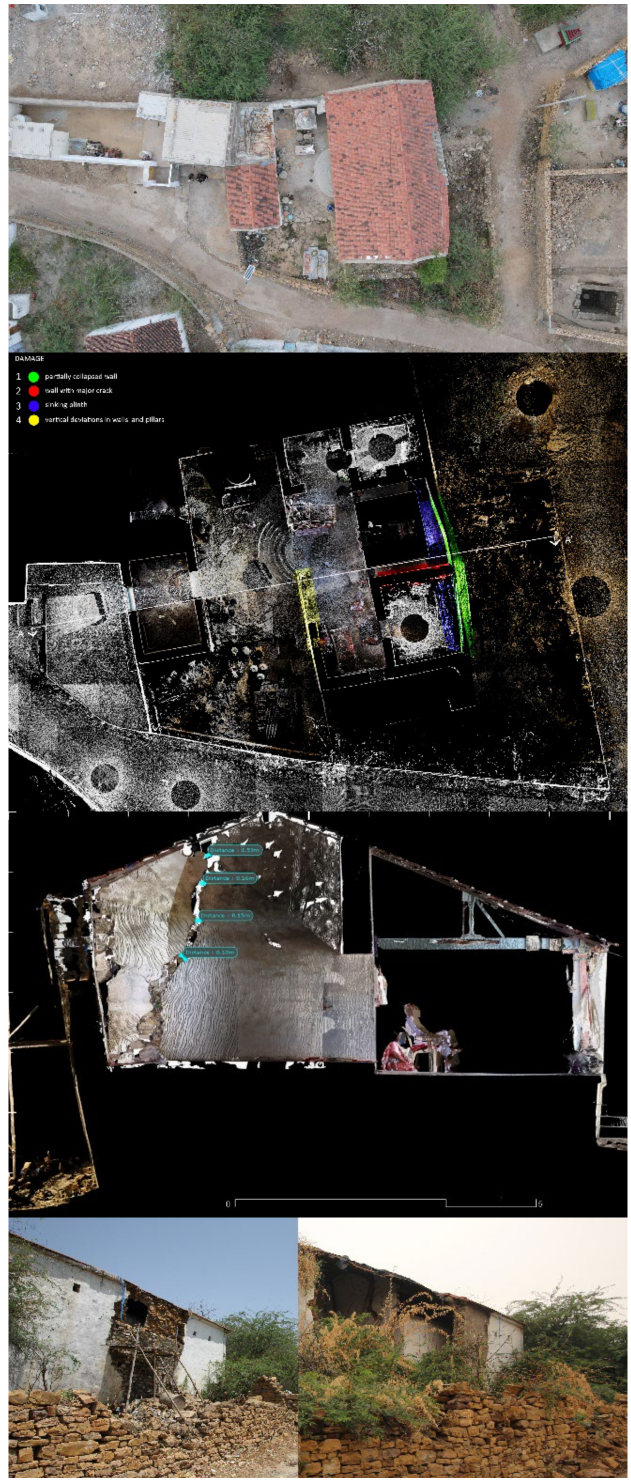
- The equipment for documenting the built environment can be expensive and requires specific technical expertise. A partnership with academic institutions is proposed, and a practical guide has been developed as part of the project to tackle these limitations, available for free in English, Gujarati and Hindi on the project website: www.3d4heritageindia.com

Key challenges

- To convey that culture and heritage are not narrowed to sites and buildings (see the current heritage legislation, section 2) but involve social practices and modes of living nurtured and supported by related heritage sites and buildings.

- To create awareness of the potential of disaster risk management to mitigate negative consequences and impacts, saving funds that would otherwise be required in a post-earthquake emergency (See section 3).

- To bridge the existing gap between heritage & disaster risk management professionals.



Family Darbar temple in Bela with damage from the 2001 earthquake (7.7. Mw magnitude). Deviations in plinths and walls identified in the 3D laser scan data reveal underlying structural problems that put at risk the entire building. A superficial repair was in progress by the time of the first data capture field trip in June 2021 (left), which failed during the following Monsoon season in November 2021, resulting in the partial collapse of that wall (right).

2. Current policy situation

Identifying the current disaster risk management and heritage protection situation in Gujarat helps to understand how the proposed framework could be implemented.

2.1 Disaster Risk Management

The resources related to disaster risk reduction and management available at the state or district level do not underline the pressing need to integrate concerns related to cultural heritage and its safeguarding. While the Disaster Management Act (2003) and the Disaster Management Policy at the state level emphasise the safeguarding and protection of cultural heritage, the instruments for implementing that are the state level and district level Disaster Management Plans, which fail to consider these issues.

Documenting heritage structures and their socio-cultural context, usually considered a part of heritage conservation, can help develop and strengthen disaster risk management plans.

The utility of the proposed framework encompasses all the phases of disaster risk reduction and management. The outcome can contribute as evidence towards the update of the state policy (2002) and the national policy (2009) to ensure the consideration of cultural heritage as a part of disaster risk reduction & management activities. This could include initiatives like the development of local-level disaster risk management plans.

Potential benefits of the framework in terms of DRM

- It follows the Sendai Framework for Disaster Risk Reduction (SFDRR), the state-level plan and policy on disaster management, which promotes the use of technology in different phases of disaster risk management (see diagram).
- It fosters the Prime Minister's ten-point agenda, which emphasises learning from disasters and underscores the use of technology in disaster risk management.
- It aims to comprehensively look at seismic risk management through a multi-disciplinary and multi-departmental lens. It uses 3D technology to map a village section and assess the structural integrity of the culturally important structures, complemented by incorporating the community's perception and understanding.
- The involvement and engagement of the community in all the phases of the process and its outcomes ensure its social acceptance. It revitalises the sense of ownership of heritage structures among the inhabitants, empowering them to see culture and heritage as prospective pathways to sustainable development.
- Once the model of the heritage area is obtained, the framework emphasises the need to lay down local strategies for resilient and sustainable recovery, beyond the post-earthquake immediate response but as a form of disaster risk mitigation. This would abide by the national and state level guidelines but needs to be customised according to the local aspects and be socio-culturally sensitive, not merely limited to the *re-construction* of buildings.

Understanding Disaster Risk

- The outcome of the documentation process gives a clear spatial idea of sites and structures with geometrical details and typologies, which could be used to understand structural risks
- The process can also help to understand and communicate traditional knowledge of how indigenous structures can be resilient

Strengthening Disaster Risk Governance

- The process can be used for risk assessment, triggering implementation of risk reduction measures
- The process can be used to bring the communities, Civil Society Organisations (CSOs)/Community Based Organisations (CBOs) and the local government together, to help them in developing a robust DRM Plan
- The process can be of used for damage assessment, informing reconstruction and rehabiliation strategies

Investment in Disaster Risk Reduction for Resilience

- The process is fast and affordable, if weighed against the benefits of precise documentation
- The process can be funded through the State Disaster Risk Management Fund (SDRMF) and also through development funds, if proper consensus is built at the Panchayat level

Enhanced preparedness for response and Build Back Better

- Can be used to develop an implementable response plan
- Useful to develop a recovery plan that socially engages people and acts as an empowering tool, by introducing communities to state-of-the-art technology

2.2. Heritage legislation and protection

The available guidelines and policies can be categorised into two: 1) Disaster Risk Management documents addressing a heritage component, and 2) Cultural heritage policies including certain aspects of disaster risk preparedness.

A potential implementation of the framework proposed here requires significant expanding of DRM considerations for protecting heritage (and addressing beyond just listed buildings), and introducing wider and more specific heritage considerations in DRM policies. This will inform stakeholders about preparedness and resilience through pre-disaster documentation and assessment. The following list contains the essential resources, identifying relevant aspects for a potential integration of heritage and DRM policies:

National Level

National Policy for Conservation (2014) acknowledges the 'historic settlements' as a specific heritage category in addition to the conventionally mentioned category of 'historic monument'. Section 15 delineates disaster risk plans as an essential prerequisite for conservation management.

National Disaster Management Guidelines for Cultural Heritage Sites and Precincts (2017) recommends documentation through 3D mapping of the heritage, geo-tagging, GIS mapping, crowd maps, creation of a comprehensive database, and digital documentation for planning excavation routes. A format for risk assessment is also provided (p. 73), which can be further modified for cultural heritage situated in a rural area.

Government of India's Working Group Report on Improving Heritage Management in India (2019) emphasises and promotes the use of advanced techniques, including photogrammetry and 3D laser scanning (p. 67), creation of databases (p. 59) and collaborations with universities for the introduction of these latest techniques (p. 222).

Older legislation, such as the Gujarat Ancient Monuments and Archaeological Sites and Remains Act (1965) and the National Ancient Monuments and Archaeological Sites and Remains Act (1958), make no specific mention of the need for documentation and disaster risk preparedness for historical sites and remains.

Management plans of World Heritage Sites in India (e.g. Ahmedabad, Mumbai, Jaipur, Dholavira) assess the risks for the urban settlements. Still, they do not delve into potential tools and methodologies for documentation and assessment.

For making the available policies more comprehensive, the following international resources can be referred to:

International Level

Managing Disaster Risks for World Heritage (UNESCO 2010) is a reference manual that systematically covers various aspects of planning for disaster risk management. Methodological principles of planning are illustrated with case studies. Section 4.1 provides pointers for what type of data/information is required to prepare a Disaster Risk Management Plan for heritage assets.

RURITAGE Heritage for Rural Regeneration Policy Document (European Union 2021) discusses the challenges of working in rural areas and integrating existing initiatives. It also briefly mentions digital formats of the information related to cultural and natural heritage. The document acknowledges the challenges associated with digital connectivity and services in rural areas.

Managing Cultural World Heritage (UNESCO 2013) can be referred to for information collection methods. It gives importance to standardising and simplifying practices to limit the drain of resources in data collection, analysis, and management.

Convention Concerning the Protection of The World Cultural and Natural Heritage. Item 7.2 of the provisional agenda, issues related to the state of conservation of World Heritage Properties: Strategy for Reducing Risks from Disasters (UNESCO 2007) – The document highlights the importance of 'Priority Actions' for proposing recommendations for sites situated in disaster-prone zones. The key concept from there is building a culture of prevention through knowledge and innovation.

Recommendations

We hold that an integral approach for adequate earthquake-related risk assessment, preparedness, *re-construction* of heritage settlements cannot be based on technology alone. People and communities making use of and spending their lives in historic villages give meaning to buildings and spaces that, in turn, support their ways of living. To prevent cultural erosion due to an earthquake, consider the following recommendations:

- Amend the national and state-level policies to institutionalise a framework for the risk management of cultural heritage due to the non-existing guidelines at the intersection of the two fields. Implementing the framework proposed requires active participation and coordination of multiple departments & agencies of the state.
- Disaster risk management guidelines need to consider cultural heritage as an integral part of the social structure.
- Include heritage conservation/management as a part of the local governance mandate. In the case of villages, the *panchayat* should be empowered to identify the heritage and suggest measures for its conservation.
- Empower the communities, the ultimate custodians and bearers of tangible and intangible culture, to articulate their culture's value and the benefits they can accrue from such assets through sharing the 3D documentation.
- Make 3D documentation accessible to the local government to be sensitised and empowered.
- Support local authorities in developing specific disaster risk management plans using the 3D data of particular settlements, which can include evacuation routes and safety measures based on the as-built conditions of houses and structures. These plans should incorporate the essentials of protecting the local culture against risks posed by human-induced hazards and include preservation and continuity in their recovery strategies.
- Support local authorities in developing a post-earthquake response emergency and long-term plan based on the 3D data to improve the agility and pertinence of the actions.
- Include the local community in regular documentation efforts, integrate them when carrying 3D laser scanning documentation, and take advantage of similar and more accessible technologies, such as photo cameras embedded in mobile phones.

Projections for the near future

- Implement the recommendations suggested using Bela's already captured 3D data; for example, to develop a disaster risk management plan for the village with the local *panchayat*.

- Design specific repair solutions using the 3D data captured that can fit within the budget constraints of post-earthquake reconstruction.

- Design smaller spin-off projects, such as capacity-building youth volunteers from academia and NGOs, for example, using 3D technology for seismic risk assessment to mitigate damage to heritage structures or integrating it into post-earthquake response forces.

- These activities will help create awareness and develop preparedness for earthquakes, focusing on building resilience and informing action at the community and local authority levels.

Case Study 1: Post-earthquake reconstruction experiences in Kutch, Gujarat

The first case study addresses the learning and challenges from the latest reconstruction experiences in the region after the massive earthquake of 7.7 Mw magnitude in January 2001. The epicentre was in the western district of Kutch. Large parts of Gujarat were severely affected, and the shocks were felt as far as 2,000 km away. Kutch was the worst affected district, where many settlements were razed. The built structures had unprecedented damage. According to some estimates, about a million buildings were impacted.

Several governmental and non-governmental agencies worldwide contributed to the relief and rescue work. Over 300 NGOs participated in the relief work, coordinated by Kutch Nav Nirman Abhiyan (KNNA), a collective of NGOs from Kutch. The Government of Gujarat constituted the Gujarat Emergency Earthquake Reconstruction Project (GEERP) with the support of the World Bank (WB) and the Asian Development Bank (ADB) to reconstruct and repair houses. A few months later, the Gujarat Government also constituted the Gujarat State Disaster Management Authority (GSDMA) to formulate guidelines for the reconstruction process and look after its quality.

KEY LEARNINGS

Owner Driven Reconstruction

One of the essential aspects of that reconstruction process was its approach as an Owner Driven Reconstruction (ODR). The government and supporting organisations recognised that such large-scale rehabilitation work might not be managed without decentralisation. Hence, empowering the communities themselves to rebuild was seen as a possible way forward. The government participated in the ODR process by providing financial assistance to the affected families, facilitating access to building materials, and providing technical support.

KNNA constituted a Building and Innovation Cell to aid the reconstruction activity. For quality control, socio-technical trainings were conducted for local masons and recruited engineers. Along with technical guidelines, manuals were developed in the local language using easy-to-understand local technical terminology.

Multi-hazard resistant guidelines were developed for various traditionally used construction technologies to strengthen the ODR process further. These were approved by technical experts and included improved traditional technologies like rammed earth walls, Compressed Stabilised Earth Blocks (CSEB) and stone masonry, among others. Approval of a diverse material palette—-in line with the overall decentralised approach to the reconstruction—helped significantly in controlling material costs and timely completions. This ensured that the houses were built in a way that did not compromise their safety and still had the scope for appropriate cultural expression.

The ODR process, along with grassroots community mobilisation, ensured that the reconstruction was concluded in a record time of two years.

KEY CHALLENGES

Three key challenges were faced during the reconstruction:

1. The impossibility to tackle all buildings within a traditional settlement due to finance, ownership and social aspects, leaving some of them in ruins until today, leading to people's displacement.
2. For building technologies like stone masonry, guidelines included Reinforced Cement Concrete (RCC) bands at the plinths, the use of sills, lintels and gables, and the introduction of steel mesh external ties for the top part of the gable walls (GSDMA, 2001c) (see photo). However, they lacked specific solutions using traditional materials without cement or steel. Also, sometimes they were inconsistently replicated, without technical support, producing uncertainty about how well these reinforcements will perform in a future seismic event.
3. The unavailability of mapped data of the original settlements before the damage. This gave rise to not only property ownership disputes but also to the loss of significant tacit heritage values of the built habitat. Additionally, this also meant it was time-consuming to analyse the damage to such buildings, which could have been restored otherwise instead of being newly constructed.

These key learnings and challenges have informed the framework proposed here, which could enhance previous reconstruction processes considering technical support, evaluation, mapping, and risk mitigation.

Case Study 2: Ahmedabad

This case study summarises a training experience of documenting two listed heritage buildings of Grade III status, situated within the UNESCO World Heritage Site of the walled city of Ahmedabad. It exemplifies how 3D laser scanning, the proposed framework's main tool, can help record complex historical contexts in a short period while delivering local training in 3D documentation.

This was part of the research project: "Surveying heritage buildings in Ahmedabad, India: empowering local action and skills for heritage conservation". This project aimed to install local capacities for recording and surveying vernacular heritage buildings in India for conservation as a knowledge transfer for improving their maintenance and tackling deterioration. This was done using 3D laser scanning, a comprehensive and digitally accurate documentation method of the as-built environment condition, testing its applicability to the Indian context.

This was done through a series of training activities at Nottingham Trent University (NTU) for students and staff of CEPT University and the Center for Heritage Conservation (CHC) CEPT Research and Development Foundation (CRDF) in Ahmedabad. They were given access to a 3D scanner through a partnership with Faro Technologies. They had a blended approach of online sessions and on-site data capture. Following the on-site scanning workshop, the data was post-processed in the UK, while giving remote training sessions for the students, were organised by CEPT University. The sessions went further on post-processing, combining the scans, visualising and discussing the results while reflecting upon the site experience. Installing the surveying capacity within CEPT University through its Master's Program in Conservation and Regeneration is key to continuing the knowledge transfer locally.

This training project successfully helped embed the latest surveying capacities in the new generation of conservation professionals formed by the CEPT students. It is an excellent example of a partnership between academia and industry that can help reduce the costs of accessing and using 3D laser scanning.

Due to COVID-19 travel restrictions, the final workshop could not include the presence of the NTU team. The fact that the local team was able to carry out the challenging scanning process of a large area of the heritage settlement of Bela only with remote support from the UK, as part of the www.3d4heritageindia.com research project, is also a good indicator that the training was successful at installing local capacities. This was an unexpected impact that opened future opportunities and projections to help in the conservation of their cultural heritage.

FARO | NTU Nottingham Trent University | CHC | CRDF | CEPT UNIVERSITY FACULTY OF ARCHITECTURE

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Case Study 3: Bela

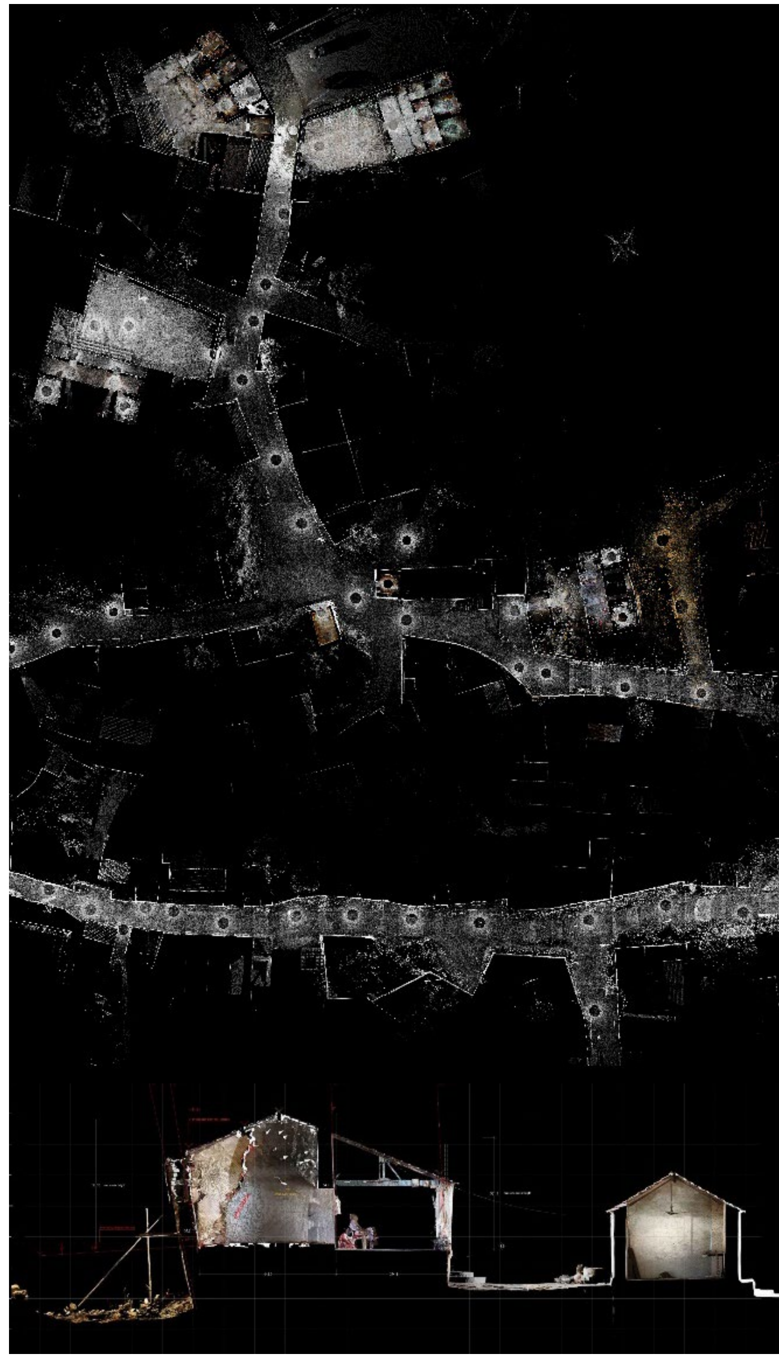
This case study exemplifies the use of the framework proposed in the disaster risk mitigation and management areas, specifically about earthquake preparedness using the documentation of the buildings to develop preparedness.

Bela is a small village located in the district of Kutch, North-West of the state of Gujarat, and lies between two major fault lines. The village was significantly affected by the earthquake of 2001. The central area of Bela was documented in June 2021 using terrestrial laser scanning. The documentation mainly included houses and other small buildings. It was complemented with photographs, videos, aerial drone imagery, social surveys and interviews with local people to develop the sustainable *re-construction* framework referred to in this document, which is the research project's aim.

This was the first record of this nature of a historic village in the region and was carried out by members of the research team based in India. Bela's intricate layout and the decision to incorporate the old and ruined Darbar fortress or Darbargadh in the data capture implied great difficulty for the scanning process, alongside the extreme heat. With all these limitations, during five days on-site, the 3D laser scanning team captured 324 scans of the main public spaces and streets of Bela (including the Darbargadh and the Market Square) plus the interiors and private open spaces of 18 buildings (12 houses, three religious buildings, two shops, and one storage space). Most of the interior scans were captured in colour, but due to time constraints, most connecting scans between buildings and significant public spaces were done in black and white.

Ensuring accessibility

External providers of 3D laser scanning services can be expensive. By giving access to the equipment, software, and training of the local team in India via the Ahmedabad project, the overall costs of the documentation operation were reduced, and the capacity was installed there, creating a positive impact for future projects. The post-processing was done in the UK, taking advantage of previous expertise. This scheme was helpful in training and building local capacities at CEPT University to carry out the scanning process with remote support. This strategy was key in the context of the COVID-19 pandemic. Therefore, it is recommended to establish partnerships between academia, industry and governmental institutions to facilitate access to the equipment. While academia can help with the technical aspect of 3D surveying, industrial partners can provide cheaper access to equipment. At the same time, governments can coordinate the introduction of technology in their methods and procedures.



Images from the 3D laser scanning data obtained in 2021 in Bela.

Above: Plan of a section of Bela with six interior spaces of buildings.

Below: Section of a family Darbar Temple with damage assessment analysis.

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The research team comprises Dr Bernadette Devilat as Principal Investigator, Professor Mohamed Gamal Abdelmonem as Co-Investigator, and Dr Felipe Lanuza as Research Fellow from the Centre for Architecture, Urbanism and Global Heritage NTU. In India, the team is composed of Dr Jigna Desai as Co-Investigator, Mrudula Mane as Research Associate and Zeus Pithawalla as Research Assistant from the Centre for Heritage Conservation (CHC), CEPT Research and Development Foundation (CRDF) in Ahmedabad; Aditya Singh, Mahavir Acharya and Tanvi Choudhari from the Hunnarshala Foundation supporting with community participation and providing key networks and local knowledge in Gujarat; Dr Rohit Jigyasu as Co-Investigator and

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Images' credits

Images from 3D laser scanning: Bernadette Devilat and Felipe Lanuza, using the 3D data obtained on-site by Mrudula Mane and Zeus Pithawalla, with the support of Jigna Desai, Aditya Singh, Tanvi Choudhari and Sukrit Sen.
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[1] In the future, the project's website will be accessible permanently at: https://3d4heritageindia.wordpress.com/

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