

# **Title: Defining optimised frameworks for cultural heritage documentation in developing regions**

Subtitle: Case study of Heritage conservation oriented documentation projects in India

FirstAuthor: Maniyarasan RAJENDRAN, CARE SCHOOL OF ARCHITECTURE, India

SecondAuthor: Sakthimurugan RAJENDRAN, CARE SCHOOL OF ARCHITECTURE, India

**Keywords:** *documentation framework - developing regions - cultural data - archives - approaches*

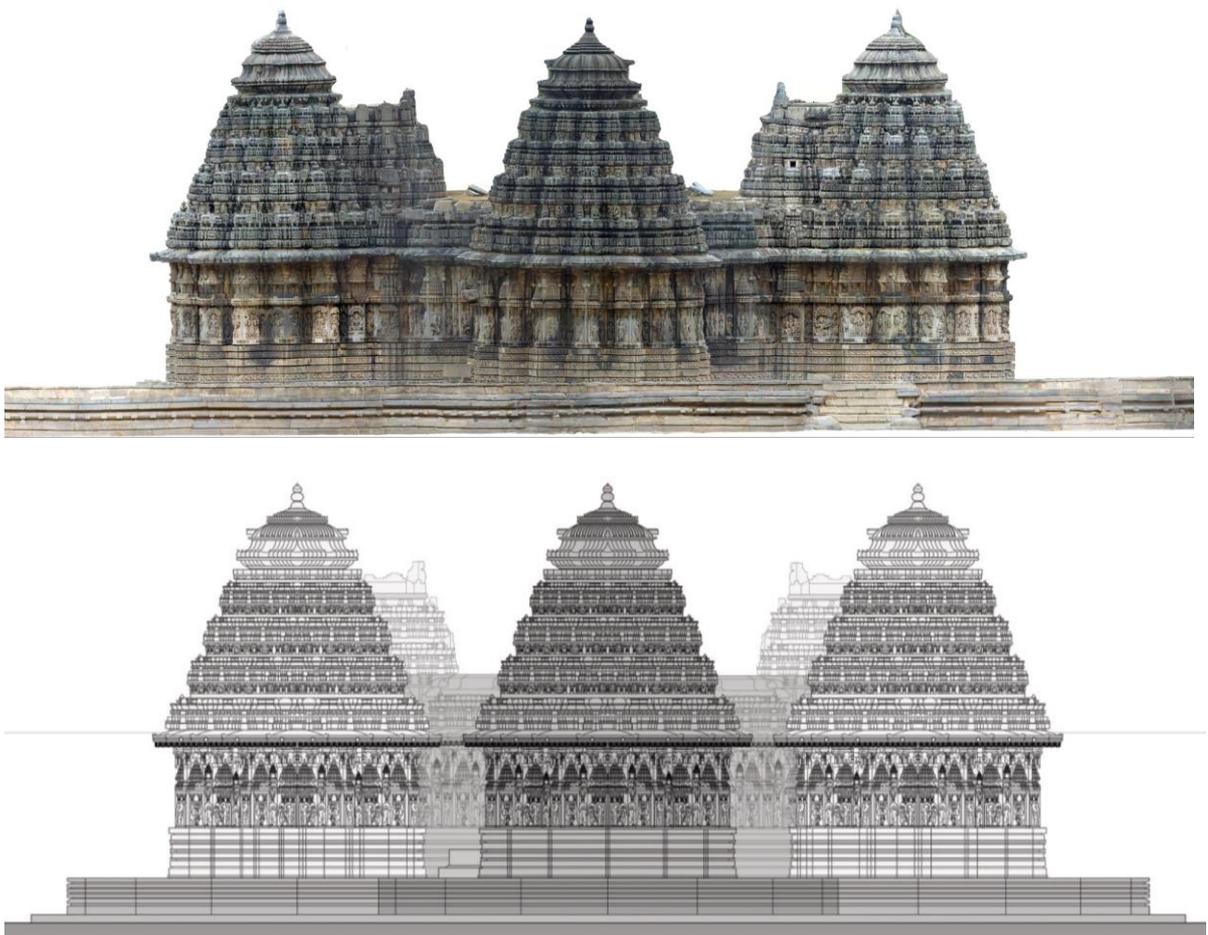
## **Long Abstract:**

The Indian subcontinent is one of the oldest cradles of civilization, where a continuum of cultural heritage coexists with our built environment. While the developed nations are exploring the potential of the 3-D data approaches to preserve, interpret and represent, developing countries like India are still in the nascent stage of addressing the need to make cultural heritage documentation a normalised affair in the practice. Deprived of standards, awareness and resource allocation, documentation happens without direction or a systemised approach; non-standardised equipment and confounding processes add to its woes. Apart from ASI (Archaeological Survey of India) circle offices, it is hard to see photographers or documentation consultants employed with conservation teams. In this region, there are notions against the central agencies such as, limitations on work sanctioning, impractical timeline, resource unavailability or non-access to archives. Central agencies continue to work with a project oriented approach with case-to-case basis empanelment of consultants, where the conventional, analogous methods continue to set the conservation standards. For a country with an incredible number of historic sites, managed by 35+ circles and various state archaeology departments, one can count the number of purchased laser scanners; photogrammetry remains with remote sensing and GIS departments alone.

With smaller firms, in-house employees undertake the documentation without appropriate experts producing unreliable data. This digital data is temporal in nature and utility, without dedicated storage or archival value. Taking the 'before-after pictures of a heritage site is considered a decent effort in documentation. It is left to the ability of the individual consultant to analyse and interpret the multiple layers of embedded history, to be able to establish the facts, from the information found.

This paper attempts to create optimised 3D documentation frameworks for cultural heritage projects in developing countries, with two primary considerations. They are,

(i) Optimised equipment for 3-D outputs through Photogrammetry - There is ambiguity in understanding the prerequisite equipment for documenting the built heritage. It is important to recognise the latency of cheap digital equipment and available open source softwares. Using variable equipment to document, complicates the documentation process with inconsistent results. It is vital to comprehend photography and photogrammetry as an efficient medium to the needs of a conservation architect. For example, the author was able to combine the benefits of manual documentation and 3D photogrammetric methods, in producing the documentation annexure for the World Heritage dossier of 'Sacred Ensembles of the Hoysalas' (Shown in the below figure) during 2021. It is only a common practice to submit CAD drawings as architectural documentation. Ortho photographs or scale rectified imagery are not common terminologies yet.



Clearly, Photogrammetry can enable a Temple Stapati in restoration projects in India, with scaled-rectified and photo realistic drawings at his disposal. For a country with innumerable religious structures, with incredible embellishments and intricate sculptural details, scaled ortho-photographs can overshadow the technical drawings. For example, the HRCE (Hindu Religious and Charitable Endowments) department in Tamilnadu controls more than 30,000 Hindu temples in the state.

(ii) Facilitating the local archives and digital access - With growing digital 3D technology and multitude of heritage sites in the vicinity in every part of India, the potential is unthinkable. A standard process of creating digital data in volumes needs to be in place; at the same time a data segregation process through different levels from national to local archives/libraries has to be functional. Recently IGNCA (Indira Gandhi National Centre for Arts) Delhi, started digitising curated collections from their library. There is the Saraswati Mahal library at Tanjore, TN - established in the 16th century by the Nayaka kings; they hold palm leaf inscriptions and historic collections in huge numbers; digital archives have not been their forte yet. Calls for proposals to digitise the documents are being discussed from 2014. On the contrary, the French Institute of Pondicherry have customised a set-up in house, digitising the manuscripts, documents, old films and negatives in their custody from 2010. Most of the central, state archives in India sit on heaps of precious and fragile data, decaying slowly without any plans for digitising or adding retrieval frameworks.

The process of documentation in any discipline has been historically significant towards progress and advancements. Precedents are often either whole or partial pieces of knowledge that the public is not aware of. This paper attempts to understand FAIR methods for developing regions: findable, accessible, interoperable and reusable. In order to move towards 3-D technologies, it is essential to enable the following;

- I. To understand documentation and archive as an integral part of the conservation practice, and is not an option.
- II. To work towards creating documentation standards and manuals, as guidelines; to ease the understanding of prerequisite resources for 3D outputs.
- III. To recognize the effectiveness and impact of 3D data in the workflow.
- IV. To sway the future ensuring cheaper equipment, lighter data, retrievable storage, simpler process and accessible archives.

This paper shall define optimised documentation frameworks that contextualised with the case study of 'sacred ensembles of Hoysalas' World Heritage dossier and documenting small Chola temples from the Pudukotti, India, by the authors; the solution often prevails with comprehensive understanding of the purpose and combination of methodologies, utilised inclusively.

## **Author Contributions**

**Conceptualization:** Maniyarasan RAJENDRAN, Sakthimurugan RAJENDRAN

**Visualization:** Maniyarasan RAJENDRAN

**Writing – original draft:** Maniyarasan RAJENDRAN, Sakthimurugan RAJENDRAN

**Writing – review & editing:** Maniyarasan RAJENDRAN, Sakthimurugan RAJENDRAN

## References

- Paula Stoner Reed, Documentation of Historic Structures, Bulletin of the Association for Preservation Technology, Vol. 14, No. 4, Historic Structure Reports (1982), pp. 19-22, Association for Preservation Technology International (APT)
- Michael F. Lynch (1987), Photographic Documentation, APT Bulletin, Vol. 19, No. 4 (1987), pp. 6-7+54, Association for Preservation Technology International (APT)
- Brawne M, (2003). 'Looking at pictures'. In: e.g. Tolkien, J.R.R. (ed), Architectural Thought: the design process and the expectant eye. 1st ed. Great Britain: Architectural Press. pp.155-158.