

TRADITIONAL BUILDING SYSTEMS AND LIFESTYLE PRACTICES THAT SUBLIMINALLY AID CONSERVATION OF VERNACULAR EARTHEN STRUCTURES (GOA – INDIA)

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ABSTRACT: Conservation of earthen buildings often focuses on repairing and restoring walls, roofs, etc. However, there are off-overlooked tangible and intangible aspects such as various construction and architectural details and beliefs and lifestyle practices that also play a role in the preservation and upkeep of earth buildings.

Region-wise documentation of local building cultures, beliefs, and practices could provide cues into how these aid in slowing down the everyday wear and tear that buildings are subjected to, owing to their surroundings, climatic conditions, etc. These construction aspects and lifestyle practices may vary every few meters as they adapt to the buildings' micro-environments. As many of these earth-building systems are now lost, and traditional lifestyle habits are either no longer practiced or lay hidden in the routines of everyday life — they remain forgotten or unacknowledged.

In this research paper, 16 vernacular earth structures in Goa – India (mainly cob, rammed-earth, and adobe) were studied and analyzed. In addition, inputs were gathered from local inhabitants, masons, and professionals. The study reveals construction details, architectural aspects, religious beliefs, and lifestyle practices that — intentionally or not — lend themselves to the maintenance and longevity of earth buildings. This understanding (clubbed with scientific and technical methods) could enhance how we approach the conservation of earth-buildings today.

ADDITIVES IN EARTH PLASTERS TO IMPROVE STRENGTH AND WATER RESISTANCE

- In India, builders used eggs, lentils, local fruit resins, cooked rice water (kanji water), etc.
- In the recent restoration of Santa Monica Convent in Goa, neem, wood apple, and jaggery water were added to the plaster mix.



Neem (green), wood apple (orange), and jaggery water (brown). Goa
[Photo credit: Noah Fernandes (Architect, Goa)]

PLANTING TREES FOR UPKEEP OF HOUSES

- In Goa, when building a house, owners planted local trees — coconut, bamboo, mango, jackfruit — to provide for them in their old age.
- Coconut, to repair/replace traditional roofs every few decades.
- Bamboo, to weave farming mats, baskets to carry mud for cob building, etc.
- Mango and Jackfruit, for wood and fruits.



Jackfruit tree in the yard of a Goan house (2022)
[Photo credit: Clive Figueiredo / Instagram: @colvachronicles]

ROOFS DESIGNED TO PROTECT STRUCTURES FROM HARSH WEATHER

- Sloping roofs with large overhangs, up to 1m wide, protected walls from rainwater.
- Rafters, made from dead coconut tree trunks, were dry of sap. They kept termites away and allowed roofs to last longer.



Large overhangs built with local materials. Goa (2019)
[Photo credit: Chenelle Rodrigues]

BURNING FIRE AND INCENSE INDOORS HELP MAINTAIN EARTHEN WALLS

- Some Indian traditions involve cooking food on wood-burning stoves, burning incense for religious reasons or fragrance, etc. The smoke and essence kept dampness and insects away from the walls.
- In Goa, frankincense is burnt at weddings, after bathing infants, etc. The reasons may vary from beliefs like warding off evil, inviting good omen, keeping mosquitoes away, and sanitizing the house.



Traditional earthen wood-burning stoves
[Source: Planet Goa magazine, vol 9, issue 5]

Back in the day, inhabitants used local resources to build and maintain their structures, many of which have lasted for generations. Their building and conservation techniques contributed to shaping their culture and traditions and vice versa.

What relevance do these practices have today? If effectively combined with today's technical conservation methods, traditional conservation practices could add a new dimension to modern conservation. They also enlarge the scope of rendering heritage conservation more affordable and simple. E.g. In the repair of masonry bee damage, burning frankincense could be used to ward away the bees.

By imbibing traditional methods in conserving traditional buildings, we are not only conserving the tangible built heritage, but also the intangible aspects that are allied with buildings. It thus allows for a holistic approach to architectural conservation.

This poster contains content from my dissertations: » Regional distinctiveness of earthen structures (Master's in Architectural Conservation, University of Edinburgh – UK, 2015)
» Vernacular earthen architecture in Goa (past Portuguese colony in India) and Portugal (Post-master's DSA - Earthen architecture and heritage, CRAterre-ENSAG – France, 2020)



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