

Chapter 3

How to Incorporate Sustainable Solutions Through Vernacular Architecture: Case Studies From Tropical India

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ABSTRACT

Vernacular architecture in India conveys challenges of its climatic and social characteristics. With modernization, and with a greater ease of construction, a reduction in human labor, and the apparent robustness of contemporary construction techniques, architects are increasingly uncertain about vernacular architecture. This chapter emphasizes the features of the vernacular architecture of tropical India through case studies, specifically Kerala in southern India due to its rich culture and climatic challenges. Several modern case studies designed by various pioneering architects like Laurie Baker and Nari Gandhi that integrate the knowledge of the traditional architecture of tropical India through the learning from indigenous pre-modern examples as well as global trends have been studied. This chapter elucidates Baker's and Gandhi's consideration of vernacular architecture within their practice of sustainable building design and finally invites policy makers, planners, and architects to incorporate this knowledge into their policies and work.

INTRODUCTION

The term vernacular is derived from the Latin vernaculus, meaning “domestic, native, and indigenous”; from verna, meaning “native slave” or “home-born slave”. When expressing in terms of language, vernacular refers to a time, place or group. In terms of architecture, it refers to the style which is indigenous

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to a specific place or time. It can be said that vernacular architecture refers to those buildings made by common builders in an informal way, rather than by architects using design methodologies. It evolved through an iterative mechanism of experimentation in response to the local climate, topography, and social as well as cultural needs which enabled it to address a lot of these fundamental issues. Vernacular architecture follows the principles of green building design and energy efficiency by utilizing local materials and resources in close proximity to the site and by using renewable energy to environmentally protect the building occupants from climatic changes and to reduce their reliance on other energy resources. By the judicious use of resources which are scarce holds substantial lessons for the contemporary building industry on how to manage available resources for achieving sustainability. The economic sustainability of vernacular architecture responds through fulfilling the needs of a community in the context of being more self-sufficient through sustaining the production and optimizing of local material by choosing to build through a collective communal effort (Obafemi A. P. Olukoya, 2020). Sustainability has often considered as complimentary to the preservation of cultural identity. So, traditional buildings met the social, environmental, and functional needs of their residents (Fajer Al Tawayha, 2019) which further fostered community alignment. Knowing and putting a value in vernacular heritage is the first step towards protecting the environment and to show our commitment to future generations (Teresa Gil-Piqueras, 2021). Thus, Elements of sustainable design are often an integral part of vernacular architecture that has evolved over time based on local social and climatic characteristics creating optimum relationship between place and its people (Salman, 2019).

India's traditional architecture developed within the diverse range of climates and social customs, which not only poses the unique challenges to the builder, but also leaves an important mark on domestic architecture: it may be defined as architecture without architects (Alessandra Como, 1964). Not that it dispenses with overall supervision, just that this is not in the hands of a sophisticated urban professional. Instead, vernacular is the product of well-versed local craftsman raised in the use of local materials and topography to respond to local social and environmental conditions (Ilay Cooper, 1998). As a multi-climatic region, architects, and designers of India, need to consider the variety of climatic and geographic behaviors that should govern the architectural aspects and sustainable themes within the design process. On the contrary, design processes in India have become typical and identical ignoring the vernacular architecture despite the different climate zones within the country which makes it difficult to stay on the course of sustainable development. Another reason for architects being increasingly uncertain about vernacular architecture in India is the colonial discourse which often views modernity and tradition in opposition. Therefore, a distinct balance was needed to encapsulate the unique spirit of India, through the learning from indigenous pre-modern examples of vernacular housing, as well as global trends, that can help preserve the surviving examples of these now seemingly ancient ways of building in ways that respect what these buildings are, not just how they appear.

The methodology followed is based on case studies and qualitative analysis of main context such as vernacular architecture of tropical India, specifically, Kerala, in southern India due to its rich tradition, culture and climatic challenges. Further, several modern case studies designed by various pioneering architects like Laurie Baker and Nari Gandhi have been studied to identify the approach for incorporating sustainable solutions into current practices.

Bernard Rudofsky used the term vernacular in architectural context, by saying “vernacular, anonymous, spontaneous, indigenous, rural, as the case may be” (Bernard, 1964). Paul Oliver argued that “vernacular architecture, given the insights it gives into issue of environmental adaptation, will be necessary in the future to ensure sustainability in both cultural and economic terms beyond the short term” (Oliver, 2003).

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