Unraveling the 'Poetics' of Sustainable Architecture and Context Specific Expressions in India

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Abstract

Background/Objectives: 'Sustainable architecture' is interpreted in numerous ways. Pluralistic, heterogeneous, relative, contextual, contestable, green, bioclimatic, energy efficient, natural, appropriate etc are the diverse terms used. The objective of this paper is to unravel sustainable architectural practices and the related expressions in India. **Methods/Statistical Analysis:** Thematic analysis is adopted to explore the approaches deciphered from various secondary sources like books, magazines, research articles, government websites and architects official websites. Five phases like familiarising with data, generating initial codes, searching for themes, reviewing themes followed by defining themes were adopted. Being a flexible tool, the data was coherently classified and reclassified according to similar ideas and approaches. **Findings:** As the study was exploratory, the approaches were named as the broad based the common sense, the bioclimatic, the hybrid and the reflective. The buildings portrayed honest, dishonest or common images depending on the 'degree of sustainability' as interpreted by architects. Even though the innovative application of post consumer waste in built form is a principle in eco-centric approach, the acceptance is still a question mark. **Application/Improvements:** Unravelling the diverse practices has yielded an understanding the 'big picture' of sustainable architecture in India. Collection of information from secondary resources is the limitation. As this is only a longitudinal study, initiatives to understand the approaches with respect to time and region giving new insights.

Keywords: Context Specific Approaches, Expressions, Poetics, Sustainable Architecture, Thematic

1. Introduction

Climate, culture and social factors are the parameters influencing diverse parameters of sustainable architecture around the world¹. It is posited that sustainability in architecture is the imaginative negotiation of boundary between visibility and invisibility². It is argued that it is a contestable concept and operates within art and science simultaneously ³. It is established that it emerges out of concerns with heterogeneous ideologies, where current paradigms of architectural practices are questioned⁴. The approach must be holistic, trans-disciplinary through technological intervention and is philosophical⁵. Ecotechnic, eco-centric, eco-aesthetic, eco-cultural, ecomedical and eco-social are identified as competing logics of sustainability⁶. It is observed that sustainable architectural practices in developing nations are spiritual⁷. With this as the background, this paper explores, interprets and consolidates such practices using thematic analysis in Indian context. Thematic analysis is an analytic approach and powerful tool to yield insightful interpretations⁸. It is a flexible method which provides a rich and detailed description of complex data⁹. The philosophies and design approaches to design by architects like Aalto¹⁰ and Ando¹¹ are explored.

2. Methodology

Thematic analysis is a method for identifying, analyzing and reporting patterns within observations or data¹². Sustainable ideologies by architects were gathered, explored, interpreted and consolidated from a website on 'practitioners with alternate technologies/energy efficient construction techniques' hosted by Government of India. Themes are abstract constructs that links the expressions found in texts, images, sounds and objects¹³. Other secondary sources like books, magazines, web sites, articles and interviews were also identified for data collection process. Intensive engagement with data iteratively¹⁴ was adopted to establish the links with the poetics of sustainable architecture.

Five phases like familiarizing with data, generating initial codes, searching for themes, reviewing themes followed by defining themes were adopted. Themes were identified based on approaches, strategies, tangible and intangible parameters. The former addresses how built forms responds to place, connection to habitat conservation of resources and use of building material, whereas the latter refers to the social, economical, cultural and health aspects of all the involved individuals at different phases. The limitation of this study is that it did not involve any field study.

3. Findings

The ideals adopted by architects or hybrid actors were interpreted and categorized as broad based approach^{15,16}, common sense approach^{17,18}, contextual approach^{19,20}, multi prolonged approach involving bio climatic principles²¹, hybrid²² and reflective practice²³ as summated in Table1.

The themes were explored, interpreted and consolidated as in Figure 1, in order to achieve the goals of environment, the 'Big Picture'. A holistic sustainable environment²⁴ can be attained only when there is a high degree of sensitivity towards the social, cultural, medical, technical and economical factors, followed by a continuous search in exploring these principles and reflections on

Table 1.Broad classification of themes

such processes aid in designing and constructing built environments fulfilling the aspirations of the changing needs of the people and eco friendly in today's context.

The visual expression of sustainable design is classified as very seamless, medium seamless and least seamless approach²⁵. When nature, landscape, building and building systems look like one totality²⁶, it is very seamless. When there is a balance between minimalism and gadgets and sensible for the particular project is a medium seamless approach, whereas least seamless refers to buildings with least eco gadgets.



Figure 1. An overview of sustainable architectural practices.

In India it is observed that the works reflecting the three degrees of seamlessness are developed by architects who are sensitive to the people, technology, energy, performance, context and environment. We have interpreted deep ecology or dark green practices

Themes	Description		
Broad based approach	Examines the past for diverse tangible interpretation involving multiple layering of space, multiple		
	mixed structural systems, symbolism, rich experience, open ended, maintains minimum standards		
	health and hygiene.		
Common sense	To find simplest analytical directions, respecting local needs that helped humans coexist with nature of		
	the environment.		
Contextual	Related to place, time, technology, people, action etc		
Bio climatic	Site specific, ecologically responsive buildings		
Hybrid/ Glocal	An interdisciplinary platform where the values of indigenous systems and benefits of global systems		
	are integrated.		
Reflective	Research from practice modified in to new ideas		
Common sense	Simplest approaches respecting local needs and coexist with nature & humans		

Approach	Image	Visual expression	Approach
Themes / Ideals	Honest image	Very seamless	Deep ecological built environments
(Degree of		Medium seamless	Hybrid approach integrating active and passive principles
sustainability)		Least seamless	Contestable concepts of green buildings
	Dishonest	Not being sustainable but looking green	
	Common	Not being sustainable and not looking green	

Table 2. Relationship between the spirit and the visual expressions of sustainable architecture

to be very seamless, hybrid or energy efficient buildings to be medium seamless and shallow green or light green buildings to be least seamless ranging from honest to dishonest images. For instance, a building which behaves like a living organism is a very seamless building with an honest image.

4. Discussion

The relationship between the visual expressions, image and the approach are consolidated as shown in Table 2. With respect to the ideals or themes, any ideal or any theme can be associated with any image. For instance, it is argued that a deep ecological built environment which rustic, continuous, plastic, retaining the spirit of the site, growing from the site portray a higher degree of honesty when compared to built environments which are neatly finished. Modern, iconic are the images associated with eco-technic and eco-aesthetic logics of sustainable architecture. Vernacular, natural and appropriateness are related with eco-cultural, eco-medical and eco-social logics which are found to be honest exhibiting local architectural language. This can be related with context rich or context bound thinking^{27,28}. However, the visual expressions of the built forms firmly depend on the collective perceptions of both architects as well as clients.

5. Conclusion

The systemic ecology and metaphysical holism are characteristics of eco centric logic, where the built form is harmony with nature, autonomous and decentralized, with less ecological footprint. It is a multidisciplinary and an experimental approach with postconsumer waste materials. This logic has led to experimental practices on reusing post consumer reusable and recyclable material in constructing ephemeral structures, congregational spaces, emergency shelters by architects, technocrats, environmentalists and NGOs. Even though, the built environment is autonomous and self sustainable, behaving like a living organism, in the developed nations it is perceived as a caricature. In developing nations, buildings with primary, secondary and tertiary post consumer packaging wastes are experimented in construction of built forms with a notion to reduce the use of virgin materials. However, the incorporation of such ideals in today's scenario is still a question mark.

The study being longitudinal in nature, a cross sectional study of the approaches and practices in specific regions in our country will add a dynamic direction and the evolving spirit of sustainable architecture. Further comparative studies related to lifelikeness²⁹ in different regions can be explored.

6. References

- 1. Brians E. Design challenges of sustainability. Green Architecture, Architectural Design. 2001.
- Braham WW. Correalism and Equipoise: Observations on the sustainable. Architectural Research Quartely. 1999; 3(1):57-64.
- 3. Owen C, Dovey K. Fields of sustainable architecture. The Journal of Architecture. 2008; 13(1):9-21.
- 4. Ranpura S. An architecture of sustainability: Contested ideologies and identity politics. IMRE. 2008;28-44.
- Aksoy M, Bilgen S, Baslo M. Thoughts and ideals on ecological sustainability and reflections on architecture. International Journal of Housing Science. 2013; 37(3):151-60.
- 6. Guy S, Farmer G. Reinterpreting sustainable architecture: The place of technology. Journal Architecture Engineering. 2001; 54(3):140-8.
- Edwards B, Snakes in Utopia: A brief history of sustainability. Green Architecture, Architectural Design. 2001; 71(4):152.
- Mills AJ, Durepos G, Weibe E. Encyclopedia of Case Study Research Thematic Analysis. USA: Sage Publications Inc.; 2010.
- 9. Braune V, Clarke V. Using thematic analysis in psychology. Qualitative Research in Psychology. 2006; 3(2):77-101.
- Miller WC. Alvar Aalto: A thematic analysis. OZ. 1979:8-17.
- Shirazi M. An investigation on Tadao Ando's phenominological reflections. Armanshahr Architecture and Urban Development. 2012; 4(8):21-31.

- 12. Roberts P, Priest H, Traymor M. Reliability and validity in research. Nursing Standards. 2006; 20(44):41-55.
- 13. Ryan GW, Bernard HR. Techniques to identify themes. Field Methods. 2003; 15(1):85-109.
- 14. Krefting L. Rigor in qualitative research: The assessment of trustworthiness. American Journal of Ocuupational Therapy. 1991; 45:214-22.
- 15. Steele J. The Complete Architecture of Balakrishna Doshiand Rethinking Modernism for the Developing World. UK: Thames and Hudson; 1998.
- Benjamin D. Resources for sustainable architecture from historic, ancient and indigenous knowledge. Available from: www.cce.ufl.edu/wp-content/uploads/2012/08/Benjamin.pdf
- 17. Laul A. Green is red. Council of Architecture: India, 2013.
- Gupta V. Energy Conservation Indian myths and realities. Architecture + Design. 1992:19-26.
- 19. Pandya Y. Sustainable Manifestoes. IA&B. 2013:79-83.
- 20. Amini E, Ghaffari A. A new architecture for enterprise resource planning system based on a combination of event based software architecture and service-oriented architecture. Indian Journal of Science and Technology. 2015; 8(1):108-19.
- 21. Majumdar M. Energy efficient buildings in India. New Delhi: Tata Energy Research Institute; 2002.

- 22. Parthasarathy A. Local global hybrid: Developing a discursive framework for hybridization. Realising sustainability in the tropics. Proceedings of SB2013-Realising Sustainability in the Rropics; 2013. p. 283-90.
- 23. Guy S, Moore SA. Sustainable architecture and the pluralist imagination. Journal of the Architectural Education. 2007; 60(4):15-23.
- 24. Krishan A. A new language of architecture: In quest for a sustainable future. Environmental Management and Health. 2002; 13(4):405–19.
- 25. Christaens H. The images of sustainable architecture: A refurbishment case study. 3 Mar 2015. Available from: www. bridgendfarmhouse.org.uk/.../hannelore_christiaens_dissertation.p
- 26. Chan Y. Sustainable Environments. USA: Rockport Publishers, Inc; 2007.
- 27. Antoniades A. Poetics of Architecture: Theory of Design. Van Nostrand Reinhold; 1992.
- 28. Moore SA, Karvonen A. Sustainable architecture in context: STS and design thinking. Science Studies. 2008:29-46.
- 29. Irzavani H. Zendevari (lifelikeness) a new framework derived from sustainability for development in the built environment. Indian Journal of Science and Technology. 2015; 8(12):1-20.