Frontiers of Architectural Research (2020) 9, 568–578

Available online at www.sciencedirect.com

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journal homepage: www.keaipublishing.com/foar

Research Article

Complexities of practicing architectural regionalism in India: An interview study

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Received 21 June 2019; received in revised form 28 February 2020; accepted 10 March 2020

KEYWORDS
Architectural regionalism;
Critical regionalism;
Indian architecture;
Architects' interviews;
Semi-structured interviews;
Architecture practice

Abstract This paper presents the results and analysis from an interview study conducted with practitioners of architectural regionalism in India. The interviews sought to gain in-depth understanding of the strategies, mechanisms, and tools they employ to realize contextualized architecture that responds to local needs and potential. A sample composed of nine eminent Indian architects who regularly integrate the ideas of critical regionalism in their designs is selected and subsequently interviewed with regard to the varied aspects of their architectural practice. Findings are useful for practitioners and scholars of contemporary architecture in India for understanding the means employed by leading regionalist architects, while placing their work in the context of local building traditions, urban landscape, sociocultural conditions, technology, and climate.

1. Introduction

Architecture in the latter half of the 20th century has witnessed a continuing endeavor to reconcile modernity and tradition (Curtis, 1996; Hamza, 2019; Lambe and Dongre, 2019). The term "critical regionalism" has been constructed and developed in the 1980s by architectural theorists Alexander Tzonis, Liane Lefaivre, and Kenneth Frampton to describe works that blend modern architecture with regional traditions (Frampton, 1987; Tzonis and Lefaivre, 1981). Critical regionalism has been defined as an architectural approach that responds to the tangible realities of a place: climate, topography, architectural heritage, tectonics, and sociocultural situation (Crinson, 2008; Kurniati, 2020; Lefaivre and Tzonis, 2003; Yeang, 1987). The best of regionalist works have succeeded in synthesizing indigenous wisdom drawn from the past with the emancipatory and progressive aspects of modernism (Frampton, 2007; Nguyen et al., 2019; Rashid and Ara, 2015; Slessor, 2000).

Heterogeneity is an intrinsic property of critical regionalism (Canizaro, 2007). Therefore, several versions of critical regionalism exist in different regions of the world, each

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Peer review under responsibility of Southeast University.

https://doi.org/10.1016/j.foar.2020.03.003

specific to its natural, physical, and social realities (Zahiri et al., 2017). This study aims to understand better the richness of the regionalist discourse in India in its full range and complexity. To fulfill this purpose, the study attends directly to architects practicing critical regionalism in India to gain in-depth understanding of the strategies, mechanisms, and tools they employ to establish a localized cultural identity in their architecture.

2. Background

After transitioning out from colonial rule, India embraced modernism as the preferred vehicle for new architecture and urbanism (Kassim et al., 2018; Mehrotra, 2008; Prakash, 2010). The utopian ideals of modernism offered India a belief to solve its problems of caste divide and social inequality (Gupta and Kalamdani, 1998). However, in the following decades, modernism was lost in translation as India witnessed transplantation of mass-produced featureless blocks that did not respond suitably to local conditions (Shah, 2008). Indian architects struggled to get modernism accepted in popular imagination as they could not appropriately address the complex local sociocultural concerns in their designs (Mehrotra, 2011, p. 32). By the 1970s and 1980s, Balkrishna Doshi, Charles Correa, Raj Rewal, and other Indian architects started incorporating the ideas of critical regionalism in their designs to counter the homogenization of architecture brought by modernism (Lang, 2002; Misra et al., 2018). They began situating their built-forms within the local context by making use of local building materials, employing construction techniques familiar to the region, and spatially configuring their built-forms in a manner akin to the traditional architecture of respective regions. Regional assertions in Indian architecture peaked in the 1980s when diverse building types such as cultural institutions, educational institutions, public housing, office buildings, and even high-rise buildings adopted the critical regional approach in their designs (Bahga and Raheja, 2018).

With the liberalization of the Indian economy in the 1990s, global capital brought along the "international corporation style" symbolized by the ubiquitous air-conditioned curtain glass building (Jadhav, 2007). However, in the following decades, the lack of humanity and urban sensitivity portrayed by this "globalised" architecture has engendered a strong reaction among certain Indian architects in favor of critical regionalism (Mehrotra, 2008; Menon, 2000). Although limited by the scale of their operations, these Indian architects run small creative firms that recognize the integrity of the logic propagated by modern architecture but are also sensitive to local physical and cultural characteristics (Mehrotra, 2011, p. 119; Scriver and Srivastava, 2015). As India advances toward a bright future in the 21st century, regionalist practitioners continue to culturally enrich modern Indian society with a potent new architecture (Jain, 2000).

3. Method of inquiry

Previous studies (Bahga and Raheja, 2018, 2019; Mehrotra, 2011) identified and analyzed regionalist works of significance that have been realized in postcolonial India. For the purpose of this study, a sample composed of nine reputable Indian architects who regularly integrate the ideas of critical regionalism in their designs (Fig. 1) is collated from previous studies:

(1) Ashok B Lall (b. 1948) — Practicing in New Delhi for more than 35 years, Lall is renowned for designing projects such as the Indian Institute of Health Management Research (IIHMR, 1991) in Jaipur and the Development Alternatives Headquarters (2008) in New Delhi.
(2) Meghal Arya (b. 1973) — Arya has been practicing in Ahmedabad for more than 15 years and is known for designing projects such as the Mewar Complex (2008) in Rajsamand, Rajasthan and bus stations for the bus rapid transit system of Ahmedabad City (BRTS).
(3) MN Ashish Ganju (b. 1942) — Practicing in New Delhi for more than four decades, Ganju is renowned for designing projects such as the Press Enclave Housing (1978) in New Delhi and the Dolma Ling Nunnery (1992—present) in Dharamshala, Himachal Pradesh.
(4) Namita Singh (b. 1948) — Practicing in Chandigarh for more than four decades, Singh is known for designing projects such as the Sri Dashmesh Academy (1983) in Anandpur Sahib, Punjab and the Indian Naval Academy (2009) in Kannur, Kerala.
(5) Pankaj Vir Gupta (b. 1970) — Having established his practice in New Delhi in 2006, Gupta has designed regionally-sensitive projects such as the Institute of Engineering and Technology, Ahmedabad University (2015).
(6) Rahoul Singh (b. 1974) — Having established his practice in New Delhi in 1998, Singh is known for designing projects such as the Atali Ganga Resort (2012) near Rishikesh, Uttarakhand.
(7) Sanjay Mohe (b. 1955) — Mohe has been practicing in Bangalore for more than 30 years and is renowned for designing projects such as the Karunashraya Terminal Care Centre (1999) and the Hindustan Unilever Research Centre (2006) in Bangalore.
(8) Sourabh Gupta (b. 1975) — Practicing in the Delhi region for more than 15 years, Gupta's architectural firm Archohm Consults is known for designing projects such as the Dilli Haat Janakpuri (2014) in Delhi and the National Institute for Faith Leadership (NIFL, 2014) in Dasna, Uttar Pradesh.
(9) Vinod Gupta (b. 1946) — Practicing in New Delhi for more than three decades, Gupta is known for designing projects such as the National Institute of Solar Energy (1992) and the American Institute of Indian Studies (1998) in Gurgaon, Haryana.

All of the above-mentioned architects have been personally interviewed in a semi-structured format involving questions related to different aspects of their architecture. By thematically analyzing the responses of regionalist practitioners, this study is able to obtain vital insight into the following aspects of their design approach:

(1) The need to assert regional identity in architecture;
(2) Influence of traditional architecture on their designs;

Fig. 1 Clockwise from top-left: Development Alternatives Headquarters by Ashok B Lall (Photo: author); Karunashraya Terminal Care Centre by Sanjay Mohe (Photo courtesy of Mindspace Architects); Dilli Haat Janakpuri by Sourabh Gupta (Photo: author); American Institute of Indian Studies by Vinod Gupta (Photo courtesy of Indiana University); Press Enclave Housing by MN Ashish Ganju (Photo courtesy of Galgotia Publishing Company); Sri Dashmesh Academy by Namita Singh (Photo courtesy of Galgotia Publishing Company); Mewar Complex by Meghal Arya (Photo courtesy of Ariel Huber); Institute of Engineering and Technology, Ahmedabad University by Pankaj Vir Gupta (Photo: author); and Atali Ganga Resort by Rahoul Singh (Photo courtesy of Asif Khan).

(3) Influence of urban context on their architecture;
(4) Addressing sociocultural needs of inhabitants;
(5) Use of modern technology in their architecture;
(6) Addressing air-conditioning needs in their buildings;
(7) Choice of materials for their buildings;
(8) Difficulties faced in their practice;

(9) Their vision for the future of critical regionalism in India.

The analysis of responses collected from the interviews reveals numerous common themes among the views of regionalist practitioners. Further examination and classification of responses lead to a thorough understanding of the critical regionalist discourse in India.

4. Regionalist discourse in India

4.1. Need to assert regional identity

The architects interviewed are in a consensus regarding the importance of asserting regional identity in contemporary Indian architecture. Mohe believes that regional identity is required because "culturally we all are different," and Pankaj Gupta adds that "keeping the individual culture of different places alive is important." Rahoul Singh further remarks that "the ability to articulate" regional identity by producing architecture that is an "expression of its time, its place, its situation" is part of architects' duty.

According to Sourabh Gupta, contemporary architecture has to necessarily "be regional and contextual" to avoid becoming a "global architecture." Rahoul Singh holds globalization responsible for erasing "a very strong link between a place, its people, its past, and the manner in which they construct" and for eroding "the inherent wisdom that has accumulated in that area." Arya, however, does not regard globalization in itself as a problem, but the homogeneity inherent in it as the central concern that regional identity can help counter. Namita Singh believes that architecture has greatly benefitted from the technological progress brought by globalization, and architects are themselves responsible for the adverse effects of globalization due to their "lackadaisical approach" of mindlessly wrapping buildings in glass façades.

Lall and Vinod Gupta express concern over the growing influence of information and images of international architectural examples on the "consciousness" of young architects and architecture students in India. Vinod Gupta feels that students are looking at the form of international buildings rather than the principles of architecture assimilated in them. Lall adds that instead of copying other styles, architects in India should retain their "own initiative of the cultural imagination." Lall believes that regional identity grows from within a designer and is an authentic part of his/her being. Ganju expresses similar viewpoint that architects "need to find the truth" of their work which must come from understanding their own identity and self.

Namita Singh, however, cautions against the literal copying of traditional elements like arches or domes for expressing regional identity. Similarly, Vinod Gupta feels that the visual characteristics of regional architecture are not as important as the underlying architectural principles.

4.2. Influence of traditional architecture

India boasts of rich building traditions that have evolved over centuries in response to its climate, culture, and resources (Dili et al., 2010; Indraganti, 2018). As India experiences a predominantly hot climate, the recurring theme in its architecture is the seeking of a space in the shade (Correa, 2012; White, 1993). As a result, built forms in India have customarily been organized around courtyards, terraces, and *verandahs* to offer a microclimate well protected from the fierce sun (Taylor and Thapar, 1992). The central courtyard, at the core of most built forms, provides light and ventilation to surrounding rooms while acting as an outdoor living room (Kamath and Kamath, 1985; Rewal, 1997). Unlike in cold climate where buildings are akin to closed boxes, the transition between indoors and outdoors in traditional Indian buildings has been amorphous, with rooms commonly extending into a variety of semi-open and open spaces (Correa, 2012; Rewal, 1985). Another essential feature of Indian buildings is the use of *chhajjas* (overhanging eaves) that project over walls, doors, and windows to provide shade from the scorching tropical sun and deflect monsoon downpours (Conway and Roenisch, 2005; Cooper and Dawson, 1998). Thus, India's traditional architecture offers several useful lessons upon which contemporary architects could build upon to respond better to present-day concerns (Mehrotra, 2001).

According to Rahoul Singh, history is "one of the raw materials in the intellectual process of designing." Singh believes that learning from the wisdom inherent in traditional techniques is important. Mohe adds that traditional architecture has gone through "a process of correction over centuries," with each generation having made "finer corrections" to it and thereby leading it to "a point of near perfection." Therefore, traditional architecture can teach us "subtle details," such as opening of certain windows toward the wind direction to ensure that the indoors remain cool even in hot climatic regions.

Sourabh Gupta sees traditional architecture as a mix of "technology, customs, and beliefs." Gupta believes that each of these ingredients needs to be understood individually and reinterpreted in contemporary times. Rahoul Singh adds that an architect needs to develop "tools of engagement" to converse with history to meet current conditions.

The architects interviewed have expressed different ways of engaging with traditional architecture of a region. Pankaj Gupta states that while looking at traditional architecture, he focuses on structure and materials and how they "come together to make architecture." Vinod Gupta focuses on the traditional way of living to "bring people together to create a sense of community." For Ganju, most of his design ideas are influenced from the vernacular architecture present around his building sites. Likewise, Lall visits the surroundings of his building sites to "understand the rationale" behind traditional building practices of the region.

The regionalist practitioners have, however, cautioned against the literal recreation of the aesthetic imagery of traditional architecture. Sourabh Gupta believes that traditional architecture "needs to be understood" instead of merely copied. Mohe resonates that "understanding the principles of traditional architecture, instead of emphasizing on the visual aspects of it" is important. Namita Singh adds that "the arrangement of spaces has to be influenced from the traditional architecture of a region" as opposed to façade elements like arches being "merely pasted over."

Lall further adds that the idea is to go "deeper into the logic, the principles, and the driving forces" that produced the traditional architectural forms of a particular region.

Namita Singh discloses how she as an architecture student in college was not "properly exposed to good examples of traditional Indian architecture," given that the modernist ideology advocated only the idea of "boxes as forms of architecture." Only through her personal travels that she discovered open-to-sky enclosures, courtyards, *jaalis*, and "figured out how well they addressed the climate and the social and cultural aspects of architecture." Arya mentions that through the extensive documentation of traditional Indian architecture carried out by her firm, she developed a "fairly deep understanding" of traditional architecture.

4.3. Influence of urban context

The architects interviewed share a common intention to relate their designs with the surroundings. Vinod Gupta affirms that he focuses on the interaction between his projects and the next-door neighbors. Similarly, Rahoul Singh insists that his designs are "constantly in dialogue with what is going around his sites." Namita Singh further reveals that she likes to "submerge" her own personality to ensure that her buildings are in harmony with the surroundings. Likewise, Lall mentions that he tries to make his designs as "part and parcel of something greater."

Vinod Gupta believes that the relationship between a building and its surroundings is "something that modern architecture forgets most often." Namita Singh adds that due to the "egos of architects," their buildings often shout "look at me," resulting in a "visual cacophony" as witnessed in places such as Gurgaon. Rahoul Singh further adds that an isolated object does not contribute to the "dynamics of the city or the region."

Some of the regionalist practitioners blame the existing planning norms for disrupting the continuous relationship between built-forms and their urban context. Vinod Gupta feels that "relating to the surrounding urban character is quite difficult, because the laws are stacked against it." Lall believes that most planning norms "have been derived from an understanding of modernist architectural vocabulary, wherein the building is seen as an object in space distinct from the world around it." Lall added that planning norms such as mandatory setbacks on front, rear, and sides of plots direct people to build on their own without relating with the surroundings.

Another impediment to regionalist practitioners arises from the poor urban character surrounding most Indian building sites. Ganju claims that "the sites often do not portray any character." Pankaj Gupta echoes similar concern that "the urban character of most Indian building sites is quite poor." Likewise, Arya states that she has "rarely built in an urban context that had a strong character." To further illustrate the predicament, Ganju reveals two dissimilar instances. First, the Press Enclave Housing in New Delhi that Ganju designed in the 1970s where "nothing significant was around" the site at the time and he had to design the housing scheme "according to what would be a generalized North Indian urban neighborhood." Second, the Kubba House in New Delhi that Ganju designed in the 1980s where "the urbanscape around the site was so unfriendly and ugly and harsh" that he created "an inward looking house that deliberately kept the outside away." Likewise, Pankaj Gupta reveals that he often has to "confront" the urbanscape "rather than accept it." By contrast, Rahoul Singh believes that an architect only needs to "spend a little bit of time and effort to be attuned and sensitive to what is around and identify the critical elements of it." Rahoul Singh feels that "the process of filtering out the essence of the surroundings may take a little bit longer; however, the more haphazard it is, the richer the visual texture there is."

The concept of relating built-forms to their urban context involves a different approach for Mohe. He believes in the idea of "home-coming" that seeks to make the user feel at home much before he/she enters his/her house. Mohe provides examples of *pol* houses of Ahmedabad and old precincts of Jaisalmer, wherein "the moment you enter the neighborhood gateway, you will obtain the feeling of 'home-coming'." Thus, Mohe believes that "a designer should have a skill to stretch such feeling of 'home-coming' as far as possible from the house."

4.4. Addressing sociocultural needs

According to Namita Singh, an architect cannot tell her clients how to live. Namita Singh reveals that people often complain about their architect for not allowing them to have certain things as per their wishes. Similarly, Lall believes that "in no way is architecture intended to be deterministic of other people's way of life." Lall affirms that he does not dictate his clients on how to behave inside his buildings. Lall considers the role of an architect as someone who "extends support and provides convenience and comfort for people who will be using the building." Vinod Gupta highlights a new trend prevalent in luxury housing in India where high-rise towers are designed in a way that only one apartment exists per floor. Vinod Gupta feels that such an attitude toward architectural design is a "terrible thing," given that such design is contrary to the Indian way of life and ends up alienating people.

The architects interviewed have expressed different ways of ensuring their designs are socially and culturally appropriate. Pankaj Gupta states that he addresses sociocultural concerns by ensuring that his buildings are "built with materials, craft-traditions, technology, and climatic principles that are deeply rooted in the place." Rahoul Singh stresses on empowering users to meet their future needs by providing flexible spatial configurations that can be used for "multiple different things often simultaneously." Likewise, Mohe focuses on "multi-functionality of spaces" while designing affordable projects, but he emphasizes on creating interlinks across different zones of a larger project to facilitate interaction among users. Sourabh Gupta reckons that "an architect is supposed to get under the skin of clients." Sourabh Gupta believes that the role of an architect includes understanding the needs of clients, the needs of the program, and at times educating the client in evolving the program. Ganju also emphasizes

on the program, as he feels that it assimilates "the identity of clients."

For a design to be in sync with the cultural and social needs of users, some of the regionalist practitioners believe that architects should not fixate on the appearance of their buildings. Mohe strongly believes that "if a place feels good, it would look good as well." Ganju asserts that his projects have varying looks, because his designs are greatly "dependent on the nature of the program, which in turn, is partly the nature of his clients." Ganju insists that such approach is appropriate, even if buildings end up not looking like "the work of the same architect."

The scale of a project also influences the manner in which regionalist practitioners address the issue of socio-cultural appropriateness. In small-scale projects, architects have a better opportunity of interacting with the eventual occupants of their designs. Namita Singh affirms that in small-scale projects, she lets "the design process to be totally interactive," in a way that her clients can design their own houses. Likewise, Mohe reveals that while designing a single-family house, he interacts with every member of the family to "customize the house design as per their individual needs." However, in dealing with large-scale projects, regionalist architects disclose two additional challenges that they have to address. First, as Namita Singh describes, the architect has to "guess the needs of users and their psychology," given that precisely identifying users and subsequently interacting with them is difficult. Second, as Arya describes, users of a building have "different cultural context than the sponsor or the patron of the building." As architects generally have to answer only to the patron of a project, regionalist practitioners need to ensure that the needs of a patron do not overpower the needs of users.

In certain cases, architects have to deal with the negative aspects of social and cultural situations as well. Arya's firm commonly engages in designing bus stops for the BRTS in Ahmedabad and has to "take care of the frequent vandalism that bus stops face in India" by making use of stronger materials that can "endure wear and tear." Moreover, Arya expresses that due to the lack of "culture of building maintenance" in India, ensuring "certain longevity" to their designs is necessary for architects. Mohe highlights an additional complication by citing two instances wherein intended users for whom he had designed did not end up occupying the buildings due to unforeseeable reasons.

4.5. Use of modern technology

The architects interviewed acknowledge the importance of modern technology in contemporary architecture. Mohe emphasizes such importance by highlighting how the percentage of floor area occupied by columns and walls has been reduced from roughly 30% in prehistoric times to approximately 3% in modern times. According to Sourabh Gupta, if the budget and the program allow, then architects should "use the best materials and technology available today." However, Sourabh Gupta cautions against the use of fashionable new materials including steel and glass when they are not "best-suited" to a program. Likewise, Lall believes that newly-available technologies should be integrated "as long as they make sense."

The regionalist practitioners have, however, expressed varying degrees of enthusiasm toward latest technologies. In Arya's opinion, "local culture and technology are not contradictory." She affirms that her firm welcomes modern technology "completely" and regularly encourages the procurement of best-available equipment for doing fabrication work. Likewise, Namita Singh states that she does not "look down upon any material or technique" including usually-frowned-upon materials such as aluminum cladding and glass. She believes that if architects use new technologies "in an aesthetic manner," such method would accelerate their acceptance in our culture. By contrast, Mohe discloses that he tries to keep the choice of materials "as regional as possible." In a similar vein, given that Lall predominantly deals with projects involving low budgets, he rarely suggests his clients "to go for something that is ultramodern." Lall recommends new materials and technologies only if "something is worth the price and is affordable" as per the budget of a project. For Rahoul Singh, the choice of materials depends on whether he needs to exhibit "the efficiencies of industrialization" in a building or wants to "embed a certain amount of slowness" into it.

The architects interviewed advice exercising caution when dealing with new materials and technologies. Vinod Gupta states that he uses modern technology but does not use "untested technology." Vinod Gupta insists on doing enough research on new technology before using it. Arya reveals that she conducts her own research to "find out how appropriate a new material is, what are the costs involved, what are the procurement processes involved, and how easily will the client be able to maintain it after it has been used." Likewise, Namita Singh believes in educating herself in the "pros and cons of different building materials and techniques to use them judicially and aesthetically." However, Namita Singh feels that this exercise requires a great deal of effort on the part of an architect. Ganju's approach to architecture relies on a hybrid of natural materials including brick, stone, and wood complemented by modern materials like steel, glass, bubble wrap, and aluminum foil insulation. Lall applies a test of sustainability for selection of materials and technologies, giving priority to those having low embodied energy. Along the same line, Mohe looks primarily at the embodied energy in each product before adopting a new technology. In addition, the ageing process of a material is important for Mohe as he prefers materials that age gracefully and require low maintenance.

4.6. Air-conditioning

As temperatures regularly soar above 40 °C during the Indian summer, arguing against the use of air-conditioning is hard in view of the rising thermal comfort expectations of occupants (Manu et al., 2019). However, hermetically sealed fully air-conditioned buildings tend to eliminate passive cooling features (such as overhanging eaves or recessed windows) that would otherwise relate the outer form of a building to the regional architectural vocabulary

(Frampton, 1987). Critical regionalism resists overreliance on mechanized devices for climate control, as it leads to buildings that are more rigidly isolated from their natural environment and cultural context (Foruzanmehr, 2018; Shirazi, 2018). In view of the rapidly developing climate crisis, responding to climatic conditions through the form and organization of buildings has now become crucial to minimize air-conditioning needs (Khambadkone and Jain, 2018).

According to Vinod Gupta, the amount of air-conditioning being used in contemporary Indian buildings is a cause for concern. He feels that air-conditioning has a "profound influence on the way we live and work." Unlike in traditional Indian architecture where pleasant open and semi-open spaces had emerged, he believes that users today are increasingly being limited to "closed and cellular" spaces for the sake of air-conditioning. Rahoul Singh equates fully-air-conditioned buildings with aquariums and the people inside them with fish. Rahoul Singh believes that making large glass-box buildings in India and subsequently pumping them with conditioned air is "quite counter-intelligence." In Mohe's opinion, "glass-box buildings will consume a lot of energy even if double-glazing is provided." Mohe believes that the glass-box problem should not be "created in the first place if it later has to be solved using expensive materials."

Although regionalist practitioners reckon that the amount of energy consumed for air-conditioning is too high, they are not opposed to the concept of air-conditioning in general. Given the high and humid temperature during Indian summers, Arya feels that "sitting in the heat and sweating it out" is no longer comfortable. Rahoul Singh believes that if temperatures reach up to 45 °C and a client can afford air-conditioning, "then by all means you can air-condition the building." Likewise, Sourabh Gupta reveals that he is a "firm believer of comfort," in which he does not perceive air-conditioning as wrong for a building. According to Lall, "the kind of comfort that people can obtain from air-conditioning cannot be obtained otherwise." Lall also believes that as long as "clients are able to afford air-conditioning," the architect should provide for it.

The architects interviewed express a common intention to minimize air-conditioning loads through design. Pankaj Gupta feels that "a good architect should be able to minimize the amount of air-conditioning by employing passive cooling techniques." Lall affirms that he takes "a lot of trouble in minimizing" air-conditioning needs by providing good shading and insulation in his designs. For Mohe, more than employing any mechanical means for cooling, orienting the building in a way that sufficient daylight is ensured inside while keeping the heat out is important. Ganju claims that if an architect chooses the right materials, the right orientation, uses appropriate shapes and volumes, and properly designs the flows of energy within a building, then air-conditioning will not be needed even in a hot climate like Delhi's.

To further reduce air-conditioning loads, the regionalist practitioners suggest additional measures. Sourabh Gupta reckons that buildings should not be required to comply with 23 °C temperature and could instead be cooled to 25 °C. Mohe believes that the trend of conditioning spaces at 23—24 °C in India has started from five-star hotels where guests are commonly dressed in suits and neckties, thus necessitating such temperatures. Mohe feels that "air-conditioning temperature can be easily increased by 2 °C" if people start dressing appropriately according to the climate. In addition, Mohe considers that air-conditioning temperature could be increased even more by supplementing spaces with ceiling fans. Likewise, Lall insists on having ceiling fans even in sophisticated centrally-air-conditioned buildings.

Another measure adopted by regionalist architects to reduce air-conditioning loads is flexibility in running air-conditioners. Vinod Gupta reveals that he tries to create spaces in his buildings that are partially air-conditioned or non-air-conditioned. Arya adds that she tries to rationalize the space required for air-conditioning without compromising the spatial character of her buildings. Lall discloses that in his buildings, he provides operable windows, and when open windows are no longer effective, occupants can use ceiling fans. When ceiling fans are no longer effective, occupants can use desert coolers. Only when all these measures are no longer effective does an air-conditioning system come into play.

According to Lall, the present technology of refrigerant-based air-conditioning is "energy-intensive and expensive." Therefore, some of the regionalist practitioners have also experimented with alternative mechanisms for cooling. In one of his projects, Mohe believes to have saved 30% of energy consumption by switching from conventional air-conditioning to evaporative cooling. Similarly, Arya switched to earth-cooling as an alternative way of having cooled air in one of her recent projects to save energy. However, alternative cooling mechanisms are precarious as they may eventually seem inadequate to certain clients in providing sufficient thermal comfort, as experienced by Vinod Gupta in one of his projects.

4.7. Choice of materials

The oeuvre of an established architect tends to depict an individual style, which is a function of "a set of common features and design processes" (Chan, 2001). Among the set of common features that contribute to an architect's distinctive style is his/her choice of materials. Whereas starchitects often indulge in signature designs that disregard local materials, a regionalist practitioner would consider it a moral duty to use locally-available materials.

Although many of the architects interviewed in this study have attained celebrity status within Indian architectural circles, they insist not having a signature style or earmarked materials. Lall asserts that he is neither a "concrete-specific" architect, a "brick-specific" architect, nor a "stone-specific" architect. Likewise, Arya states that she has "no signature materials" and that a quick look at her projects will reveal that she uses diverse materials like steel, concrete, stone, rammed earth, wood, and industrial materials as per "the requirements of the brief and the context."

Mohe explains that he first "figures out the locally-available resources of a region" and consequently tries to leverage them for the benefit of the program. In a similar vein, Lall expresses that he first studies the local architecture of a place and accordingly tries "to use what is locally produced." Lall feels that "studying local architecture makes a difference" to his projects. Namita Singh illustrates how she switched from her usual choice of exposed brickwork to cement-plaster finish for the Indian Naval Academy (2009) at Kannur in Kerala due to the scarcity of bricks in the region. Mohe discloses how he switched to elements such as sloping roofs and clay tiles, which he had never used before, when he designed the Ashok Beach Resort (1994) in Kovalam, Kerala.

In Arya's opinion, the choice of materials "does not always have to do with the fact that the material is local; although it is a useful factor," and she does deliberate upon it. Sourabh Gupta states that although he likes "to use and explore and express (himself) with different kinds of materials," for him, local materials "take more precedence."

Ganju, however, admits that sometimes he does "choose materials that are not commonly used in a particular region." Given that the road network in India is good, he often transports clay tiles from Mangalore and steel sections from Jamshedpur in trucks to his construction sites. By contrast, Mohe discloses that rather than transporting materials, he has transported craftsmen skilled in handling mud-construction from the Bangalore and Pondicherry region to a building site for a school for tribal children near Pune, Maharashtra. Such a measure was necessitated because Mohe designed the project by using rammed earth in alignment with the tribe's traditional structures built from mud and bamboo. However, such local building practices had degraded in the past few decades.

4.8. Difficulties

According to Mohe, regionalist architects in India generally face more difficulties in the beginning of their careers. Mohe believes that as their work progresses, increasing number of clients start approaching them "because they have seen and liked" their work, and thus architects are confronted with fewer problems. In Lall's opinion, "difficulties arise when all those who are involved in making a building, including clients, have different ideas of what the building should be." Namita Singh feels that as long as a design is "backed by logic" and the architect can properly "interact with people and explain them the logic," then "major difficulties" will not be experienced. By contrast, Sourabh Gupta feels that without problems and limitations, a work of architecture has lesser value and legitimacy as it tends to be driven by a designer's "whims and fancies."

As far as clients are concerned, Mohe feels that numerous times clients are not able to express what exactly they desire. Thus, Mohe believes that architects should possess "a lot of patience" and be "good listeners" to understand their clients' needs better. In Pankaj Gupta's opinion, an architect's job includes educating his/her clients. Lall expresses that for clients, a building "is like a dress" that "symbolizes something because of its form and materiality." Lall reveals that clients often demand their building to appear in a particular way, which creates "a point of tension" as his "aesthetics are discovered through the process of design rather than by any sort of imposition." Namita Singh discloses that she does not like to be rigid and does often "give into the fancies" of her clients. Namita Singh reveals that she is primarily concerned about the "proportions of spaces" and once the basic structure of a building becomes erected, she is flexible with the choice of materials and finishes.

Building contractors pose additional challenges for architects in India in implementation of their designs. According to Vinod Gupta, contractors usually are unable to provide good quality workmanship. Vinod Gupta feels that the quality of workmanship has unfortunately become an important factor in ensuring the success of a design. Namita Singh reveals that "contractors often want a shortcut" and therefore "try to interfere with the design." Arya adds that if an architect wants to "try anything which is not mainstream, which is not easy, and fast to finish," irrespective of whether it is derived from regionalism or not, "an opposition from the construction contractors is anticipated." However, Lall reckons that some contractors "enjoy doing something which is interesting" as long as they do not lose money. Thus, Lall tries to work with contractors "who feel that they are growing themselves by doing new kind of work." Mohe deals with contractors by motivating them to make a good building that they could showcase for the rest of their lives.

Another crucial problem faced by architects in India emanates from the malpractices prevalent in the building industry. Pankaj Gupta asserts that "corruption is frequent in the Indian building construction industry." Ganju reveals that engineers invariably advise architects to opt for reinforced concrete construction, because for them "the profit margin is the highest." Moreover, Ganju believes that engineers "overdesign the structural steel" to compensate for the theft of steel on site but inadvertently encourage theft "by over designing the steel requirements." Ganju adds that "the market is only organized to supply cement bags, bad steel, and third-grade bricks" for traders "dealing in supply of these inferior materials" to conveniently make money out of it.

4.9. Vision for the future of critical regionalism

In Mohe's opinion, "critical regionalism will continue to be important (in the future), given that it is the common-sense way of working." Mohe believes that although newer technology will bring a paradigm shift in the way we live our lives, architects would need to respect the subtleties of different cultures. Similarly, Arya believes that if critical regionalism truly remains as the common-sense way of doing things, "then it will continue to exist in several places in the world for the longest period of time." However, Arya cautions that the moment the "critical" part is removed from critical regionalism and it becomes a style or a fashion, it will have a presence only for a short while in our future.

Namita Singh is optimistic about the future of critical regionalism. Namita Singh reveals that in recent years, she has been part of a few juries for architectural design

competitions where she has witnessed several architects "design quite sensitively" and "use the regionalist approach." However, other architects interviewed do not share as much optimism. Sourabh Gupta laments that "a lot of not-so-thoughtfully-done architecture is being practiced" in India, given that numerous architects are either "trying to ape the West or ape the past." Sourabh Gupta believes that although critical regionalism is a more valid approach and may even be more talked about in the architectural circles, what is going to be built more is the "globalised" architecture. Vinod Gupta bemoans that commercial success of "context-insensitive" architectural works is luring other architects and students of architecture, given that it conveys to them "that by building such kind of architecture, commercial success is ensured." Lall reckons that "if we are lost to the world of fashion and copying, (critical regionalism) will considerably diminish in popularity."

According to Arya, "globalised architecture and critical regionalism will always exist in parallel." Arya feels that a faction of people "will see architecture as a form-making exercise" and another faction "will try to understand the local context and respond to it." In Rahoul Singh's opinion, "architecture is probably the single-largest bespoke thing." Rahoul Singh compares contemporary architectural approaches to going to a store to buy a suit, wherein you can either buy a ready-made one or have someone measure you up to make a customized suit. Ganju believes that "in a country like ours, there is room for all kinds of approaches." Ganju feels that although plenty of bad practices will continue to thrive in the Indian architectural scene, a minority of architects will keep trying to improve things and produce good work. Arya also feels that several architects "who will come out fairly strongly in favor of retaining (regional) character" will always be present.

Awareness of architectural values in the society is crucial for the development of critical regionalism in India, according to the architects interviewed. In Sourabh Gupta's opinion, "a certain lack of awareness and sensitivity exists" in our understanding of architectural values. Vinod Gupta believes that "the future of context-sensitive architecture in India will depend upon whether people realize at some point of time what context-sensitive architecture did for them and what context-insensitive architecture has done for them." In this light, Lall reveals that he has created five educational videos in collaboration with the Centre for Science and Environment, a public interest research and advocacy organization based in New Delhi, to help common people understand "the principles of design for a healthy happy life in harmony with nature." Lall reckons that "only if as a society we understand the architectural values" will critical regionalism gain in popularity.

5. Discussion

Practitioners of critical regionalism in India consider expressing regional identity in architecture important, because they believe that we are all culturally different. Thus, regionally-sensitive architecture will contribute toward keeping the individual cultures of different places alive. Moreover, they believe that regional identity in architecture can help counter the homogeneity inherent in "global" architecture.

In regionalist architects' opinion, learning from the wisdom inherent in traditional architecture is important for contemporary architects. Regionalist architects also reveal different ways of engaging with the fundamental lessons in local tradition: some focus on structure and use of materials, some discern traditional living patterns, and some try to learn the rationale behind vernacular building practices. However, they caution against emphasizing on the visual aspects of traditional architecture and advise delving deeper into the logic, principles, and driving forces that produced the traditional architectural forms of a particular region. Some of them also reveal that the curriculum in their architecture schools did not adequately familiarize them with the virtues of traditional architecture and that they had to find their own ways to develop a sound understanding of traditional architecture after completion of their formal education.

While situating their designs in the urban milieu, regionalist practitioners inform that they submerge their own personalities to ensure that their built-forms are in harmony with the surroundings. They feel that modernist architecture neglects the relationship between a building and its urban context, thus producing isolated objects that do not contribute to the dynamics of a city. They complain that the existing planning norms in the country have been based on modernist principles that discourage a continuous relationship between built-forms and their context. They also disclose that often the urban character surrounding building sites in India is poor and they rather have to confront it.

According to regionalist architects, an architect should design a project while keeping in mind the way of life of the people for whom he/she is going to build. They feel that architects should not fixate on the appearance of their buildings so as to meet the sociocultural needs of users. Architects express different ways of ensuring sociocultural appropriateness in their designs: some focus on building with materials, craft traditions, and climatic principles rooted in the place; some provide flexible spatial configurations to address the future needs of users; some interlink different zones of the built-forms to facilitate interaction among users; and some try to better understand the needs of their clients while evolving the program. Moreover, they reveal that small-scale projects provide a better opportunity of interacting with the eventual occupants compared with large-scale projects. Designing according to the sociocultural situation in India also requires having to deal with certain negative aspects, including frequent vandalism and lack of building maintenance.

Regarding the use of latest building technology in architecture, practitioners of critical regionalism in India acknowledge its importance but caution against the use of fashionable new materials, such as glass and steel, when they are not best suited to a program. Although they express varying degrees of enthusiasm toward modern technology, they all advise doing adequate research on each new material or technology to understand how sustainable it will be, how well it will age with time, how easy or difficult it will be to maintain in the future, and how much it will cost in the long run.

Practitioners of critical regionalism in India are not opposed to the concept of air-conditioning in general as temperatures often rise above 40 °C during summer. However, they insist on minimizing air-conditioning loads by employing passive cooling techniques and complementing buildings with partially-conditioned and non-conditioned spaces. To further reduce air-conditioning needs, allowing liberal dress codes in workplaces and supplementing air-conditioned spaces with ceiling fans are suggested.

With regard to the choice of materials for their buildings, regionalist architects insist on not having a signature style involving a predetermined choice of materials. They assert that their choice of materials is based on the specific requirements of a brief, and that they try to leverage local resources for the benefit of a program. However, they disclose that although local availability of a material is a useful factor while choosing, the choice of materials is not always entirely based on the fact that a material is local.

The difficulties faced by regionalist architects in their practice arise when different stakeholders have different ideas of what the building should be. Architects need to properly interact with different stakeholders to explain them the logic behind their design decisions to overcome misunderstandings. While interacting with clients, architects need to possess ample patience and be good listeners to understand their needs better, and if required, architects should also educate them on basic architectural values. Building contractors pose additional challenges to architects in India due to their inability to provide good quality workmanship. Moreover, contractors are usually reluctant to build anything that is not considered mainstream. Thus, architects are compelled to motivate them to realize their designs. Malpractices prevalent in the Indian building industry such as theft of structural steel on site, substitution of quality materials for inferior ones, and engineers' bias toward reinforced concrete construction for greater profit margins cause additional challenges for architects.

Regardless of the difficulties faced by practitioners of critical regionalism in India, they believe that critical regionalism will continue to be important in the future. They reckon that although greater technological advancements will transpire in the future, the subtleties of different cultures and regions would continue to exist and need to be respected in our architecture. They concede that "globalised" architecture would also thrive in parallel, and only if greater awareness of architectural values is created in our society will critical regionalism flourish in the future.

6. Conclusion

In this study, nine reputable Indian architects who regularly integrate the ideas of critical regionalism in their designs have been interviewed regarding their approach to architectural design. The analysis of their responses reveals several commonalities and certain differences in their methods to adjust their designs to fit the Indian culture. This study provides insights into specific real problems vital to contemporary India and the means employed by leading regionalist practitioners to resolve them through architecture. By integrating the theory and practice of architectural regionalism in India, this study aims to help local architects and students of architecture who aspire to produce original innovative work derived from the peculiarities of place.

The study has also exposed problem areas that deserve further investigation. As revealed in the interviews, students of architecture in India are not adequately familiarized with the virtues of traditional regional architecture in architectural schools. Future research can study the existing curricula in architectural schools in India and suggest ways to integrate the design principles and strategies of critical regionalism. Reorientation of architectural education in the country will enable architects to layer their work with a deeper understanding of local cultural conditions and tectonic practices. Moreover, the interviewed architects reveal that the existing planning norms in the country, being based on modernist principles, inhibit a continuous relationship between built-forms and their surroundings. Future research can study the planning by-laws in place in India and suggest modifications to ensure that our built-environment is regionally-responsive. A regional perspective to urban planning can be useful in creating a unified architectural fabric that promotes contextual harmony in our built environment.

In conclusion, critical regionalism is a simple and straightforward architectural approach that does not rely on complex philosophical basis. Thus, understanding critical regionalism on a conceptual level and practically implementing it in varying ways is easy. It is hoped that learnings from this research elucidate the practice of critical regionalism in India to foster a culturally enriched built environment that better fulfills the real needs of society.

Acknowledgments

The authors would like to thank the Government of India's Ministry of Human Resource Development for funding this manuscript through the IIT-Roorkee Doctoral Scholarship to the main author, grant number 14902005. We sincerely thank the architects who patiently and articulately answered our questions on regionalism and their buildings: Ashok B Lall, Meghal Arya, MN Ashish Ganju, Namita Singh, Pankaj Vir Gupta, Rahoul Singh, Sanjay Mohe, Sourabh Gupta, and Vinod Gupta. Lastly, the authors would like to thank the two anonymous reviewers of the FOAR journal for their time and effort in providing constructive comments that helped improve the quality of this paper.

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