Proceedings of the Society of Architectural Historians, Australia and New Zealand 30, Open

Dudhsagar Dairy at Mehsana, India (1970-73)

Achyut Kanvinde and the Architecture of White Revolution

Prajakta Sane

University of New South Wales

Post-independence architecture of India has been often perceived as an ongoing struggle between its two opposing ideologies, predominantly those of Gandhi and prime-minister Nehru, translating into rural and industrial, subaltern and dominant or more commonly traditional and modern. This paper attempts to draw out its reconciliation through an historical appreciation of a grass-roots initiative of dairy farmers from Western India and its architectural manifestation in large scale industrial dairy buildings. Here I focus on the Dudhsagar Dairy Plant (1970-73) at Mehsana in Gujarat designed by the prominent Indian architect Achyut Kanvinde (1916-2002). The significance of this factory does not lie solely in its unique rhythmic form of soaring ventilation shafts nor does it merely showcase the growing industrial face of independent India. Rather it provides an opportunity to understand postcolonial modernity against a unique layer of co-operative rural enterprise which led to the historic "White Revolution," a phenomenal development in India's dairy industry. It is a story of architecture shaped by social needs and aspirations which used the language of modernism to convey a larger purpose. Achyut Kanvinde played an important role in disseminating and reconfiguring modern architecture in post-colonial India. The historical and cultural analysis of this dairy plant with its non-elitist background articulates a counter-position to the dominant architectural discourses on India, structured around the dualist framework of "modern/Indian" and the question of identity. In doing so, it addresses the larger debate of critical architecture—the relationship between culture and form. Thus this paper serves also to undermine the postmodern polemics of Indian architectural historiography, by making way for a parallel stance characterised by an alternate but inherent "Indian" expression.

In the five decades between Indian independence and the nation's triumphant entry into the global market—much has changed—for its people and one of its most visible cultural artefacts—architecture. After decades of derived development and imported models Indian architecture finally garnered critical attention, even if subjected to Eurocentric frameworks. However, recent scholarship has challenged these frameworks,[1] suggesting a blurring of distinction between modern and post-modern,[2] modern and tradition,[3] and has questioned tropes like "Indian" and "identity."[4] Debates are also generated about representations of post-independence architectural production that challenge narratives as being in the Orientalist mode,[5] legitimising only selected modes of production.[6] This paper shows that despite the confusing amalgam of generic traits that characterise 'modern-Indian' architecture narrowly defined by post-eighties discourses, specific aspects and features acquire a certain salience within their historic contexts. This is done with the help of close analysis of a dairy building in Western India—the Dudhsagar Dairy at Mehsana designed by the now legendary Indian architect, Achyut Kanvinde built during the seventies. As a new building type for an industrialising nation, this national commission soon acquired a regional significance and became pivotal agency representing incipient modernity in the rural context.

The paper is divided into two sections. The first one describes the historical forces that gave rise to the construction of India's dairy industry and its development. The second section examines Kanvinde's design of Mehsana dairy complex and arrives at interpretations of Kanvinde's struggle to both understand and concretise an Indian modernity.

Section I

As discussed by the Indian political scholar Sunil Khilnani, at the turn of independence in 1947 planned industrialization was hardly an expected course that India would take in the circumstances of its huge impoverished agrarian economy.[7] While largely debated by several intellectuals and politicians of the time, two contrasting ideologies represented the vision for India's future. On the one hand, Mahatma Gandhi (1869-1948) had repeatedly opposed any form of industrial modernity. His vision for the country's progress was based on building up the indigenous village production system through cooperative structures. Gandhi asked, "Could not

1. Vikramditya Prakash, *Chandigarh's Le Corbusier: The Struggle for Modernity in Postcolonial India* Studies in Modernity and National Identity (Seattle: University of Washington Press, 2002), 21-28.

2. Sarah Williams Goldhagen and Rejean Legault, eds., *Anxious Modernisms: Experimentation in Postwar Architectural Culture* (Montreal, Cambridge, Mass.: MIT Press, 2000).

3. Ananya Roy, "Traditions of the Modern: A Corrupt View," *Traditional dwellings and Settlement Review* 12, no. 11 (Spring 2001).

4. Ritu Bhatt, "Indianizing Indian Architecture: A Postmodern Tradition," *Traditional Dwellings and Settlements Review* 13, no. 1 (2001).

5. Ritu Bhatt and Sonia Bafna, "Post Colonial Narratives of Indian Architecture," *Architecture + Design* 12, no. 6 (Nov-Dec 1995).

6. A. G. Krishna Menon, "Interrogating Modern Indian Architecture," *Architecture + Design* 17, no. 6 (Nov-Dec 2000).

7. Sunil Khilnani, *The Idea of India* (New York: Farrar Straus Giroux, 1997), 64.

8. Gandhi cited in Chidananda Das Gupta, "Cinema: The Unstoppable Chariot," in *Independent India: The First Fifty Years*, ed. Hiranmay Karlekar (Delhi: Oxford University Press; Indian Council for Cultural Relations, 1998), 28.

9. Jon T. Lang, Miki Desai, and Madhavi Desai, *Architecture and Independence: The Search for Identity--India 1880 to 1980* (Delhi; New York: Oxford University Press, 1997), 181.

10. Khilnani, *The Idea of India*, 65.

11. Surinder S. Jodhka, "Nation and Village: Images of Rural India in Ganhi, Nehru and Ambedkar," *Economic and Political Weekly* 37, no. 32 (August 10, 2002): 3348-49.

12. Prakash, *Chandigarh's Le Corbusier*, 140.

the villagers under co-operative scheme do with fewer carts? Why could they not have a marketing co-operative for sale of grain and crops?"[8] In his austere way, he believed in a bottom-up mode of bringing about change from the base of the society.[9]

On the other hand, Jawaharlal Nehru (1889-1964), who was to become the first Prime minister of India—was drawn towards the "West's history for an image of India's own future" propelling the country to massive forms of industrialization.[10] While Nehru agreed with Gandhi's views on the nature of traditional village society, his critique of its social and economic structures was a sustained one.[11] Nehru believed in the virtues of modern technology for agriculture in its potential to provide self-sufficiency and growth for the farmers which would transform the "backward" rural scenario. As Prakash has argued, "in the Nehruvian world, the 'new' and the 'good' were interchangeable and modernity was not only unfettered by the past but also an instrument to unfetter the past."[12] These two distinct if somewhat overlapping streams of thoughts about the future of India remained ingrained in its course of development. As Nehru took over the country's leadership, he adopted a socialist democratic model with an emphasis on science and technology for its planned development—and launched programmes to build his 'temples of the future.' From massive concrete dams to newly planned state capitals like Le Corbusier's Chandigarh, these modern temples dominated the post-independence scene relegating the Gandhian model of development to the periphery. However, it is during this period that slow change was occurring in a small part of western India (Gujarat) in the dairy sector, which kept the Gandhian spirit alive and turned into a national movement in the following decades.

AMUL and the making of White Revolution

13. Though the Amul saga usually begins from 1947 and is found in many sources, a detailed account of its origins are described in Shanti George, *Operation Flood: An Appraisal of Current Indian Dairy Policy* (Delhi: Oxford University Press, 1985), 160-72.

The story of AMUL begins just before Independence (1947) in the small districts of Kaira and Anand, near Ahmedabad, Gujarat.[13] During the later decades of colonial rule, government managed and subsidised city milk schemes were in shambles as they faced problems of insufficient production and uneven distribution. Rationing of milk and other food products led to misuse of privileges while the farmers were exploited at the hands of agents or private dairies and faced limitations imposed by colonial policies. If the initial protests were aimed at rich peasants

or contractors who controlled the milk trade, it soon became a part of the nationalist political struggle for Independence with Gandhi's support. His aides urged the farmers to organise themselves into village co-operatives to control supply and market of their milk which ensured their profits. Drawing on the active landscape of political activity surrounding the nationalist movement, and triggered by the major milk boycotts, the Kaira District Cooperative Milk Producers Union (KDCMPU) was formed in 1946.[14]

Soon after, Dr. Verghese Kurien (1921-2012), the technocrat behind the growth and transformation of Indian dairying, joined the fledgling Kaira Co-operative and worked towards its efficient functioning. With the need for excess milk to be processed to milk powder and butter, Kurien started importing modern technology by getting aid from foreign agencies like the UNICEF.[15] The Kaira cooperative at Anand was subsequently registered under the brand AMUL in 1957 (the acronym for Anand Milk Union Limited)—a word that would soon become a household name for milk products.[16] From 1946 to 1960, Mehsana and four other districts in Gujarat were organised into cooperative milk producers unions that used AMUL brand to expand markets instead of competing with each other.[17] Under the strong leadership of Kurien, the AMUL model soon encompassed a wider dimension of rural development. As described by him, "a grass roots democracy through federal concept . . . It was certainly not only about milk. It was very soon becoming an instrument in social and economic change in our rural system."[18]

In 1964, Prime Minister Lal Bahadur Shastri visited Anand and was impressed by the working of village co-operatives and the success of "AMUL model." He asked Kurien to replicate it throughout the country on a larger scale to eradicate milk famines and thus established the National Dairy Development Board (NDDB) with Kurien as its chairman. Using commodity aid from the European Community (EC) and international funding for its technological set-up, the NDDB formally launched "Operation Flood" programme in 1970 which entailed emulation of cooperative dairying across rural India. Operation Flood was the most comprehensive dairy development programme executed between 1970-1996 in three phases which ushered in the "White Revolution"—making India eventually self-sufficient in milk and the largest milk producer in the world.[19] The phenomenal working of Operation Flood led to mammoth infrastructure for dairy development in the country.

14. Pratyusha Basu, *Villages, Women, and the Success of Dairy Cooperatives in India: Making Place for Rural Development* (New York: Cambria Press, 2009), 49-59. See also Amul Dairy's official website: www.amuldairy.com

15. Verghese Kurien and (as told to) Gouri Salvi, *I Too Had a Dream* (New Delhi: Lotus Collection, 2005), 24-58.

16. Kurien and Salvi, *I Too Had a Dream*.

17. Ajit Kanitkar, "A for Amul: Inspiring Story of India's White Revolution," *Change for Better: Better World Through Better People* 1, no. 2 (January-March 2011): 10.

18. Kurien and Salvi, *I Too Had a Dream*, 80. As the cooperatives started functioning, the milk collection at the village societies transformed the social fabric as farmer-members became proactive. Women mostly looking after the cattle assumed greater roles in earning, caste differences were gradually undermined, improved sanitation and livestock health, and an increased awareness about food and personal hygiene were all crucial in the transformation. These social effects came to be subsequently studied see for example: Basu, *Villages, Women*.

19. M. V. Kamath, *Management Kurien Style: The Story of White Revolution* (Delhi: Konark Publishers Pvt. Ltd, 1989).

Section II: Achyut Kanvinde and the Architecture of the White Revolution

Achyut Kanvinde came into contact with Verghese Kurien in 1962 when he was asked to design a cattle feed plant at Anand, a small project which was to result into a life-long association.[20] While Kanvinde's earlier work in Ahmedabad for the scientific and industrial community exploited the potential offered by Bauhaus functionalism, it had also expressed a commitment to Nehru's ideological development project.[21] As the dairy industry institutionalized into NDDB in 1965, Kurien began consulting Kanvinde for the NDDB campus project at Anand. It was soon followed by the commission to design a large milk processing plant in the neighbouring district of Mehsana in 1970, an opportunity which shaped Kanvinde's architecture in the following decades.

Due to limited experience of designing dairy buildings, Kanvinde studied the existing dairies at Bombay and Delhi. He observed that the design of those buildings was usually restricted to utilitarian factory sheds based on preconceived arbitrary considerations.[22] While he understood that the core of dairy functioning depended on effective segregation of human and material movement, he also realised that one of the main issues in efficiency of production was excessive heat and odour generated by the powder plants which was often unsuccessfully dissipated by exhaust fans leaving the factory space unfit to work.

For Kanvinde, thus the primary task was to respond to functional demands of the dairy interior: the need for effective layout and optimal ventilation which formed the central idea of the design.[23] Working with dairy engineers, he strove to resolve the needs of structure, services and the technical programme that involved the process of milk reception and sample analysis, collection and storage, pasteurisation, milk processing (in this case condensation into milk powder), packaging and dispatching. The resulting plan comprised of a series of orthogonal spaces rationalised by a square structural concrete grid of seven metres that work in multiple ways.[24]

A clear separation between the milk reception and powder processing areas makes the plan deceptively simple, as it becomes evident that the section is the core generator of the design. This takes us to the second important aspect—the use of sloping site to evolve a multi-level design. A raised concrete deck where

20. A. P. Kanvinde, "Pesonal Diaries" (Delhi: personal archives unpublished). Subsequently, Kurien under the banner of NDDB ended up being one of the most important clients in Kanvinde's career for providing him with large scale jobs like Dairy Complex at Mehsana, Gujarat (1974), NDDB campus at Anand, Gujarat (1970-85), Office Complex for NDDB, Delhi (1983), Institute of Rural Management Campus (1980-85), Anandalaya School, Anand, Gujarat (1992) and various Dairy Plants all over India (1970-95) under Operation Flood.

21. Well aligned to Nehru's quest for modernization, Kanvinde's works of the period like the ATIRA Ahmedabad Textile and Research Association, 1953) and PRL (Physical Research Laboratory, 1953) both at Ahmedabad expressed the tenets of the International style.

22. A. P. Kanvinde, "Form and Design: Milk Processing Plants" (1991) Unpublished article from Kanvinde's archives, Delhi.

23. Peter Serenyi, "Ethics and Aesthetics: An Architect and His Values," *A+D* (May-June 1985): 15.

24. Serenyi, "Ethics and Aesthetics," 24.

the milk trucks bring the milk from village collection centres marks the entry from which milk goes to the lower level for pasteurisation. It is then transferred to the condensation plant and further to the large multi-storeyed space which houses the powder plants. Instead of conventional pumping system, gravity feed is implemented in the milk collection, storage and processing, using the site slope; a design decision which had a bearing on cost and energy saving.[25]

25. Kanvinde, "Form and Design: Milk Processing Plants."

A three dimensional exploration of the structural grid and rendered brick-skin walls bear an imprint on the functional as well as the formal aspects of design. While the equipment remains framed within the grid, it also provides access to the different levels with the help of walkways or bridges. To evacuate the heat generated out of milk condensing and spray drying equipment, a system of ventilation ducts linking all the working areas runs around the periphery of both the buildings eliminating the ineffective exhaust fans. These are expressed on the exterior as rhythmic shafts soaring above the roof, capped with an angular profile. Natural light and air drawn in through slit windows is combined with artificial lighting in the machinery dominated interiors, enabling a better working and hygienic environment for milk processing.

Figure 1. Interior views ahowing milk processing area and multistorey powder-plant with natural light and ventilation. Photographs by the author.

Figure 2. Mehsana Dairy complex with its structural banding and rhythmic ventilation shafts. Photographs by the author.

In the past four decades the factory has continued to function without any substantial alterations and is still a landmark entity in the non-descript townscape. But compared to its earlier singular presence, it has now grown into a large institution with two additional processing plants (1983, 1991); a seven storey office building (1985), an auditorium (1985) where Kanvinde used the similar design vocabulary to maintain continuity.[26]

Interpretations

Representing the emerging building type of the period, the Mehsana factory has featured in major Indian architectural discourses with a focus on a formalist analysis.[27] Architecturally it was influential as a heroic representation of industrialising India with its stylistic closeness to the late-modern aesthetic. Although the factory was largely associated with the brutalist ethic of honest expression of material and function,[28] or to Kahn's influence of servant and served spaces,[29] it has only recently been reconsidered to represent a unique form of Indian modernity.[30] According to Bhatt and Scriver, the building form is more theatrical than functional as it makes anthropomorphic references with its explicit structural banding.[31] The "animal-like" form is taken up further in Brown's analysis as she asserts that "the complex works both through the universalising idiom of geometry and line and through the local iconography of the bull" as a representation of the inherent aspect of the milk production.[32]

This bovine character (the capping of ventilation shafts as bull's horns) however, can only be read only from a particular angle; and given Kanvinde's denial of metaphors and reuse of similar feature in later projects, seems slightly stretched. The "muscular physiognomy"[33] or expression of structural elements was a continuation of many of Kanvinde's earlier schemes and was most explicitly used at the IIT campus in Kanpur (1961-66). One of the prime reasons could be attributed to Kanvinde's attempt to break down large purist blocks to a human scale, by expressing the tectonic logic of frame construction.[34] On another note, the factory is also viewed as an epitome of Kanvinde's modernist expression after which he "found himself out of fashion."[35] However, these interpretations also need to be situated in the larger debates surrounding regionalism and development.

26. *Dudhagar Dairy*, (accessed January 7, 2011) http://www.dudhsagardairy.co.in.

27. Apart from local publications, the dairy has been published in major books on history of modern Indian architecture such as Malay Chatterjee, "The Evolution of Contemporary Indian Architecture," in *Architecture in India*, ed. Raj Rewal, Jean-Louis Veret, and Ram Sharma (Paris: Electa Moniteur, 1985), 147; Carmen Kagal, ed. *Vistara: The Architecture of India* (Bombay: Tata Press Limited, 1986), 153; Vikram Bhatt and Peter Scriver, *After the Masters: Contemporary Indian Architecture* (Ahmedabad: Mapin Publishing, 1990), 28-31; Lang, Desai, and Desai, *Architecture and Independence*, 286; and Kazi Khaleed Ashraf and James Belluardo, eds., *An Architecture of Independence: The Making of Modern South Asia: Charles Correa, Balkrishna Doshi, Muzharul Islam, Achyut Kanvinde* (New York: Architectural League of New York, 1998).

28. Bhatt and Scriver, *After the Masters*, 19; Lang, Desai, and Desai, *Architecture and Independence,* 286.

29. Kenneth Frampton, "South Asian Architecture: In Search of a Future Origin," in *An Architecture of Independence*, 11.

30. Rebecca M. Brown, *Art for a Modern India, 1947-1980* (Durham NC & London: Duke University Press, 2009), 122-56.

31. Bhatt and Scriver, *After the Masters*, 28.

32. Brown, *Art for a Modern India*, 126.

33. Bhatt and Scriver, *After the Masters*, 28.

34. Ashish M. N. Ganju, "Achyut P. Kanvinde: Doyen of Indian Architecture," in *Vistara*, ed. Carmen Kagal (Bombay:Tata Press Limited; The Festival Of India, 1986), 230.

35. Kazi Khaleed Ashraf and James Belluardo, "Building the Nation: The Architecture of Achyut Kanvinde and Muzharul Islam," in *Crossing Boundaries,* ed. Geeti Sen (London & Delhi: Sangam, 1997), 208.

By the seventies, modern architecture had already come under attack for its apparent failure to address the social problems of the post-war period and its lack of concern for indigenous cultures. As limitations of modernist architectural thought were exposed, so was its ideological underpinning challenged. In the Indian context, it came to the fore with the demise of Nehru in 1964 and the onslaught of crisis situations that followed.[36] The Nehruvian model came under serious examination making way for alternative development or neo-Gandhian (vernacular) revival and self-conscious regionalism in architecture drawing from historic myths or ancient references. This was central to the regionalist discourse of the eighties that promoted identity constructions.[37] As depoliticised debates that focussed on "aesthetics of resistance" they tended to overlook its social genesis or developmental pressures.[38]

Since milk and other dairy products (butter, yogurt) have been central to the Indian diet for a long time, it also has deeper meanings. Cow worship has been an integral part of Hinduism and milk has mythological importance which can be traced back to Lord Krishna's epics. In a culturally derived dairy building which strives to be Indian, it cannot escape the mythological and sacred connections or its rural associations. But such meanings are rejected by Kanvinde in favour of a rational connection to the context and program exigencies underpinned by Kurien's vision of empowering the poor farmers.[39] The grid-based spatial organisation and shafts, although intrinsic to the technical process, are articulated by Kanvinde to form a rhythmic composition—reflecting a level of autonomy in expression. The intention of making a triumphant gesture of the modernising dairy industry representing the small scale dairy farmers thus overrides the concern for regionalist expression gaining prevalence during the period. As Kanvinde encapsulated, "My main aim was to synthesise a fairly complex industrial process into a powerful building form, with the minimum use of mechanical aids."[40]

The second important aspect was the nation's problematic connections to the geopolitics of the Cold War—mainly foreign aid and technological transfers. The resulting "development" has sparked debates about losses in such transfers and transposition of Western models leading to cultural incongruities, inadequate copies, or neo-colonial dependence.[41] The developmental ideology, a self-defining aspect of the Nehruvian state rationalised top-down

36. Barbara D. Metcalf and Thomas R. Metcalf, *A Concise History of India* (Cambridge: Cambridge University Press, 2002), 238-53. Nehru's demise in 1964 was followed by India-Pakistan war and language based agitations in 1965, major economic crisis of 1966 owing to drought and impending famine which led to the State of Emergency in 1975.

37. See for example the journal *Mimar* (1981-92) emphasising vernacular and community development projects of the developing world and its subsequent monographs on regionalist architects like Charles Correa and Raj Rewal from India.

38. See Anoma Pieris, *Architecture and Nationalism in Sri Lanka: The Trouser under the Cloth* (Abingdon: Routledge, 2013), 188.

39. Verghese Kurien, "The Amul Dairy Cooperatives: Putting the Means of Development into the Hands of Small Producers in India," in *Reasons for Hope*, ed. Anirudh Krishna, Norman Uphoff, and Milton J. Esman (Connecticut: Kumarian Press, 1997), 105-6.

40. Ganju, "Achyut P. Kanvinde," 231.

41. Tom Avermaete, "Coda: The Reflexivity of Cold War Architectural Modernism," *Journal of Architecture* 17, no. 3 (2012).

42. Partha Chatterjee, "Development Plannning and the Indian State," in *Wages of Freedom: Fifty Years of the Indian Nation State*, ed. Partha Chatterjee (New Delhi: Oxford University Press, 1998), 276-79.

43. See for example Gayatri Chakravorty Spivak and Ranajit Guha, ed., *Selected Subaltern Studies* (New York: Oxford University Press, 1988).

44. Rajni Kothari, *Rethinking Development: In Search of Humane Alternatives* (Delhi: Aspect Publications, 1990).

45. Akhil Gupta, *Postcolonial Developments: Agriculture in the Making of Modern India* (Durham, London: Duke University Press, 1998), 11; Ashis Nandy, ed. *Science, Hegemony and Violence: A Requiem for Modernity* (Tokyo: United Nations University; Delhi: Oxford University Press, 1990).

46. Bruce A. Scholten, *India's White Revolution: Operation Flood, Food Aid and Development* (London, New York: I.B. Tauris Publishers, 2010), 185-253.

47. K. Michael Hays, "Critical Architecture: Between Culture and Form," *Perspecta* 21(1984), 17.

48. Amartya Sen, "On Interpreting India's Past," in *Nationalism, Democracy and Devlopment: State and Politics in India*, ed. Sugata Bose and Ayesha Jalal (Delhi: Oxford University Press, 1998), 11-35; *Development as Freedom* (New York: Anchor Books; Random House, 1999).

method of planning.[42] It was problematized in the postcolonial criticism of development consciousness as dominated by elitism overlooking subaltern interests;[43] or more generally a questioning of the entire project of modernity.[44] Yet, this characteristic postcolonial condition of the relationship between modernity and development is also seen to inscribe rural identities with an acute self-awareness of the need to progress.[45] A recent meticulous study has shown that development paradigm executed under Operation Flood presents a reconciliation of bottom-up mode of farmer enterprise keen for growth combined with top-down programme of NDDB, characterised by flexibility and autonomy unlike other centrally planned public sector enterprises.[46] While a host of literature has tackled the contentious issue of social success of the White Revolution, none have examined the effects of its architecture—the most visible form of dairy institutions dotting the rural landscape.

It may be useful at this point to draw on the idea of architecture as "agency" heralding social change and the Tafurian notion of 'criticality' of its function. The agency of architecture in White Revolution encompasses a variety of actors who join forces to shape the conditions forging a modern nation. According to the framework set by Michael Hays, 'critical' architecture "cannot be reduced either to a conciliatory representation of external forces or to a dogmatic, reproducible formal system."[47] Although Hays recognises reciprocity between the culture and the empirical conditions of architecture, he insists that critical buildings conceal or displace their origins and external forces with an object which is culturally informed but abstract and non-representative. The notion of criticality builds on the idea of resistance. In the Indian context, Amartya Sen's seminal writings on economic development as freedom of choice come close in interpreting the resistance. According to him, the critiques against development and modernization are narrowly placed as are the anti-elitist arguments; they neither expand the opportunities nor the material circumstances of the deprived. For him, interpreting the past, traditions and identity has to come from contemporary concerns and selectively (critically) filtered for current relevance.[48]

Kanvinde's Mehsana dairy is local to the extent that it responds to the immediate program needs using local materials (brick skin and concrete frame), labour and technology. As a factory type, without historical precedents, it is also presents an opportunity to craft a distinct architectural language for the dairy industry. Here,

the authenticity of the dairy building as a type rests squarely on its sacred and mythological undertones and gives it a sense of being connected to the ancient past that lives on in dairy production while the farmers' quest for progress reflects its temporal associations that demand a new language of expression. By critically interpreting the cultural forces, advancing Nehru's and Kurien's vision of modernity on the one hand and rejecting regionalist overtones and traditional associations, the factory situates itself with an ideological reference to its time and place. Kurien, the force behind NDDB's operations, tried to create an entirely new set of associations for the dairy farmers but more importantly also wanted a recognisably modern image for the international agencies which had an active contribution in the success of Operation Flood. Mehsana Dairy thus played a dual role through its dynamic architectonic form as it became a powerful symbol of the White Revolution. Thus, this analysis points towards architecture's potential to resolve the conflicts inherent to postcolonial modernity. It is possible to see that with socio-political movements such as White Revolution and its ensuing architecture, modern and Indian/traditional, Nehruvian and Gandhian or elite and subaltern do not remain distinct and immutable categories. Rather they emerge as blurred, plural or contested ideologies with buildings as cultural objects carrying multiple resonances.

Conclusion

This paper has demonstrated that contrary to the burgeoning search towards Indian identity in the post-colonial context, Kanvinde's Mehsana Dairy marks a critical approach, of engaging with the emerging industrial culture through abstract formal system. Here, the language of modern architecture made inroads into representations of the socialist enterprise of farmers and their non-elitist aspirations. It could be thus argued that the architecture of White Revolution is located at the intersection of Gandhian and Nehruvian ideologies of progress, originating from the need of rural cooperatives and culminating into expressive forms of industrial modernity that animated the postcolonial nation. Kanvinde's counter-position could be just one trajectory but it was a definite depiction of the changing local ethos.