

**THE 10TH INTERNATIONAL SEMINAR ON
VERNACULAR SETTLEMENTS**

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THE 10TH INTERNATIONAL SEMINAR ON VERNACULAR SETTLEMENTS

**Re-Domestication of the World After
the Pandemic: A Re-Visit to the Origins
and Manifestations of Domesticity in
Vernacular Settlements**

HOSTED BY

**School of Planning and Architecture, Bhopal with
International Society for the Study of Vernacular Settlements**

Institutional Partners

**Indira Gandhi Rashtriya Manav Sangrahalaya Bhopal and
Indian Institute of Architects, Madhya Pradesh Chapter**

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Perceiving the Meaning of Vernacular Architecture in Mattur Village, India

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Abstract: Architecture is a consequence of the communication between the active elements of the ongoing social processes with the accumulated history at different phases of cultural and environmental evolutions. The reach of architecture transcends beyond the tangible elements of built environments and weaves human experiences associated with the essence of its people and place. Mattur village inhabitants on the banks of Tunga River in the Shivamogga district, Karnataka, have a history of migration and settlement before two centuries from the present. This paper critically examines the vernacular architecture of the Brahmin community in Mattur village through the lens of qualitative plan-form study to understand whether the content and meaning of the vernacular Brahmin settlements changed over time. This research accesses the ethos of spaces by analyzing the transformations that took place over time and understanding the concepts of culture, belief systems, day-to-day activities, occupation, the economic and social structure in Mattur Brahmin settlements. The study delves into the intrinsic nature and indispensable quality of domestic and social spaces of Mattur, which determine the character of the settlements as a whole and reflect the sense and value of the vernacular architecture. In short, this research is co-relating the culture–space relationship to understand the essence of the settlements over the transformations over 35 years, from 1980 to 2015

Keywords: Vernacular settlements, Transformation, Culture–Space relationship, Identity, Group housing

Introduction

Vernacular settlements have existed wherever humans lived, but as building a house is a cultural phenomenon with its form and organization greatly influenced by the cultural milieu to which it belongs (Rapoport, 1969), they differ on the grounds of culture, ritual, way of life, social organizations, climate, landscapes, materials and technologies present (Rapoport, 1969). Houses are distinctively organized spatial networks that embody the social norms and meaning of a given culture (Paranagamage, 2013), and the word “Vernacular” represents the local origins of architecture (Kellett and Napier, 1995). Thus, this study focuses on the vernacular settlements of the Sankethi Brahmin community in Mattur, along the Tunga River banks, Karnataka state, India.

Even though culture is one of the significant factors evoking people’s identities, both individually and collectively, due to its broad conception, culture cannot be linked directly to the formation of vernacular housing (Rapoport, 1998, 2000). Culture is perceived as a collection of values and ideals belonging to a group of people, which is transferable through learning processes among the group members (Rapoport, 1980). However, as they become the generators of living ways, activities, and behaviors, they significantly influence the housing formations of the community (Rapoport, 1980, 1998, 2005). As the form and space transform with the practices and beliefs of the people who occupy them and express the social orders of time (Rapoport, 1990), the conversions of the social intent/culture constitute the content/essence and the understanding of the meaning.

“Physical elements not only make visible and stable cultural categories, they also have meaning” (Rapoport, 1990). By dwelling on the earth, humans understand their existence as beings and imply a connection with the physical world, cultural place, and surroundings, making themselves belong to the surrounding, thus experiencing the sense of place (Heidegger, 1962). This perception of interaction of place and people with the environments partly results in the meaning, which is an indispensable part of the functionality (Rapoport, 1990). This research ponders the user’s meaning of settlements based on the social intent and corresponding to the transformations from 1980 to 2015. By observing the space–culture relationships and their transformations through qualitative analysis of both domestic and social spaces of Sankethi Brahmin Settlements, the research observes the social intent on the grounds of cultural geography behind the housing evolution and perceive the essence of the settlements to understand whether it remains intact in the case of Mattur Brahmin Settlements over 35 years.

Aim

To study the vernacular Brahmin settlements in Mattur, Shivamogga district, Karnataka, India, by co-relating the culture–space relationship over the evolution of the place during 1980 to 2015, which examine whether the transformations during these years set the essence of the settlements intact, relating to the socio-spatial schema of the region.

Objectives

- To document the house forms of the Brahmin community in Mattur, Shivamogga
- To correlate the socio-spatial schema with respect to the time, over 35 years (1980 to 2015)

Hypothesis

Even though the visual qualities changed and transformations occurred over time, from 1980 to 2015, the content and essence (core values) of the vernacular settlements in Mattur, inhabited by the Sankethi Brahmin community, remained intact.

Scope and limitations

Vernacular buildings are constantly deteriorating and are continuously neglected physically due to the homogenization and modernization of buildings over the past decades. These repositories of traditional knowledge and wisdom need elaborated documentation and study for architectural, archeological, sociological, ethnographical, and anthropological analysis and understanding. The values and cultural and historical significance call for urgent focus, and architectural history and theoretical studies lay the foundation for addressing them meaningfully in the future.

Architecture is far more than mere aesthetics transcending to the functionality, tangible and intangible components forming into culture and values of the society, manifestly reflected in the vernacular settlements. Therefore, this study stays relevant for further studies on the complex and subtle outlines and the vernacular matrix in the context of its existence and time. However, the research only considers the indigenous inhabitants of the place, excluding the settlements’ recent migrants and tenants from the exteriors, alien to their Brahmin community and settlements during the late twentieth century and the early twenty-first century (1980–2015), where rapid technological and communication advancements, social and legal policies came as a prominent influence.

As the research’s prime concern is to understand whether the content and meaning of the vernacular settlements of Sankethi Brahmins in Mattur changed over the period, 1980 to 2015, documentation of these house forms, a qualitative two-dimensional plan study, constitutes the initial method. The spatial schema of the settlements and the individual house units are examined using typo morphological analysis (Argan, 1965) in detail with respect to the function and the way the spaces are elaborated/manifested. The research further extends in correlating the two-dimensional plans with the spatial/functional aspects of the settlements, based on socio-cultural space theory (Rapoport, 1969), thereby eliciting the content and meaning of the vernacular settlements revealed through the space–culture relationship analysis during the time frame of 35 years, the 1980 to 2015. This time frame represents the duration in which the region experienced rapid shifts in the social and economic milieu due to the implementation of the Land Reform Act and Hindu Succession Act supplemented by the Hindu Marriage Act and thus, regarded as the focused time frame in this research.

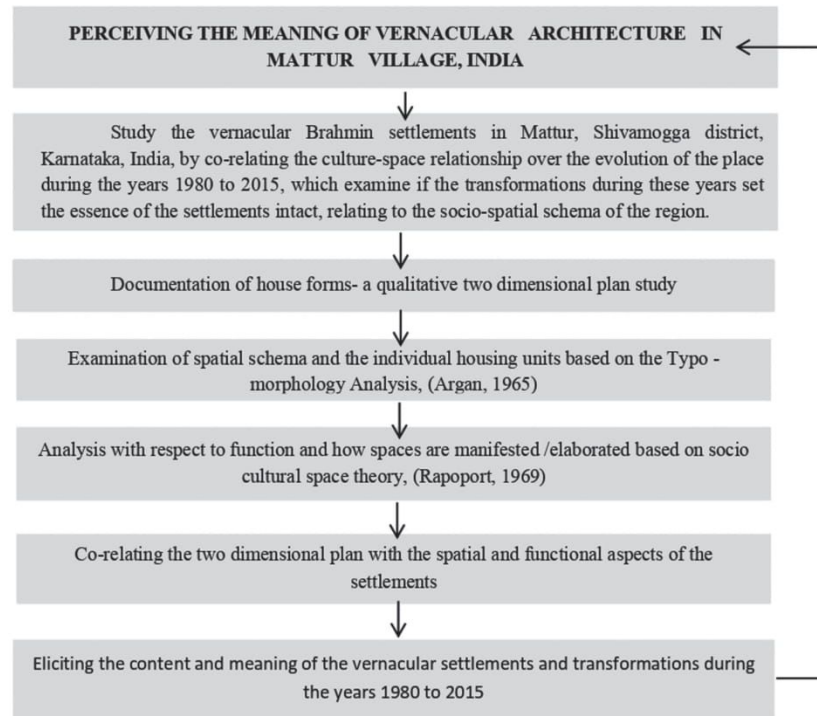


Figure 1: Research Framework [Source: Author]

Sankethi Brahmins in Mattur

Sankethi community, inhabiting Mattur in Karnataka, is a Hindu Brahmin community that originated from Kanyakumari, southern tip of India. According to history, approximately 1000 families migrated to the north towards Mysore in the early 13th century, succeeded by settlements near Koushika and Bettadapura near Hunsur, in the Hassan district, Karnataka (Cahill, 1997).

Water has been the primary factor of existence, migration, and settlements; historically, humans have chosen to live close to water sources for domestic and travel purposes (Fang and Jawitz, 2019). As documented by Patel Tirumaladevi copper plates, bearing the seal of a boar (Epigraphia Carnatica, 2006), held in the Shivamogga Museum, a grant of irrigated land in Shivamogga District, Mattur and Hosahalli, two villages situated on either side of the Tunga River, was issued in AD 1524 to a group of 20 Sankethi families (Keshavaiah, 1938) in appreciation of their Vedic scholarship. These villages are also referred to as a center for traditional learning, teeming with learned Brahmanas (Sundara, 1987). Therefore, the community evolved, and their immediate descendants, interested in Vedic teachings and agriculture, continue to inhabit this region (Cahill, 1997). Usage of a language, a mixture of Malayalam, Tamil, and Kannada, is evident in the Sankethi families living in Mathur and Hosahalli. Marriage outside the community was almost unknown due to consanguineous marriages until the present century, as they were numerically small and separated geographically from other Sankethi communities (Cahill, 1997). However, during the past few generations, migrations to major cities, Bangalore and Mysore, are prominent.

After settling, evolution as an endogamous society, a separate identity, rooting into their parent culture and traditions progressed. Vedic culture, followed by the group, consists of a prominent agrarian lifestyle with practices and rituals related to Vedic literature. The community's worship nature, clearly depicted through the temples, is another mark that is reflected in their social life. Temple being the node of interactions, plays a significant role in the day-to-day activities of Mattur. Sooryanamaskaram, Sandhyavandanam, and other rituals followed encapsulate the significant distinguishing features of Mattur inhabitants. Initially, joint family systems with Vedic learning inheritance existed but later moving into its dissolution. Predominantly, agriculture supported the economy, mainly areca nuts, coconuts, sugarcane, and cattle rearing. However, changes in the occupation, into tertiary jobs, reflects in every socio-cultural threads of evolution.

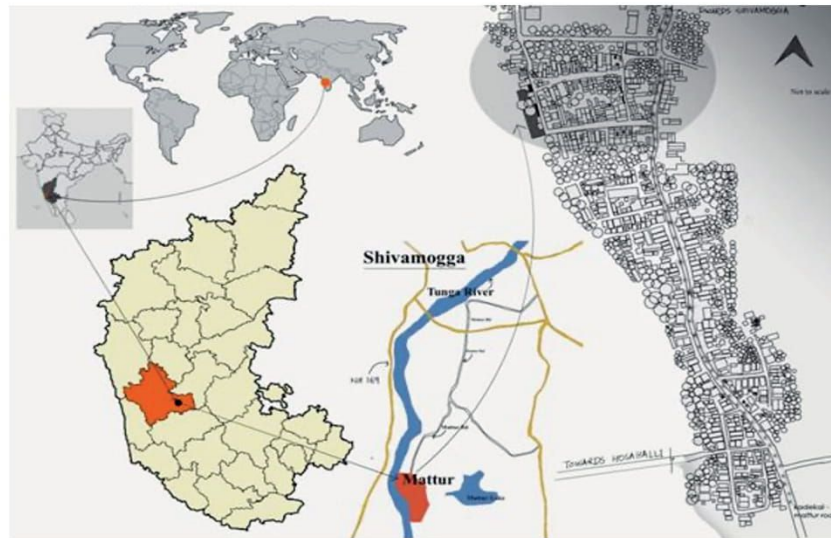


Figure 2: Location of Matur [Source: Modified by Author]

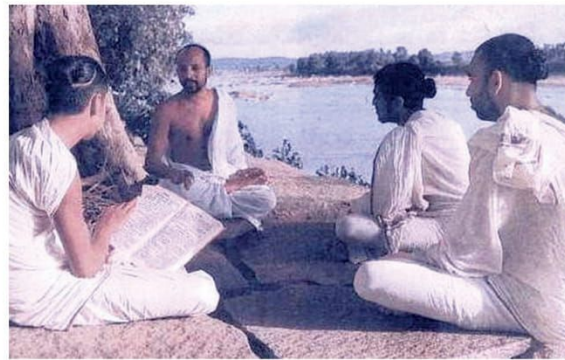


Figure 3: Veda teaching happening on the banks of Tunga, Matur [Source: (Sreevatsan, 2014)]




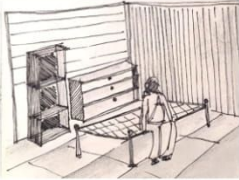












Vernacular Brahmin Settlements

The northern region of Matur village, with almost ninety Sankethi Brahmin families, exhibit distinct settlement patterns and forms, manifesting the essence of their lifestyle through materialized morphological elements of architecture. As the housing process is a cultural phenomenon, the cultural context influences houses' physical form and spatial configuration (Rapoport, 1969). Row housing unit along both sides of the streets leading to a node, mostly a temple, which is an indispensable part of a Sankethi Brahmin resident of Matur, is such an expression. Besides, the culture, tradition, economy, religion, and climate constitute underlying factors in the structure and evolution of vernacular settlements (Saleh, 2001, 2004). Location and orientation, typology and form, spatial arrangements, visual connectivity, and transformations of Matur row-housing units review the content and the essence of the settlements.

Location and Orientation

The northern region of Matur, eight kilometers from Shivamogga, resided by the Sankethi Brahmin community, rests along the banks of the Tunga river at the west boundary. The primary water source, satiating the place's agriculture and domestic needs, exercise a significant role in position and direction of the settlements. According to the slope towards the river, the housing modules are arranged in the north-south axis in row-housing patterns along both sides of the streets, perpendicular to the flow of the Tunga River. Temples, located at the culmination of streets, orient in the east-west direction facing the housing modules.

Table 1: Daily activities of Mattur resident [Source: Author]

TIME	Mattur resident Age < 20	Mattur resident Age 2-50 (male)	Mattur resident Age 20- 50 (female)	Mattur resident Age <60
4:00 am	 The day starts early for a Mattur resident	 Early morning rituals at Tunga River	 Starts the day with domestic cleaning jobs and rituals	 Day starts before sunrise with the morning rituals
8:00 am	 Modern schooling	 Agnihotra and rituals	 Daily-poojas and cooking activities	 Veda teachings and temple visits
2:00 pm	 Veda classes and farming	 Veda teachings at the river banks	 Sloka recitals and learning	 Daily Homa and other rituals along with practices related to Veda literature
6:00 pm	 Temple visits and evening games	 Devotional songs and music on the streets	 Meetings and discussions at the temples and verandas	 Gatherings and discussions

Typology, Form and Spatial Arrangements

The general arrangement of the housing is a continuous adjacent row-housing pattern with common walls shared between two units that face similar modules at the opposite side of the street. The street is the axis through the node, usually a temple or other significant social space. Each unit is a rectangular module with a linear succession of spaces from one end to the other comprising a veranda or a sit-out, common hall with courtyard, storerooms, kitchen, and Agnihotrashalas. Further, detached from the central unit, toilets and cow sheds extend to the backyard, and attic space of the modules are utilized for dynamic activities and storage in larger housing units. Single- and double-storied housing modules with steeply sloping roofs and over-hangings, constructed using locally available materials, line the streets leading to the temple and river banks. The housing module frontage or the common street, as a social and interactive

space, extends to the rows of verandah along the sides, with activities relevant to the social and cultural life of Mattur. Moreover, this arrangement clears visual connectivity through the linearly aligned openings in the north-south direction and the open street in the east-west direction.

As the collection of row housing units with the temple being the crux or the focal point can be defined as an Agraharam (Mary J, 2019), Mattur housing typology can be categorized into the broad category of typical Brahmin agraharams in South India.



Figure 4: Housing units [Source: Author]

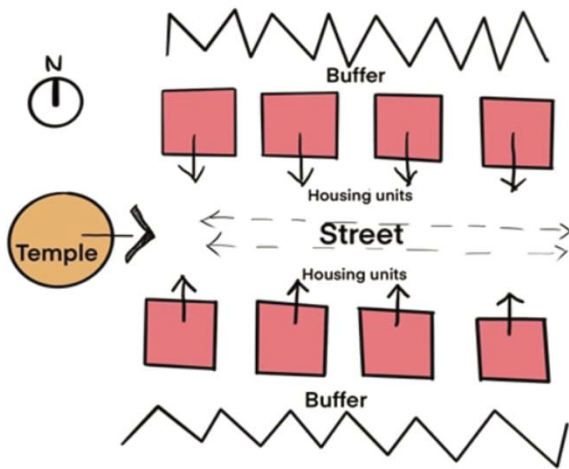


Figure 5: Location and Orientation [Source: Author]



Figure 6: Mattur Northern Region [Source: Author]

Table 2: Space–Activity Relation [Source: Author]

S. no.	Space	Location and Type	Activity Description
1	Thinnai / Verandah	Semi-public space in the housing module	Social interactions, reciting devotional songs
2	Common Hall	Domestic and semi-private space in the housing module	Floors are utilized with minimal use of furniture and activities such as Vedas teachings, sleeping, social interactions, etc.
3	Treasury / store / meeting room	Interior domestic space of the housing unit	Meetings, storage, resting space
4	Kitchen & Pooja	Interior domestic space of the housing unit	Daily pooja and rituals, and cooking
5	Agnihotrashalas	Interior domestic space of the housing unit	Rituals such as Agnihothra, and other daily religious activities related to the beliefs systems
6	Toilets & washing spaces	Detached domestic space from the main housing unit at the backyard	Cleaning and washing activities
7	Cow sheds	Detached domestic space from the main housing unit at backyard	Cattle rearing, milking and cleaning
8	Streets	Active social interactive space acting as the frontage of housing units	Devotional songs and other Social interactions along the street. Traditional rangoli patters in front of the housing units.
9	Temples	Community's introverted social space located at the end of the streets	Religious activities and Veda teachings through oral traditions
10	Veda schools	Educational social space at west side along	Veda teachings through oral traditions and vernacular education
11	Tunga banks	Active social space at the west boundary of Mattur	Washing and cleaning, Morning and evening rituals such as Sooryanamaskaram, Sandhyavandanam

Transformation

During the evolution in 1980–2015, transformation occurs at different layers of people–place interaction. The technological and communication network advancements, implementation of the Land Reforms Act of 1961 set a specific point of land confinement and redistributed the gained lands among the landless labourers ('The Karnataka Land Reforms Act, 1961', no date) inhabiting the central and southern Mattur by the State. This act was one of the compelling reasons behind the defocus in agriculture among the prominent land-owning Sankethi Brahmin community. Similarly, the enforcement of the Hindu Marriage Act of 1955 (The Hindu Marriage Act, 1955, no date), supplementing with the Hindu Succession Act (The Hindu Succession Act, 1956, no date) amendment of 1990, empowered women and laid down the structured succession of wealth invigorating the potential splitting of joint families into nuclear. Hence, the spatial planning and nature of the houses can transform with the synthesis of the changes, the existing context, and the land and society's conditions.

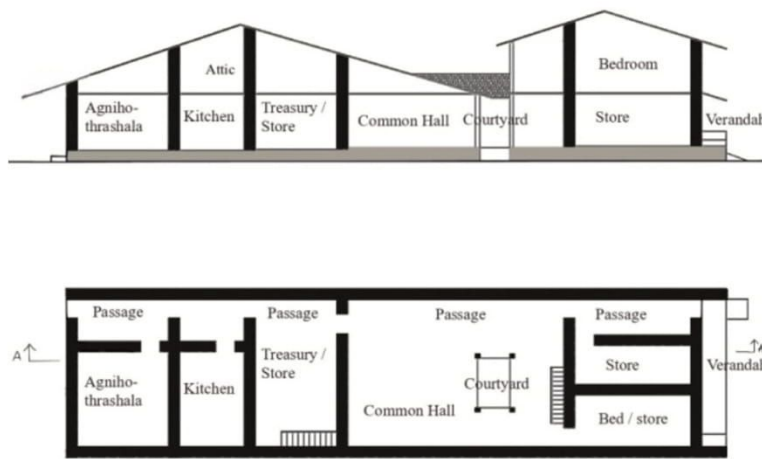


Figure 7: Typical Plan and Section [Source: Author]

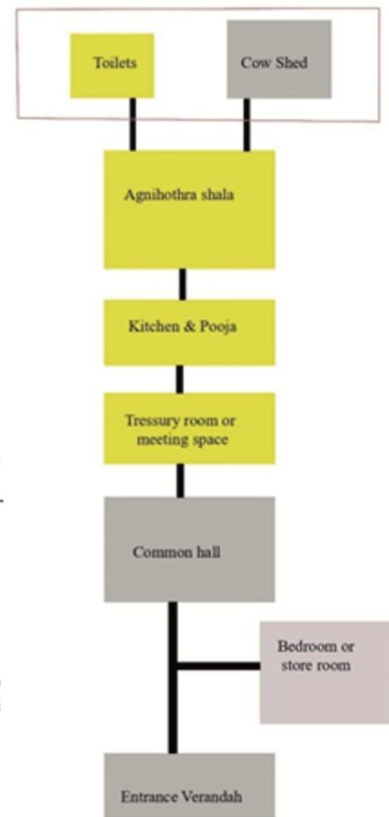


Figure 8: Spatial Pattern [Source: Author]

Critical Qualitative Plan-Form Study

The qualitative analysis delineating the transformations materialized in the domestic and social spaces of Mattur is composed of two sections. First, it examines seven housing modules, Agraharams, by critically understanding the spatial arrangements and their functionality. Second, it focuses on the social spaces used by the community.


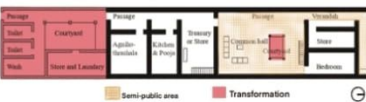

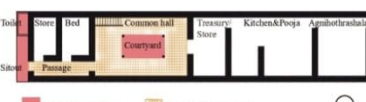
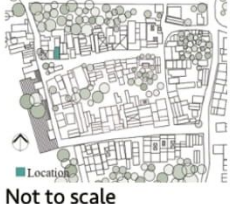
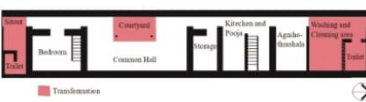

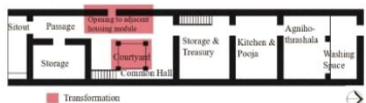
Many housing modules have alterations in the built structure, introduced during the past four decades, which include the extension of the main unit by attaching toilets and washing spaces in the rear side, covering and filling of courtyards, unused or demolished cowsheds at the separated backyards, blocking of openings towards adjacent housing unit and the installation of new spaces such as bedrooms and stores responding to the current needs within the existing area. Common hall with courtyards are diluted, and the activities such as Veda classes, meetings, and interactions faded, and new gave rise to a different sense of visitors’ space similar to a living area concept in contemporary housing. However, the attic and first floor spaces remain unaltered with proper maintenance. Modifications in the units have not disturbed the spaces’ sequence and content even though there are substantial changes in the nature and functionality of the domestic spaces.

Streets acted as an extended space of the housing unit merging with the other on the opposite side, marking a major role in the social life of the inhabitants, and have transformed in pace with the changes in socio-cultural behavior of the community. Line of vehicle parking along the streets and verandahs blocking the visual connectivity and ease of interaction among people is one of the classic examples for the same. Moreover, as the extended social space connected to the street, verandahs loses its prominence due to decreased activities and social interactions within the community. Temples and Veda schools along the west boundary, an integral part of the Mattur Brahmin’s social life, gradually dissolved its pre-eminence as the daily activities changed into a space of religious visits and studies equating to a typical temple elsewhere at present. However, the Tunga river, a major integrant of the existence and social life Mattur population, still

plays a significant role in the socio-cultural schema and has its nature and content intact even though its sharpness faded over time.

Even though significant changes in the lifestyles, communication, interactions, law restrictions and policies, and the cultural intents and ideological discourses, the spatial arrangement is not interrupted and still retain the patterns of raw housing.

Table 3: Transformation Study [Source: Author]

S. no.	Key Plan - Location	Housing Modules - Transformations	Observations
1	 <p>Not to scale</p>	 <p>Not to scale</p>	<ul style="list-style-type: none"> • Cowshed and toilet demolished in the backyard, attaching new toilets and washing spaces. • Covered courtyard • Treasury/store is a bedroom by the present four-member family • Introvert character in functionality of the semi-public spaces
2	 <p>Not to scale</p>	 <p>Not to scale</p>	<ul style="list-style-type: none"> • Minimum alterations • Covered courtyards • Attached toilets to the main. • Retains the character of the common hall
3	 <p>Not to scale</p>	 <p>Not to scale</p>	<ul style="list-style-type: none"> • Cowshed and toilet demolished in the backyard, attaching new toilets and washing spaces • Covered courtyard • Transformed into one single private unit • Agnihothrashala merged with the kitchen, diluting the functionality
4	 <p>Not to scale</p>	 <p>Not to scale</p>	<ul style="list-style-type: none"> • Covered courtyard • Blocked opening, connecting to the adjacent housing module • Sit-outs used for parking two-wheelers


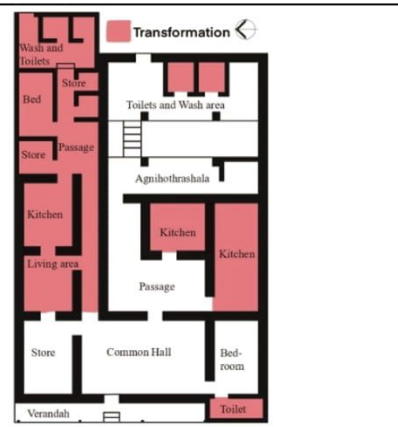

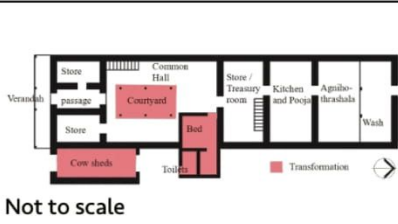

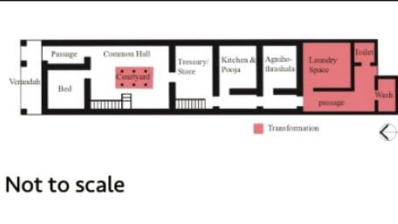
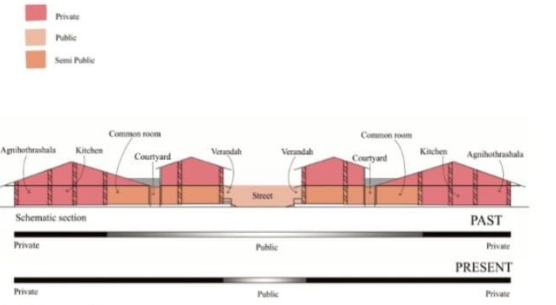
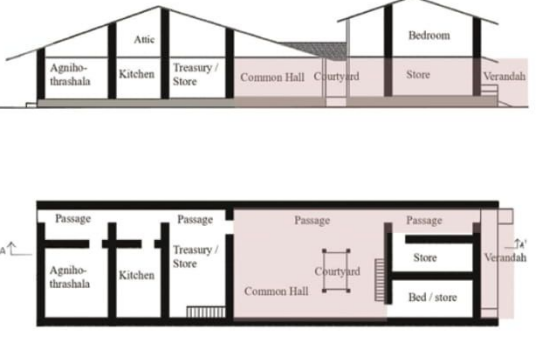
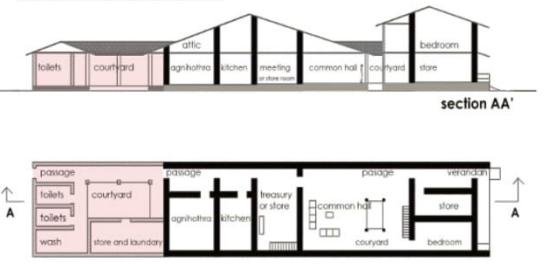
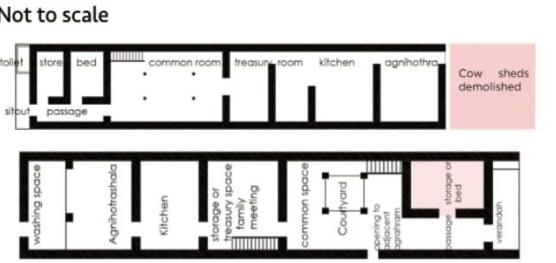
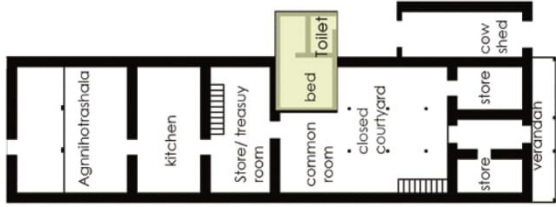
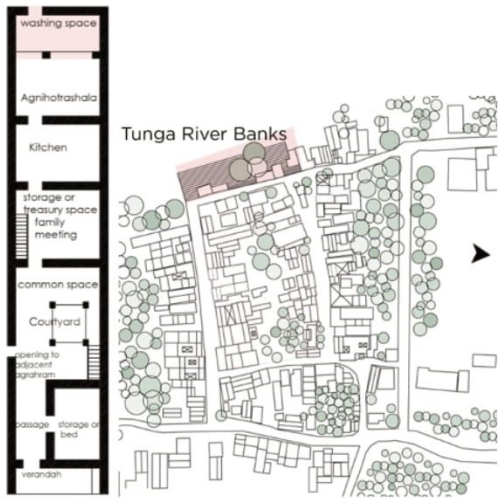
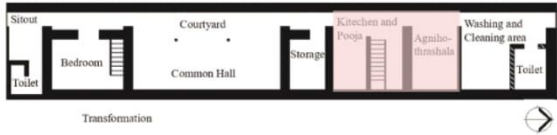
<p>5.</p>  <p>Not to scale</p>	 <p>Not to scale</p>	<ul style="list-style-type: none"> • Splits in the interior spaces • Addition of toilets and washrooms to the main unit • Preserved sequence of the core spaces • Common halls lost its semi-public character and act as private common space for the two families • Verandah lost its prominence and used for parking • Backyard cowsheds and toilets demolished
<p>6.</p>  <p>Not to scale</p>	 <p>Not to scale</p>	<ul style="list-style-type: none"> • Closed and filled courtyard • Attached bedroom space and toilets • Cowshed with direct main street access • Verandah used for parking
<p>7.</p>  <p>Not to scale</p>	 <p>Not to scale</p>	<ul style="list-style-type: none"> • Closed courtyard • Additions of toilets and wash areas • Cow sheds not in use • Minimum alterations • Verandah lost its prominence

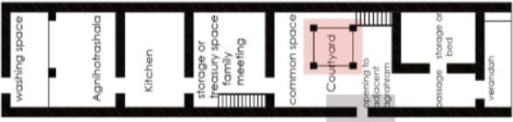

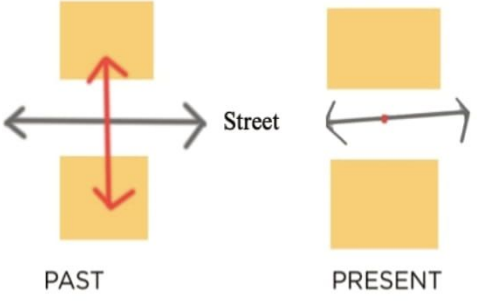


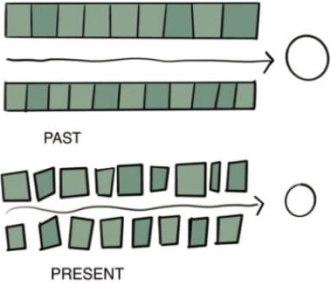

Figure 9: Transformation Study (macro-level)
[Source: Author]

Table 4: Inferences [Source: Author]

S. no.	Transformations during 1980–2015 based on the personal and ideological discourses, policies, and technological introductions	Inferences
1	 <p>Not to scale</p>	<p>The change in the social nature in spaces' functionality due to the change in ideological differences in privacy and beliefs. The formation of stronger demarcations of social areas, especially the common hall and the veranda used by the community earlier, lost its prominence.</p>
2	 <p>Not to scale</p>	<p>Loosening of entry restrictions for outsiders of this community into the interiors, due to the change in the social interactions adapting to the liberal approach towards exogenous people diminishing the idea of impurity. This change can be inferred as a profound difference of ideology that occurred during this period.</p>
3	 <p>Not to scale</p>	<p>Extension of the primary unit incorporating washing and toilet spaces, which were detached from the central unit earlier, showing the dilution of the ideas of impurity, privacy, and the rise in security concerns within the community towards the last of the twentieth century.</p>
4	 <p>Not to scale</p>	<p>Cow sheds were demolished, and the storeroom converted to a bedroom due to decreased farming culture over time, migrations, and the decrease in production and land possession due to the land reforms act.</p>

<p>5</p>	<p>Not to scale</p> 	<p>As the new additions to the primary housing module, Bedrooms with attached bathrooms also show the increasing security concerns and diminishing ideas of impurity, privacy, and security –Ideological differences occurred over at the beginning of the twenty-first century.</p>
<p>6</p>	<p>Not to scale</p> 	<p>Washing area attached to the rear side of the module- A shift from Tunga banks- the activity changed, in which the sense of security for women plays a significant role. Privacy and the lifestyle change is the reason for such a difference.</p> <p>However, the Tunga River, the major element influencing life in Mattur, is a strong prominent component in the society. Rituals and religious beliefs have diluted, reflecting in the activities, content, and meaning of the Tunga river banks.</p>
<p>7</p>	<p>Not to scale</p> 	<p>Agnihothrashalas started to function as a storeroom or an extended kitchen/ merging with the kitchen, showing a dilution in the strict domestic rules and ideologies followed in the community without much changes in the rituals and religious customs and lifestyles by the Brahmin community.</p>

<p>8</p>	<p>Not to scale</p> 	<p>Courtyards are closed and lost their function and prominence – diminished social interaction due to the advent of technologies and communication during the end of the twentieth century.</p> <p>Openings connecting adjacent modules are closed (temporary and permanent), breaking the linear connectivity exposing the change into an introverted and individualistic housing unit. This change can also be interpreted as the reflection of joint family splits resulting from the changes due to the Hindu succession and marriage act.</p>
<p>9</p>	<p>Not to scale</p> 	<p>Verandas lost their prominence and the nature of their functionality due to,</p> <ul style="list-style-type: none"> • the deceased social interactions and the presence of exogenous communities. • Including two-wheeler parking spaces and attaching toilets. • Covering or closing them to include the space into the interiors.
<p>10</p>		<p>Break in the opposite unit linkages by the gradually increasing introvert character of the connecting components, verandas, and streets, to a much detached singular living unit. This change in the early twenty-first century is due to:</p> <ul style="list-style-type: none"> • The changes in the transportation modes resulted in the four-wheeler parking along the streets, deterring visual connectivity and disturbing the character of the space. • The decrease in social interactions and religious activities such as Bhajans on the streets resulted from the change in the community's lifestyles and ideologies.

11	 <p>PAST</p> <p>PRESENT</p>	<p>Separations created within the community, an increased sense of security and privacy lead to the breaking of each module to form separate living units disrupting the linear connectivity stitched with the common network of streets. This change can also be interpreted as the reflection of migrations, communication possibilities, its effects, and the joint family splits resulting from the changes due to the Hindu succession and marriage act.</p>
12	<p>Not to scale</p> 	<p>Even though significant changes in the lifestyles, communication, interactions, law restrictions and policies, and the cultural intents and ideological discourses, the spatial arrangement is not interrupted and still retain the patterns of raw housing.</p> <p>Temples remain as the focal points and the cultural centre for the community even if there is a dip in the concentration of activities in the temples.</p> <p>Due to the change in the collective social behaviour resulting from the migrations in and out of the community. The Sankethi Brahmin population is currently residing in Mattur, adapted to the challenges posed during the 1980s and the beginning of the twenty-first century. These adaptations are also evident through the vernacular settlements retained in Mattur today.</p>

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The manifestations of the vernacular culture of Sankethi Brahmins in Mattur have unique attributes corresponding to the different social, political, economic, cultural, and architectural interactions, which exposes a distinct transformation character throughout its evolution from 1980 to 2015. During this period, technological and communication network

advancements, social and legal policies made rapid changes in the community. These affected the behavior of spaces and attenuated the meaning of domestic and social spaces of Sankethi Brahmin settlements in Mattur. However, despite the changes that occurred for this period with a high threat of vulnerability for its existence, the inherent nature and essence of the vernacular settlements stand the test of time to a large extent.

In conclusion, Vernacular architecture, the local origins of architecture, does not pertain to one period; instead, it evolves with the social, cultural, economic, and political constituents playing a significant role in determining the morphology of the house forms. Whenever and wherever the identity of the group of people /community remained intact, it can be observed that a unique built form evolves in such places. However, when culture merges under the influence of globalization, the existence of these unique vernacular elements is difficult and challenging. But, the Mattur settlements of Sankethi Brahmins show a different nature. Over the years, the settlements have somehow retained the essence and the spirit within, but at the same time, the settlements have also undergone transformations due to the influence of different social, political, and economic factors over time. Thus, we understand that a global vernacular style is evolving where the content and meaning of the built forms are changing with its essence intact, and this process is unstoppable and inevitable in the course of evolution.

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