

SQUATTER SETTLEMENTS: THE URBAN VERNACULAR?

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ABSTRACT

Squatter settlements are among those housing patterns which have the most visible reciprocal interactions between user groups and their needs. Their idea of housing is essentially an activity or a process - it's not a static physical object. For them housing is a verb. But, there exists a very little qualitative understanding of these people made places, despite them being the single largest way of housing in urban areas.

On the other hand, the constraints of rigid social structures, climate & limited resources have been identified as key factors of vernacular environments. They have been widely admired for the distinct expression of these forces in their built environments. But urban squatter environments have equally rigid constraints of poverty, so why there has been so little interest in studying the forms of these settlements.

Squatter settlements are often assumed to be the opposite of vernacular environments as vernacular architecture is largely associated with traditional practices and forms. The paper attempts to demonstrate that far from inhabiting separate universes there are many points of commonality between them, and if our definitions are appropriately framed, we may regard much contemporary construction to be a continuation of existing vernacular traditions.

In the paper, rural villages are studied as examples of traditional vernacular while spontaneous settlements in the city represent the modified vernacular. Instead of limiting the discussions to the house forms or materials of both the settlements, the attempt is to find out the similarities in the factors they can be attributed to. These factors are then related to their way of life, social organization, concepts of territoriality, way of handling basic needs, the link between the dwelling and the settlement pattern. Thereby, core elements of vernacular architecture in the frame of reference of the causative factors are identified. Similarly, the aspects resulting in the built environment of squatter settlements are studied. These are then compared, so as to argue the inclusion of slums within the category of vernacular architecture.

INTRODUCTION

Squatter settlements are unanimously viewed as visual and social pollution. They are often prejudiced about the negative morals. "The slum, is basically an area of darkness, despair and poverty" (Stokes 1962). They are referred as 'depressed areas' (Pillai 1970) of a city which suffer from a low level of community feeling. The ordinary men living in these areas are deemed to be suffering from variety of handicaps. Views such as "Every city in third world is a dual city - an island of wealth surrounded by a black belt of misery. Outside the bright, shinning modern city of skyscrapers, flyover and desirable residences,

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the poor are cramped in squalor, disease and neglect shacks from plywood, cardboard, mud and straw". (Das 1988) state the offensive nature of slums to urban inhabitants.

Squatter settlements are often assumed to be the opposite of vernacular environments as vernacular architecture is largely associated with traditional practices and forms. It is believed to be found only in rural areas and historic centers. It is identified only with the past and is believed to be under threat from contemporary values and globalization. Such perspectives tend to be based on static notions of society which underplay processes of change. "Spontaneous settlements are closer to traditional vernacular than to any other type of environments and farthest from professionally designed or high-style environment". (Rapoport 1988).

Vernacular architecture initially referred to traditional, rural, pre-industrial buildings but in recent times it has come to be associated with any building which is not 'consciously designed' by non professional people. While much attention is paid to the characteristics of a dwelling built in traditional vernacular environments, similar studies of shelters in squatter settlements are far from any researchers' interest.

"How is it that people who are often illiterate, with very limited resources & power, hence operating under stringent constraints - economic, informational, political and so on- are able to produce settings and environments that I at least judge to be vastly superior, in terms of cultural supportiveness and perceptual quality, than designers working in same places. I would go further - these environments are frequently even of higher quality than those of designers working in much more developed and wealthier places. The environments of spontaneous settlements are frequently comparable in quality to those of traditional vernacular, many of which professional designers admire." (Rapoport 1988).

Squatter settlements are based on processes of continuous change and adaptation. The squatters themselves directly apply their know-how and practices to deal with contemporary challenges. Their rural background knowledge and experience are modified to achieve a way of living in the present context and these processes appear to be similar to the processes of vernacular architecture. Hence, examining them through the lens of vernacular built environments can help us place meaning in their existence.

A key aim of this paper is to recognize the significance of current building processes, particularly the 'popular construction' taking place on a massive scale in squatter settlements in the cities of the developing world. It is an attempt to investigate the consolidation of squatter houses to discover the relationship between people and their dwellings and comprehend their various aesthetic or perceptual and formal environmental quality components.

DEFINING VERNACULAR

The term 'vernacular' derives from the Latin word 'vernaculus', meaning native or indigenous. (Oliver 1997)

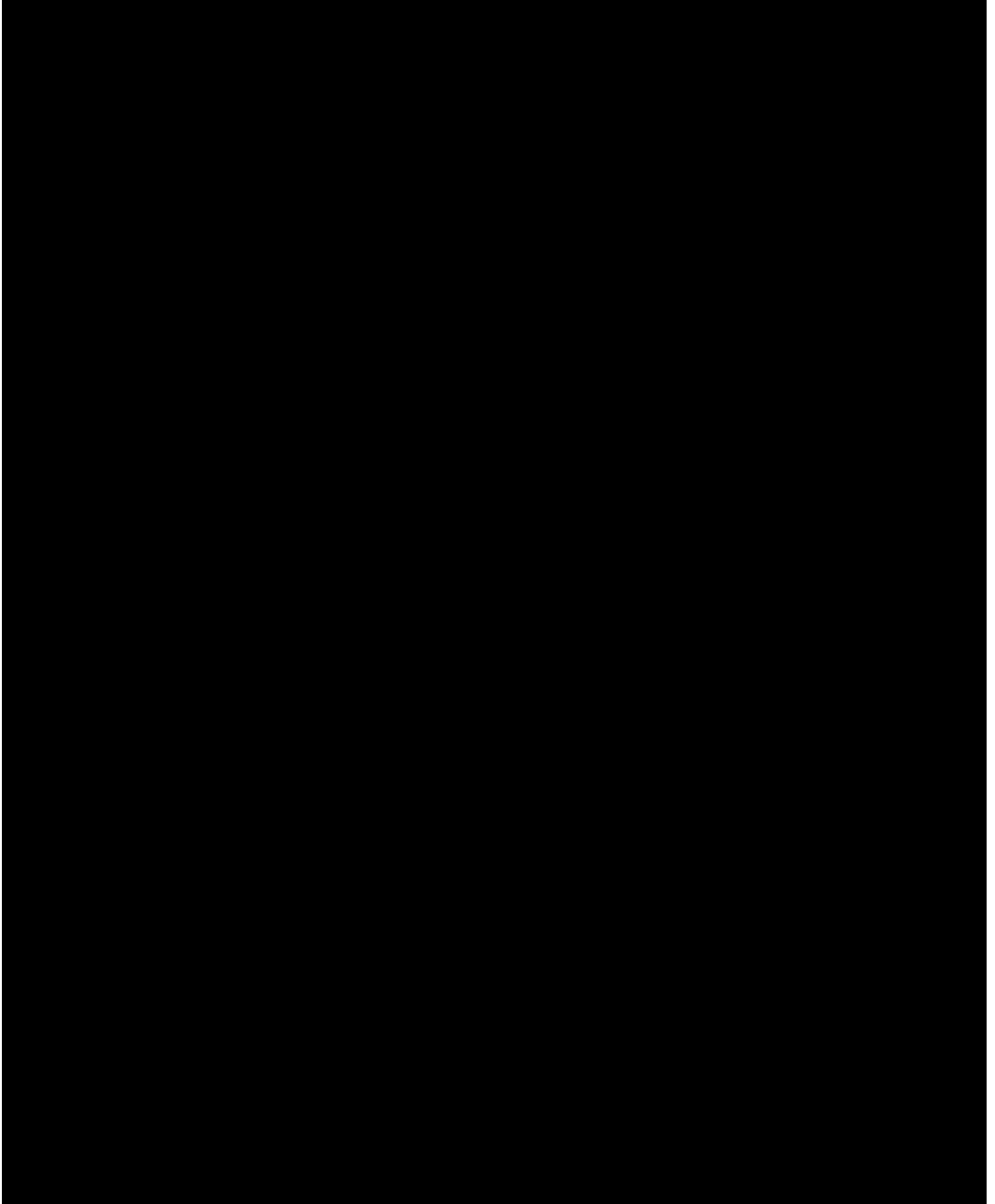
Dictionary definitions associated with the discourse of "vernacular" relates to indigenous, domestic and non foreign, it is commonly understood to derive its form in connection with building and architecture of local life, style, materials and geography. (Oliver 1969). "Vernacular architecture comprises of dwellings and all other buildings of the people. Related to their environmental contexts and available resources, dwellings are customarily built utilizing traditional technologies. These forms are built to meet specific needs, accommodating the values, economies and ways of living of the cultures that produce them". (Oliver 1997)

"Vernacular buildings are not built by architect but by society, with its relationship with the natural environment in mind, over generations." (Krisprantono 2003)

"The folk architecture is a direct and unself-conscious translation into physical form of a culture, its needs and values - as well as the desires, dreams and passions of the people." (Rapoport 1969)

Vernacular architecture is a contradiction in terms. It is built without a preconceived design and the builders employ a simple and more natural process of construction and technology which had been handed down from generation to generation over years. Hence, it can be defined as spontaneous, anonymous, indigenous & popular architecture, different from the mainstream architecture of trained modern architects.

The end product of vernacular buildings is therefore, the meeting of local needs by means of local beliefs, nature, local materials and social interaction. These needs relate to their environment, to their respective economies and occupations, to their inheritances and their aspirations and to their relationships with other social groups. In most of these societies the people are too numerous to be accommodated in single shelters, so settlement location, organization and communication routes are of great importance. These factors depend on the nature and structure of the society.



A. CASE STUDY AREA : SETTLEMENT IN BIDADA VILLAGE, KUTCH (WESTERN INDIA)

LOCATION

Bidada village lies at the western most tip of India. It is situated in the southern coastal part of Kutch.

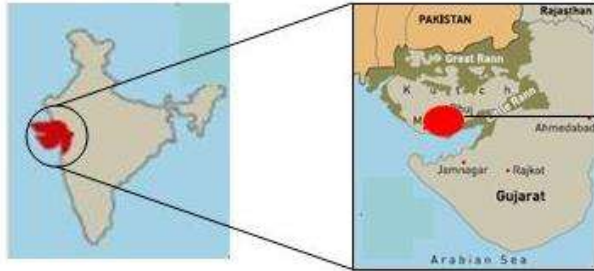


Fig 2: Kutch region (www.mapsofindia.com 2009)



Fig 3: Kutch region (Google earth 2009)

CLIMATE

Kutch has a tropical monsoon climate with high average annual rainfall. The daily temperature variation is quite wide due to the presence of a vast desert. The central, western and southern coastal areas have hot and humid climate due to the proximity to the Arabian sea. The air is salty and the soil thick with salt. It is not suitable for cultivation.

SOCIETY

The village has about 500-550 houses and people are of various caste and communities like Harijans, Muslims, Brahmins and Darbari. The major population is of Hindus, Jains and Muslims. People of same communities stay together forming different zones of the village. The Harijans and Muslims being non-vegetarians, have their houses in the wind direction away from the village so that odors emanating from flesh and meat preparations can be avoided by the rest of the village. (Udamale 2003)

SPATIAL ARRANGEMENT OF SETTLEMENT

Spatial pattern is that of long row type houses with narrow street network and dense population. The traditional settlement pattern responds to the hot and humid conditions very well(Udamale 2003).The narrow streets, common wall structures form a dense urban fabric that breathes through the smaller indoor

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open spaces like courtyards. The ratio of area of private territory to that of public territory is quite high. The close packing of dwellings reduces the external surfaces exposed to sun and results in maximum shading of private and open public spaces. The overall urban form is very compact with a combination of few flat and a mostly sloping roof forms.



Fig 4: Kutch settlement pattern (Google earth 2009)

SPATIAL DISTRIBUTION

It is observed that the housing typology differs in the spatial pattern. The socio cultural attitudes and other factors defining the social grouping gets translated into the spatial pattern with changing position of kitchen, definition of public and private spaces, use of courtyard, open to built relationship (Udamale 2003). The courtyard is used very effectively for various purposes such as defining privacy, to get light into the building, to link various public and private zones in the house. It majorly helps in negotiating the climate. It cools down the dwelling in the night by releasing the heat and allows the heat to penetrate during the winter.

SOCIAL SETUP

Its built environment, public and private realm of this area is determined by the composition of open spaces, semi open and enclosed spaces together. The zoning of public and private spaces shows resemblance to a typical old Indian town.

The system of spaces is largely determined by the network of curvilinear streets, connected by chowks of various proportions and scale.



Fig 5: Hierarchy of open spaces (Author)

1. The main village or chowk is largest in size, from which main streets radiate.
2. At the junction of major arterial streets, main street intersection chowks are formed.

3. At the intersection of secondary streets, neighborhood spaces are formed.
4. Narrow streets terminate in formation of space around 5-6 houses which are door fronts or aangan.

SETTLEMENT GROWTH PATTERN

Village settlement seems to grow in an organic manner, but it has a highly sophisticated rule system which guides its growth. These rules are determined by matters of privacy as they have adjacent roofs, windows and doors. They provide frameworks within which people can live together within close proximity. Streets are like water stream lines flowing smoothly in various directions. As they go ahead the width length goes on decreasing forming alleys in the village interiors.

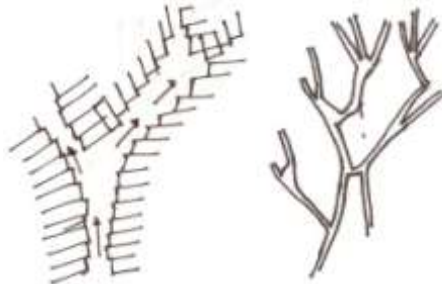


Fig 6: Street pattern (Author)

Streets are constantly turning in curves, in a particular direction through small chowks of Y- shape. They branch out in two or three directions and turn again.



Fig 7: Street scape (Author)

They behave like channels of wind through the village, and are all aligned along the south west direction. They are cooled by the shadows of the street walls, creating a micro climate of the village. They are formed by staggering houses by few feet; width of a narrow street varies from 8' to 18', with houses having a frontage of 10' to 15' width. (Udamale 2003).

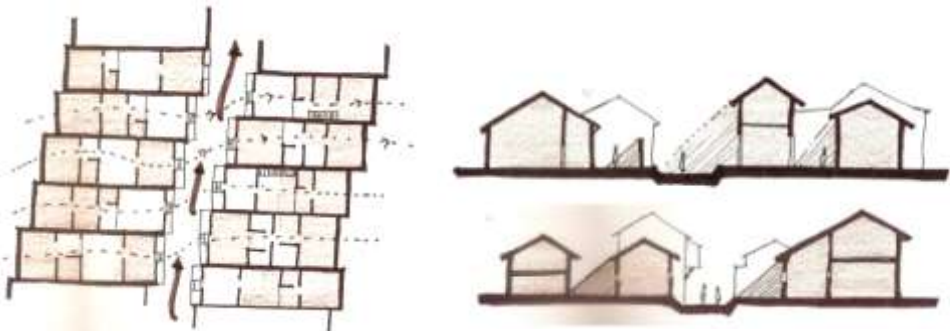


Fig 8: Alternative courtyards (Author)

Fig 9: Street section (Author)

A typical feature is that the entry to a dwelling is faced by a courtyard across the street. (Udamale 2003)

This pattern repeats alternatively, to help achieve privacy and multidirectional flow of breeze and makes it dynamic and visually interesting. Main entrances never face in straight line, avoiding direct sight in the house.

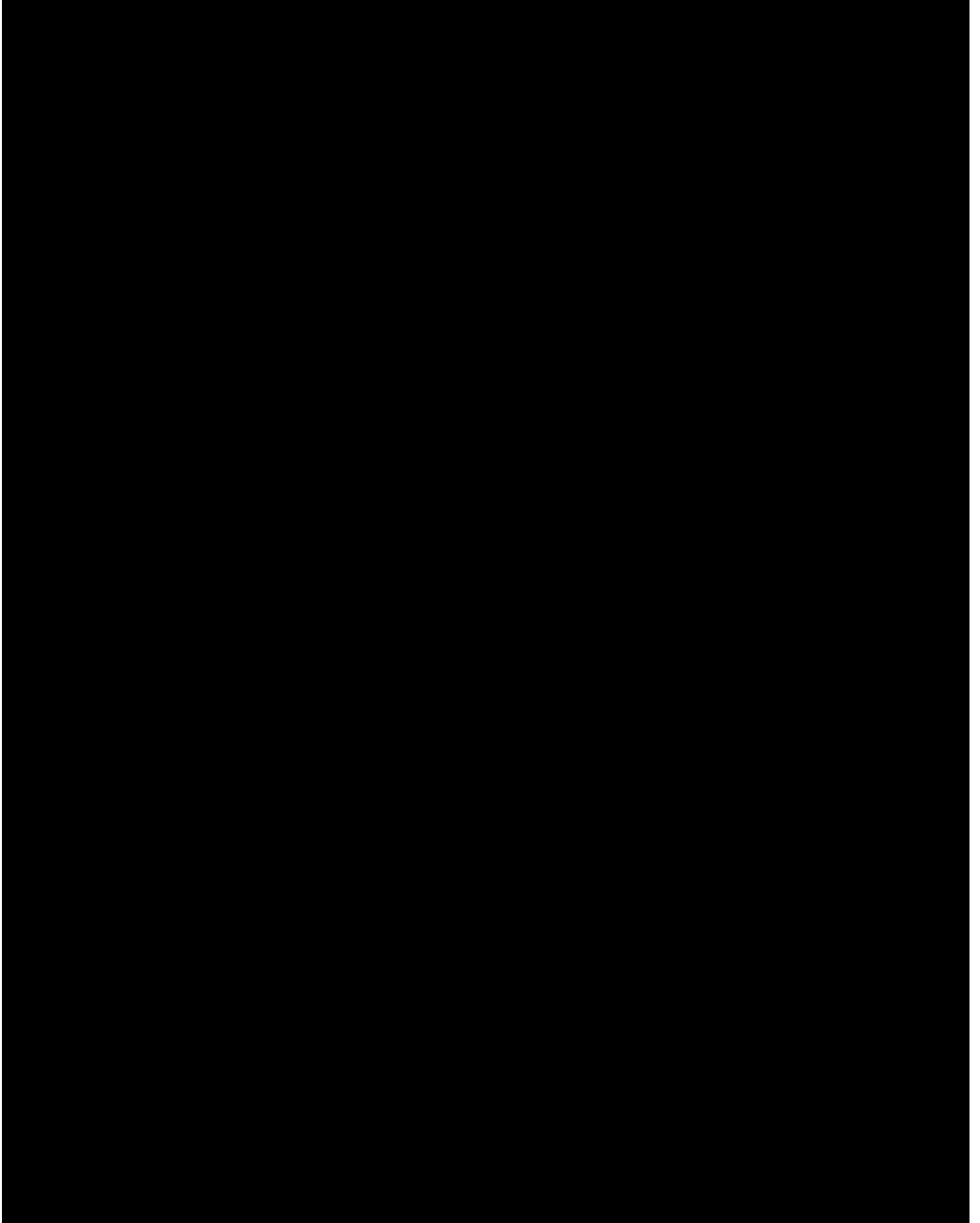
ELEMENTS EVOLVED AS RESPONSE TO THE CLIMATE- Passive-cooling techniques used in the hot and humid region aims at increasing the air flow and reducing the heat gain. Due to water scarcity the evaporative cooling becomes very difficult.

Common walls- The high density of the urban form facilitates mutual shading keeping the vertical surfaces in shade throughout the long, hot days of summer except for the time when the sun is at the zenith.

Thick external walls- All the external walls are very thick working on the principle of thermal mass where the thickness of the brick wall delays the heat gain and works as thermal battery during the cold and dry winters.

Courtyard- The central square courtyard with high height to width ratio works in a typical manner. During the summer time throughout the hot summer day it is a shaded and in combination with the thick external walls delaying the heat gain keeps the interior cool. During the night the same courtyard becomes a heat sink and by natural convective cooling allows the hot air to be released outside.

Small wedge shaped opening on the outer walls- Due to the typical shape of this opening, pressure difference is created and airflow is generated. This in combination with the courtyard generates convective cooling during the during the summer night. The angle of the opening is developed considering the sun angle during the winter.



B. ATTRIBUTES OF VERNACULAR ENVIRONMENT

Vernacular building expresses the specific nature of specific cultures and employs numerous forms that symbolize the relationship between humans, society, nature and built environments they live in.

1. **Tradition as the force of law** - As tradition is honored by everyone through collective assent, the building know how is handed down through generations. It is accepted & obeyed and hence gives a collective control. It acts as a discipline.
2. **Owner is very much a participant in the building process and not merely a consumer** - Everyone in the society is aware of the prescribed methods of building and knows how to build.
3. **Dwelling model is fully uniform** - Certain building forms are taken for granted and any change is strongly resisted since societies like these, tend to be very tradition oriented. This final form is the result of changes made to it over a long period of time, until it satisfied the cultural, physical and maintenance requirements.
4. **Individual specimens are modified, not the type** - When a dwelling is built, the form or the model and materials are already known. What is individually determined are the specifics such as family requirements, the size and its relation to the rest of the built form.
5. **No pretentious aesthetics or styling** - The execution involves the use of principles applicable to every building. The form adjusts to given problems and available means. Such buildings are based on the idea that a task should be performed in the simplest, most unobtrusive and direct way possible. Being tradition bound, any change happens within a frame of a given common heritage and hierarchy of values.
6. **Open ended nature** - Vernacular architecture is unspecialized. It is easily modified in terms of additions and subtractions.
7. **Climate as a modifying factor** - Climate acts as a secondary factor, where as socio cultural factors are the primary forces which shape the built environment.

C. CASE STUDY AREA - KHICHRIPUR SLUMS, DELHI.

LOCATION

Khichripur squatter settlement is located in East of Delhi. It is in the walking range of the Ghazipur dairy farm and occupies an unobtrusive plot of land. The area is bounded by a slum resettlement colony of kalyanvas and Ghazipur drain.

BUILDING PROCESS

The beginning of acquisition of land on which to build was the primary determinant of the housing pattern in this squatter settlement. The organization of living and working activities within the combination of culture-rooted behavioral characteristics and resource limitations has furthered contributed to its growth.

SETTLEMENT PATTERN

The settlement is very compact in nature and has the maximum amount of built up area possible. It has a very high population density and the ratio of area of private territory is much higher than the public. Dwellings are very closely packed and most of them share the common walls. Settlement is developed

around a great variety of open spaces that include small, irregular squares and open areas in between units.



Fig 11: Built up of slum area (Author)



Fig 12: Street pattern (Author)

STREET PATTERN

As much as public spaces for social interaction, streets and paths in informal settlements also follow a hierarchy of different widths, finishes and public importance. Narrow streets and paths that might not provide access to cars are land-efficient and also serve for the ventilation and lighting of the units.

In many cases, narrow alleys also permit to have double access to the units, which is particularly useful for units that combine residence and income generation activities or for units that house an extended family.



Fig 13 : Double access to units (Author)



Fig 14 : Double access to units (Author)

For example, by giving an independent access to the family of the married children. In case of insufficient land availability, this solution permits increasing densities and therefore allows more affordable solutions for the majority.

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PUBLIC REALM

The public or semi-public spaces play a fundamental role in community building and in social interactions between residents. Therefore the settlement is punctuated by a series of open spaces. Each cluster of unit is woven around an open area (featured by a tree, a water tank or a shaded area). These open areas vary in importance and functionality providing multiplicity of interactions between



dwellers.

Fig 15: Chowk (Author)



Fig 16: Streets (Author)

ABSENCE OF DISTINCTION BETWEEN PUBLIC AND PRIVATE AREAS

There is hardly any discernable separation of public and private spheres of activities within the dwelling unit. Many activities which are considered to be private by a non-slum inhabitant for instance, bathing are public in a slum setting. Thus, the code for public and private activity does not exist and the there is a very bleak difference in the spaces.



Fig 17: Spill over activities (Author)

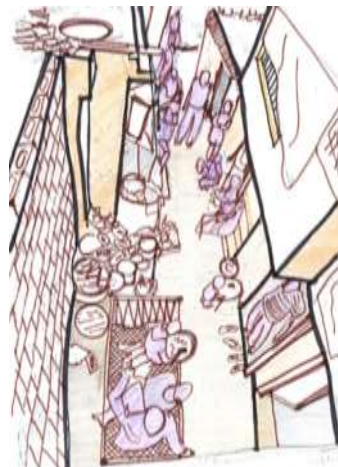


Fig 18: Spill over activities(Author)

SPATIAL DISTRIBUTION

In its simplest form, a dwelling unit contains a single space which houses all sorts of activities. The number of rooms is obviously a function of the well-being of inhabitants. They usually use simple space organizations.

The dwelling units which contain up to 3 spaces have very simple layout organizations. The

rooms are not specialized for certain activities in this phase and have multi-functional use with minimum furnishings. The toilets are generally located in a corner.



Fig 19: Dwelling unit (Author)

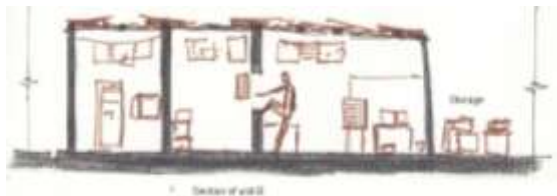


Fig 20: Section of dwelling unit (Author)

PERSONAL SPACE

Although the external appearance of the dwelling is rough and unattractive, its small internal space is carefully and thoughtfully arranged. Small shelves are filled with objects of personal significance, and selected pictures are hung on the walls. The space under the beds is used for storage. No matter how restrictive the space is in terms of the area if compared to the standards of minimal space requirements for any human activity, there exists a sense of

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maximum usage of every square inch in the given area. There was hardly any space within the dwelling unit which was not being apparently put to use.



Fig 21: Section of dwelling unit (Author)

TERRITORIAL BEHAVIOR

The care and delineation of areas surrounding the house are regarded as very important. This squatter housing translates domestic activities in the mixed use of indoor, outdoor, enclosed, open and semi-open spaces. Various activities such as children's baths, laundry, eating, playing and a great variety of activities occur very often in semi-open or enclosed (but not roofed) spaces outside of the house. Since it is a warm climate, a great integration of indoor and outdoor spaces facilitates the development of these activities. Spaces delimited by walls but without roofs and by roofs without walls help the development of these activities.



Fig 21: Front area of a dwelling(Author)



Fig 22: Front area of a dwelling(Author)

SAME SPACE, DIFFERENT ACTIVITIES

There is no specialization of domestic spaces in the dwelling units. The rooms are not dedicated for certain activities. None of the spaces are called after their functions, as there is no place which is earmarked for any particular activity. Functional usage of the space constantly changes throughout day on the basis of what time of the day it is. During the day, the bed is the area where most of the social and educational activities are carried out. The ‘charpoy’ are folded up and it turns into a space for interaction amongst the family members while they are having food or watching TV. Hence, the same room becomes a bedroom, a dining room, a living room, a study room, a playing room and a workplace.

Activity \ Space			
Sleeping	●		
Cooking	●		
Washing		●	
Eating	●	●	
Procurement of water			●
Social interaction: gossiping, idling		●	●
Family interaction, educational activities	●	●	
Household chores	●		

Fig 23: Comparison of inside, outside & neighbourhood spaces & activities.(Author)

AESTHETIC NEEDS

This slum is a tangible proof of the importance that dwellers attach to the aesthetic appearance of their homes. The use of vibrant colors, façade decoration, and careful choice of textures demonstrate that not everything here is about lack of choices. Even in cases where the exterior facades of informal housing seem ‘unfinished and dilapidated’ (by formal standards), the interior of informal units frequently demonstrates the particular care put into to have a very tidy assembly of their paraphernalia.

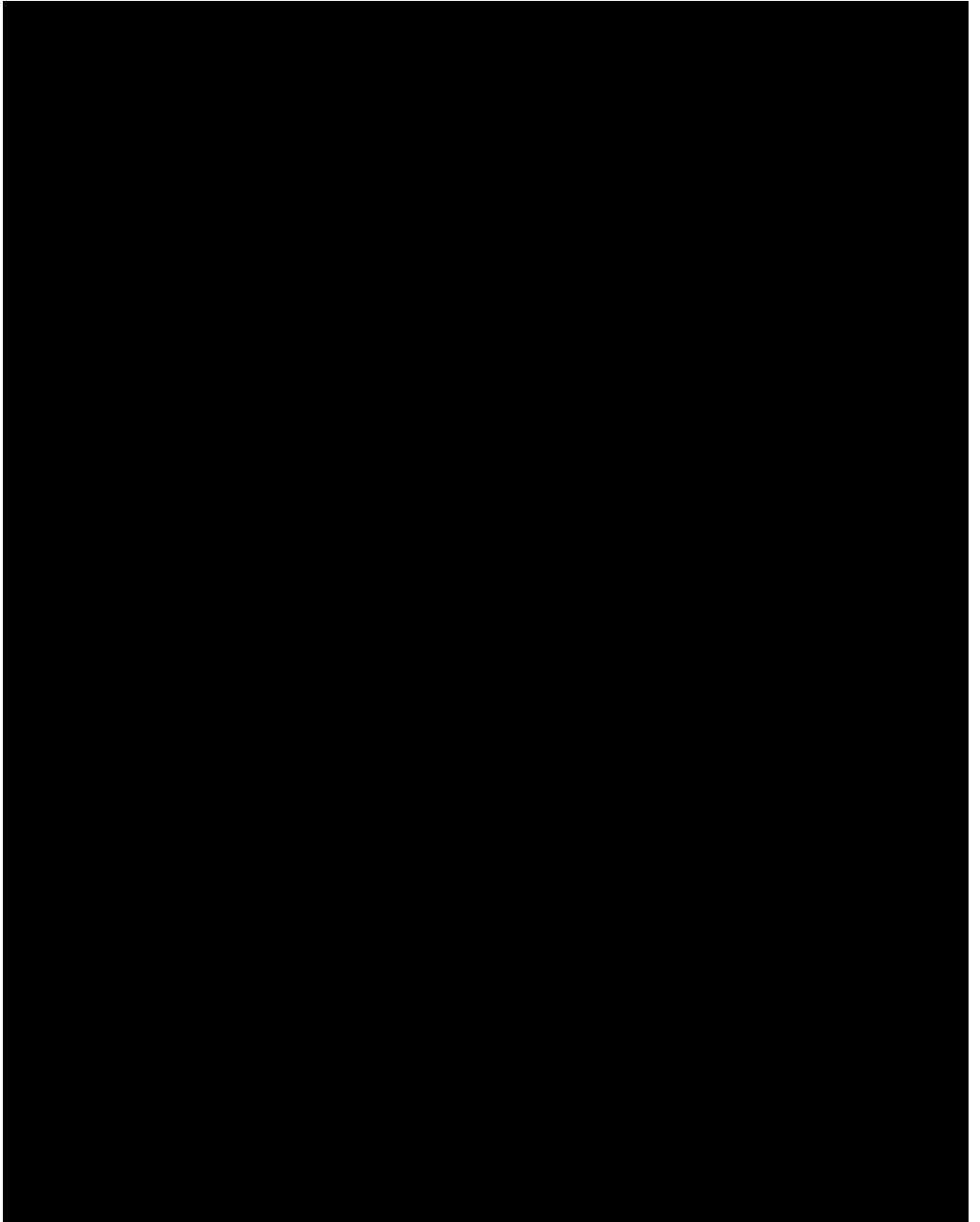
EXPANDABILITY

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Instead of setting up complex space organizations, users preferred simple groupings of spaces for their changing requirements. Adding an individual unit or a group of spaces to the existing layout demonstrates the feature of expandability of the dwellings in. Dwellings have grown over time following the availability of resources and the family needs. The original core and later additions and modifications tend to merge into a unified unit.

MATERIAL

The use of light materials (timber and corrugated iron sheets) and recycled components plays a fundamental role in the flexibility of the units. The recycling of materials and available building construction waste is one of the most efficient strategies adopted by the squatter settlement. It is therefore not rare to find an aluminum window, a ceramic toilet or a stone kitchen counter in a dwelling.



D. COMPARISON

Examining the various contextual aspects, their formal and functional implications, the processes of construction and consolidation reveals several similar characteristics between traditional vernacular architecture and squatter settlement.

SIMILARITIES BETWEEN VERNACULAR AND SQUATTER SETTLEMENTS

1. **Identities of designers** - People in these settlements are the occupiers as well as the builders. They are non - professionals.
2. **Purposes of designers** - Inhabitants construct their dwellings for their usage as homes and for the purpose of entitlement of identity amongst rest of the community.
3. **Presence of a single model or image** - Since there is availability of choice among a multiple options from various sources but in one place, this choice seems to be systematic which leads to visual coherence.
4. **Scheme underlying the morphology** - Elements such as circulation, projections, building heights, proportions, scale, usage and the like are similar and contribute to the overall vocabulary.
5. **Presence of specific formal qualities (specific model, plan forms, morphology)** - There exists a given set of unsaid rules which lay down the dimensions and proportions. Their slight variation within the acceptable bracket contributes to the specific forms in these settlements.
6. **Use of specific materials, texture, colors** - There has been an ingenious & daring use of materials in new ways, textural combinations & above all the use of color. Color is often used to indicate ethnics, religious, regional & other forms of identity.
7. **Efficiency in use of resources:** There exists an extreme competence in the effective usage of the available means.
8. **Open endedness allowing additive, subtractive & other changes-** When the life situations of the inhabitants changed (e.g. an increase in family members or in the home improvement budget), they freely modified the built form according to their requirements. The respective environments can change to accommodate changes in life style and income. This open endedness, related to the flexible rule system, leads to many unique perceptual qualities in both & much higher levels of complexity.
9. **Degree of change due to temporal dimension** - There is a lack of specificity in usage of space over the temporal variation. This allows the residents to act in culturally appropriate ways & is critical in economic terms, allowing for many informal businesses & workshops & combinations of work with childbearing.
10. **Sharing of knowledge-** Since there is a lack of written records, people try to learn from the mistakes of the past, and then adapt themselves according to the needs, before passing knowledge on to their neighbors or to the next generation. Thus, design and construction is traditionally inspired rather than academic.

DIFFERENCES

There are few characteristics that distinguish vernacular from squatter settlements.

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- There exists a difference in the “conditions of existence” experienced by the inhabitants of vernacular and squatter settlements. Most of the vernacular examples belong to the extreme constraint of natural origins but the urban squatter settlements are constructed in situations of artificial constraints. These informal settlements are usually located in manmade environments rather than being located in natural environments.
- In contrast to the relatively stable context of vernacular environments, slums have emerged and continue to expand in the conditions of considerable instability & are often subject to rapid change.

E. CONCLUSION

In both the settlements, the house is much more than a shelter. Its 'function' is much more than a physical or utilitarian concept. The physical setting provides the possibilities among which choices are made through the taboos, customs, and traditional ways of culture. Even when the physical possibilities are

numerous, the actual choices are severely limited by the socio-cultural forces. It is this limitation which is a typical aspect of both the settlements.

The environment sought reflects many socio-cultural forces, including religious beliefs, family & clan structures, social organization, way of gaining a livelihood and social relation between individuals. In both the settlements, solutions are much more varied than biological needs, technical devices and climatic conditions. In addition, built forms of both traditional and spontaneous buildings are the product of daily behavior, lifestyle, activity system, ritual, and the like. From these descriptions, there is little doubt that spontaneous settlements have the potential to be assessed as vernacular environment. The broader scope and greater complexity of vernacular frameworks can include spontaneous settlements as part of wider spectrum of non professional environments.

Due to a contrast in the two environments, one with the remote communities surrounded by natural elements and the other set amongst concrete constructions, the architectural challenges in both settlements are bound to be different. The squatters straightforwardly apply their know-how and practices to deal with contemporary challenges. They adapt their rural background knowledge and experiences to meet their current wishes and requirements.

Hence, this phenomenon should result in as much interest to the study of these housing products as their vernacular counterparts elicit. These artificial constraints place them at an equal disadvantage.

In addition, the kind of habitat and the lifestyle which evolves in these settlements reflects the behavior, the social set up, implies upon the economy, traditions and the aspirations of the people. Throughout such a process, spaces and structures are always carefully modified according to the changing needs and behavior patterns of family members. Hence, the built environment is the result of the responses to the contextual factors which maybe physical, social and cultural in nature, makes squatter settlements the closest contemporary of vernacular settlements.

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