



# Exploring for the Roots of Buildings and Settlements in Bengal

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## Abstract

The paper begins by challenging Amartya Sen that Bengal does not have any ancient glory, at least in its built-form and settlement morphology, to be proud of. On the contrary, the persistence of indigenous morphology provides support to the author's argument that the Bengal settlement morphology incorporates some innate cultural demands which are equally contemporary and transcend the transitory pressures and demands of time. The paper attempts to understand the evolutionary pattern of Buildings and Settlement in Bengal in the light of the author's works spanning over the last 30 years and create a framework for further study while answering Amartya Sen. The study reveals the concept of shifting axis in the settlements as elsewhere in the orient but with a unique tint. The fluidity of spaces, visual harmony of built-form with nature, the supporting role of movement and connectivity interweaved with the river system and topography is suggested to be brought into a planning and design framework in Bengal (at least in Bangladesh) for the sustainability of physical development.

**Keywords:** Delta, Axiality, Built-form, Settlement, Bengal.

## I. Introduction

“There is nothing in Bengal's history to match the ancient glory of Patna or Ujjain or Benares or the medieval splendor of Agra or Delhi or Jaipur. Yet it is possible that being somewhat left behind over a long stretch of history has made it that much easier for Bengal to develop its peculiar combination of open-minded receptivity and cultural pride” (Sen, 2007). Amartya Sen's quotation inspired the author, as an architect and urban designer, to see in retrospect what Bengal has in store on which it can be proud of. The Geo-climate of Bengal did not allow permanency in the buildings and settlements, whatever evidence was there was eradicated by ever-changing courses of rivers and ravages of climate, therefore, should have been evaluated in Bengal's geo-climatic context. Every nation has some characteristic attributes that make it distinct from other nations, of which buildings and settlements are the most dominant ones providing it a visible tangible identity. In Bengal, it is observed that every time a settlement begins to evolve organically, it follows some common principles, giving rise to a certain pattern. It is sometimes termed as building

tradition, however, the tradition is not only a fixed set of attributes, devices, and images; it may be seen as a series of superimposed layers of interventions. But deep beneath, when the layers are unfolded, the traditional foundations become visible on which the buildings and settlements have gradually been built-up. This foundation reveals clues to a hidden order that gives a distinctive texture to the buildings and settlements of a place. Studies on the philosophical basis of buildings and settlements have gained popularity with architects and urban designers in recent years. Most studies get engaged with analytical debate or procedural debate or form debate. While there is no problem with that until the whole spectrum is in view but mostly they are fragmental. There is a need for a full range of studies from substantive to explanatory to procedural to prescriptive approach to enable them to be operational. Most recent studies among the professionals are focused on on-site analysis, land use, traffic and transportation, environmental issues, physical artifacts' or mere descriptions of urban or rural settlements, their constituent components, and a few on their evolution. Specific studies on the physical

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manifestation of the socio-cultural attitude of the people in their buildings and settlements are numerically insignificant. A holistic study in any debate area is almost absent. However, the present paper is also not attempting either to undergo a full range study on any particular segment of the debate, rather the paper is attempting at pulling together authors' sporadic studies on finding the roots of evolving buildings and settlements in Bengal and encourage in-depth research on the issue.

## II. Methodology

The paper started by challenging Amartya Sen's (2007) notion that "There is nothing in Bengal's history to match the ancient glory of Patna or Ujjain or Benares or the medieval splendor of Agra or Delhi or Jaipur". The study attempts to present a philosophical foundation to re-evaluate the contemporary planning and design of buildings and settlements in Bengal (particularly in present Bangladesh), as the present planning and design framework seems to be at odds with the people's instinct, psychology, and expectations. The paper is essentially pulling together, author's 30 years of sporadic studies since 1990 on Bengal settlements to find the roots of built-form and settlement morphology in this largest delta of the world (Mowla, 1990). The study is the reinterpretation of the authors' works to bring them into a legible sequence. Earlier works employed, historical interpretation of available documents and their validation with field reconnaissance surveys randomly over the whole of present Bangladesh excepting the hilly areas. The paper attempts to understand the evolutionary pattern of Buildings and Settlement in Bengal and create a framework for further study.

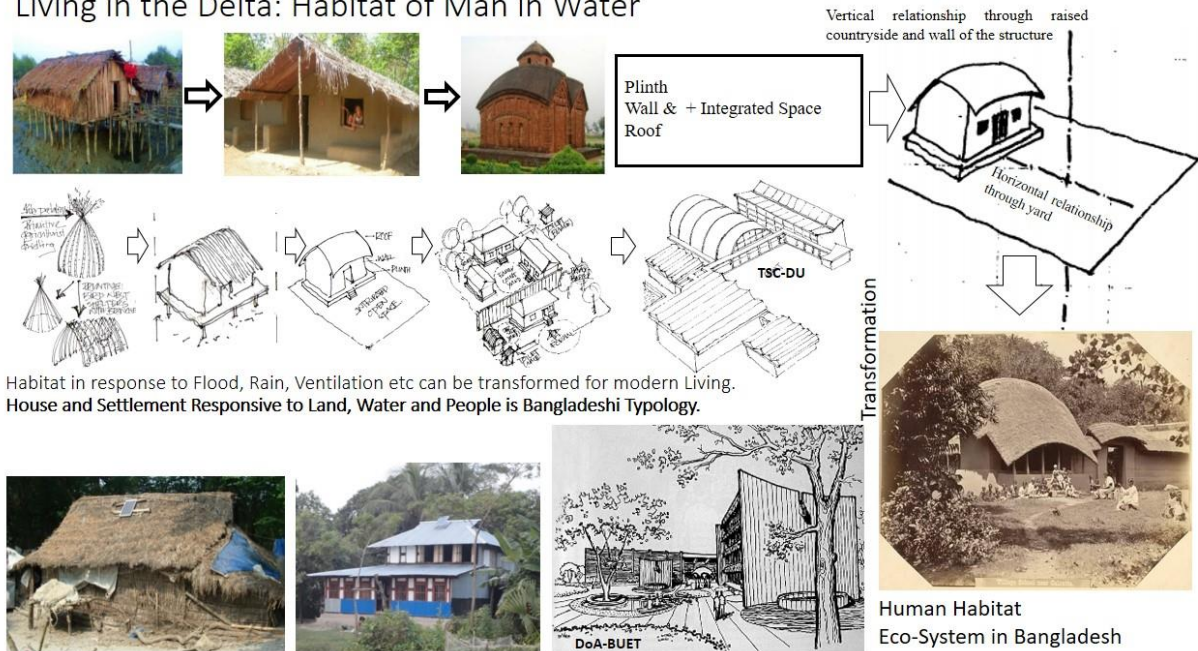
## III. The Context and the Response

**The Context:** Bangladesh is a deltaic and alluvial country of low elevation concerning mean sea level (MSL). Settlements and human shelters are known to have developed in the region now known as Bengal (particularly Bangladesh) since

the rice cultivation on fixed fields started at the beginning of agricultural civilization (Schendel, 2009). Settlements began on the banks of numerous river branches forming the delta. While Bangladesh has evolved gradually on deltaic flood plains formed by the silt brought down from the Himalayas. The coast gradually receded and the present coastline is also in the formative stage as earlier coastlines were thousands of years back. The settlements evolved from the geo-climatic context and rice-culture-centered needs of the then population. A cursory study in the 90s (Mowla, 1990) and again recently in 2019 (Mowla, 2019) shows that despite many technological developments, geo-climate is still a major player in the building and settlement development process. The Rain, rivers, and seawater under warm humid tropical climate with rich vegetation have set a context that has shaped the tangible and intangible traits of this land. Settlements were in vulnerable flood plains and vegetation was in abundance prompting the primitive settlers to construct their shelters on stilts to rise above flood levels and being covered by tree branches as protection from the rain. The need for storing sweet water for drinking and household needs taught them to raise ground above flood level called Bhita/plinth, with the earth dug out from the ponds.

The peculiar climate and geography of Bengal, more than anything else, have shaped the personality, art, culture, architecture, dress, tradition, and way of life. The pattern of life in this land seems to have remained virtually unaffected over thousands of years. The context has unfolded a type of architectural style which has roots in both native and vernacular. In Bengal, like any other part of the world, traditional architecture showed its sustainability and resilience by their harmonic balance with the surrounding society and environment. With its specific character of forms and spatial relationships, these built forms hold the heritage of the country's long history and traditions (Figure 1). Conflict and contradiction start with transplanted interventions.

## Living in the Delta: Habitat of Man in Water



**Figure 1:** The influence of Delta and warm humid climate was quite evident even in the evolution of two types of huts evolving from same common principle i.e. rising above flood levels; repelling the torrential rain and encourage adequate ventilation in the buildings and subsequent buildings shaped by unique architectural features of ancient Bengal persisting to date (Source: Mowla, 2019).

**Evolving Buildings and Settlements:** In 1990 a pilot survey was carried out on all districts within the boundary of Bangladesh (excepting the hilly areas) to get a general picture of homesteading and its gradual expansion into settlements (Mowla, 1990). In about 70% of the cases, it was found to have followed a similar initial homesteading layout and its subsequent expansion to make a legible settlement. The remaining about 30% cases differed because of influence from some external features or forces or the development was not organic or spontaneous. The study traces back the basic architectural forms in Bengal that is instrumental in generating all the types of subsequent architectural built form in various scales and levels. The basic architecture of Bengal has components like a plinth above flood level, openness, ventilation, rain repelling wall, and roof all employing locally available materials. From a simple shelter in the flood plain with

responsive Bhita (site), Bera (wall/enclosure), Chala (Roof), and Uthan (Courtyard) a distinct typology evolved in the Bengal delta. This basic typology has evolved into various shapes responding to the technical, social, and cultural interventions and needs from time to time. This architectural form shows a clue to all the subsequent sustainable built forms that have evolved since then in this region. It may also be pointed out that in all the different stages of settlement evolution and house building, neither the sanctity of the courtyard nor the independence of the individual structures is violated. When the extension is required, a new structure space is contrived and the process is started once again, in the contemporary context these isolated structures are connected by open corridors, providing modernity to the old form (Figure 1).

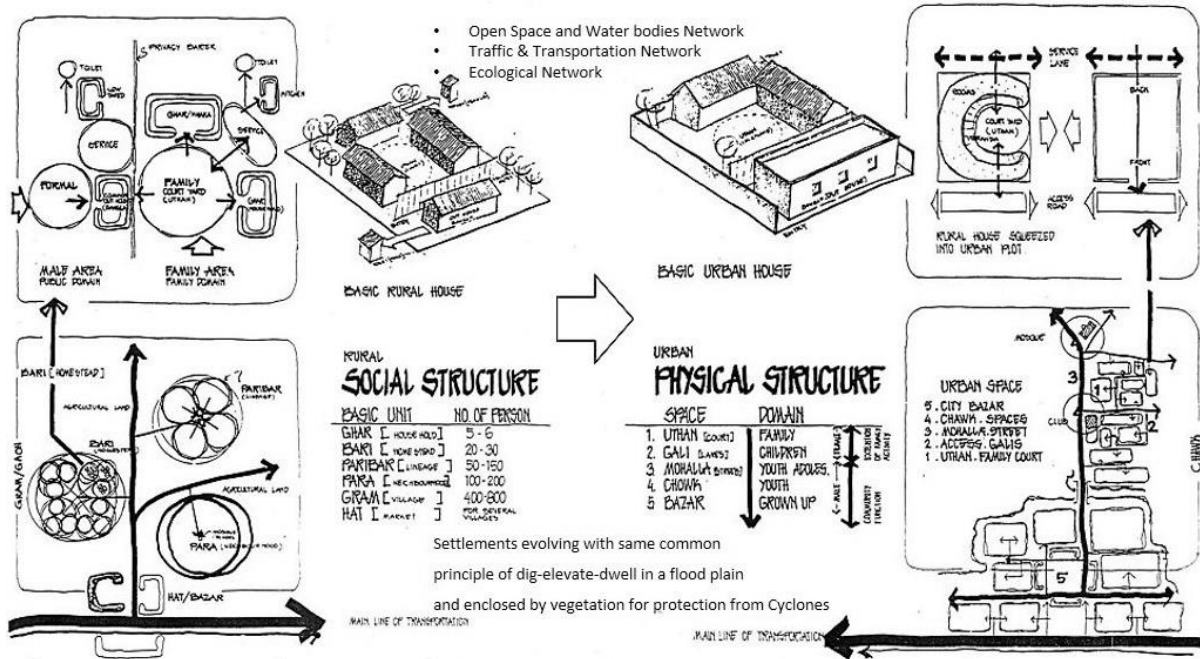


Figure 2: Settlements at various scales and levels, developing from the same common principles rooted in the context are sustainable (Source: Mowla, 1990 & 1997).

From historic as well as more recent studies on Bengal buildings and settlements the most significant common fact that one discovers is the use of simple, rectangular, and free-standing structures. The separateness of the huts seems to be the most marked theme. The huts usually open out to the outside through their wider facade and hence they are organized transversely, thereby, a sense of exterior space is created. These facades, though small, are rich in texture, and are made either of mud or bamboo. On top, each is qualified by projecting eaves, most commonly curved, and at the bottom by an extended plinth. Sometimes though, a veranda modulates between the vertical plane of the hut and the horizontal one of the courtyards in front of it. The first aspect one notices in the traditional built-form is the creation of a platform or plinth on which simple structures are constructed with the attempt of creating various formal and compositional relationships. Each rectangular structure is associated with it an implied open space in front. The relationship between the two is cemented by the transverse entrance from the space through the center of the longer facade. In formal terms, when such is the function of the structure, the center of the facade is usually emphasized by a centralized arrangement

in elevation which produces further accentuation of the axis. A yard is produced in front of each hut. In the case of subsidiary huts, they share the courtyards of the first building. This can also be seen in the monumental architecture in this region. Coupling this fact with the layout patterns of the indigenous houses, it is reasonable to suppose that each structure originally exists with its own, defined exterior space. Reference to a nearby water body and thick vegetation around is an integral part of the setting. The courtyards are further characterized by being plain, without vegetation, and is very well kept depicting catering for multiple needs.

**Bengali Built Form:** The Bengali huts themselves create an extremely strong visual statement. They have distinct vertical divisions - plinth, walls, and roof. All of these elements are exposed but blended in harmony with one another so that one compliments the other and in turn, they all exist in a compatible union of three-dimensional state. To remain above floods the creation of a raised area seems to be a logical attitude and the shelter on stilts or earthen plinth was the logical response to the context (Figures 1 & 3). Geographically and climatically, Khana's

maxims say it all i.e. “ Ducks to the east; Bamboo to the west; Banana to the north; (Keep) open the south” or “South-facing is king of rooms; East is

its vassal; Throw ash to the west-facing (room); North needs not (pay) any rental (revenue).

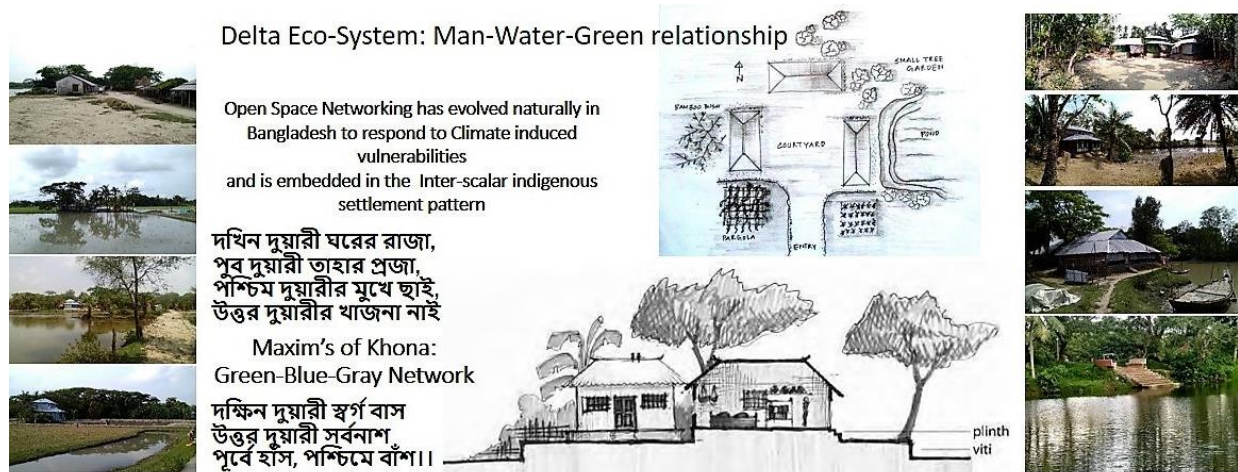


Figure 3: Built-form and settlements evolving from the geo-climatic context as described in the Khona's Maxims (Source: Mowla, 2019).

The materials for the raised platform of the huts are usually chosen from what is available around. The huts are frequently damaged or even blown away by the storm and have to be regularly repaired and periodically replaced. That is the Bengali architecture is resilient to the context and thatch, bamboo, jute sticks, mud, etc. were the building materials. The advantage of such light

materials is their resistance to thermal storage and their penetrability to moving air. The huts, as they are constructed by themselves, do not seem to be meant for defense but to live with nature. The form of the huts shows no deviation between the affluent and the needy, excepting the number and size of the huts and the number of courtyard or ponds, in rural areas.

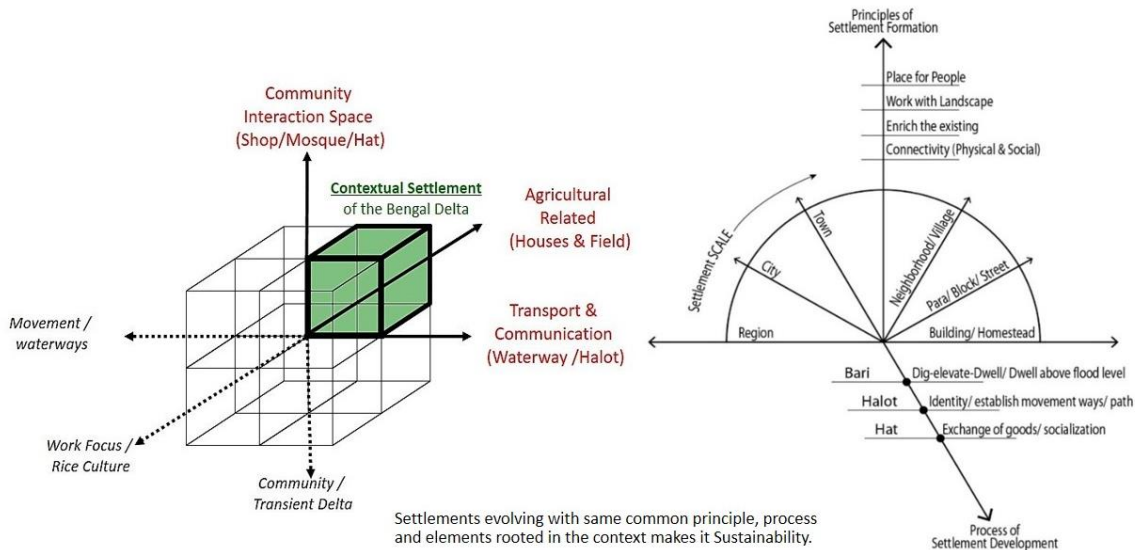
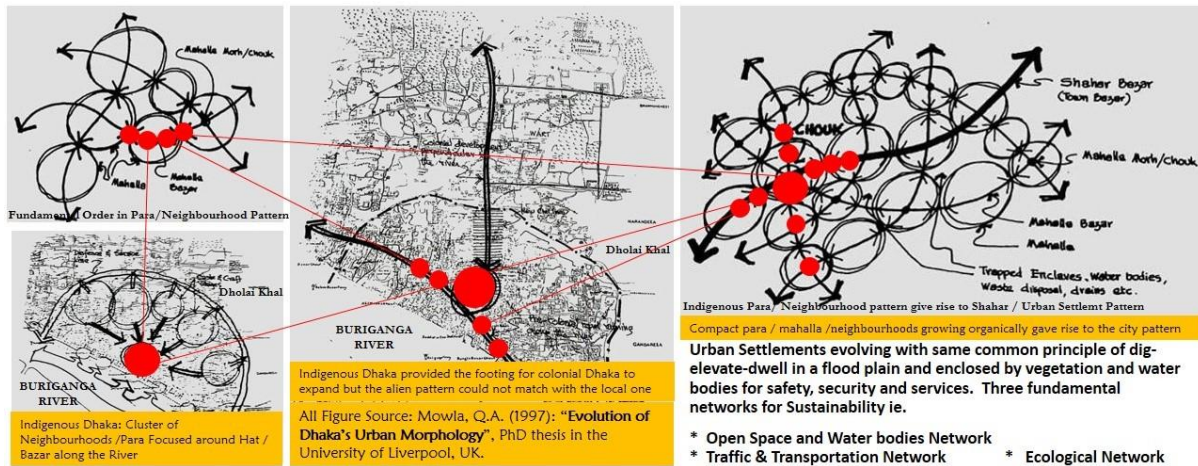


Figure 4: Conceptual representation of evolving built-form and settlements in Bengal (Source: Mowla, 1990, 1997 & 2019)

The form has almost remained the same but the impact of newer building material and technology is visibly adopted as a status symbol by the affluent people. When the actual structures are being constructed, the people look towards the bountiful side of nature. Man has raised himself from the ground by the platform and continues to do so by building a plinth for his hut and plinth over plinth to make multi-storeyed buildings around a central plaza. In general, crowded as they may be in the small hut, the Bengali dweller seldom attempt to increase space either downwards or upwards. The form of the house

admirably projects this philosophy. The platform (bhita) protrudes from the walls (bera) as does the overhead roof (Chala). A hierarchy of community spaces ranging from Uthan, Gali, Morh, Chouk, and Bazar or bigger community space were found to have been generated from the social attitude of the people. It also showed that historic fabric provided the foundation for subsequent growth. The basic ingredients being a community, its need for mobility, and work for survival. The nature of these basic ingredients transforms with the scale and level (Figure 4).



**Figure 5:** Basic settlement morphology in Bengal has grown from the context as can be evidenced in Bangladesh’s primate city Dhaka (Source: Mowla, 1997 & 1999a&b).

Traditionally the people of Bengal have the habit of socialization in outdoor spaces. This habit led to the formation of uthan, gali (lanes, by-lanes), mahalla morh, chouk, and bazar, etc., the traditional outdoor civic spaces, as the cornucopias of myriad events and human activities. Series of shops fronting onto the main street of a mahalla/para/neighborhood and interconnected mahallas give rise to a settlement pattern unique to Bengal. On a city scale, the bazar appears to be a long winding street lined with shops, but is a sequence of bazars passing through different mahallas. The continuity is emphasized because of being specifically built up in terms of the shop fronts. Thus a single pattern, as Rapoport (1977, p. 31) suggested, gives rise to different built forms and the indigenous city appears to consist of linear bazars and circular mahallas (Figure 5). It has

been observed during the studies (Mowla, 1990, 1999a & 2019) that other informal settlements have a similar morphological pattern that was detected in the pre-planning indigenous areas. This persistence of indigenous morphology provides support for the argument that the morphology incorporates some innate cultural demands which are equally contemporary and transcend the transitory pressures and demands of time (Mowla, 2012).

**Generalizing the Evolution Process:** Mowla’s (1990) pilot survey stated above shows that these initial homestead and hat settings gradually get consolidated and interaction and trade collaboration between settlements give rise to initial urban centers. The same components of the settlement get transformed under tight urban situation i.e. Transport and communication system

and mode changes with the development and consolidation.

Fisher (1993, p. 8) hopes that oriental ideas and traditions can provide powerful alternatives to western materialistic obsessions in urban design. In the indigenous way of life, work, recreation/leisure, and living comprise an interwoven system where, sometimes, it is difficult to segregate the different components. This also reflects on their spatial development, for example, mixed-use developments and multi-functional use of spaces from rooms in a house to an urban room / public spaces in a settlement. This is a part of indigenous culture. Urban form can be justified by the cultural demands on it and through a cumulative product which makes an indigenous order visible; this is what the present study has attempted to show. Transplantation of alien form is resisted by public psychology and tries to revert to the historic setting thus creating chaos, and signifying Bengali resilience.

Bengal buildings and settlements had evolved from agricultural context, they resulted in the close-knit community life where Spaces and functions are carefully articulated and closely interlinked. In the visual relationship of buildings and spaces, functional relationships of activity area and the form and morphology of the context presents a strong philosophical foundation. In the Bengal context, the indigenous attitude towards space making is worth mentioning. The result is a great deal of informality-the axes always shifts, space moves diagonally, the route shift. Each movement has its law, but the total amounts to coming together of diverse parts within an indigenous unity. In all levels and scales, the basic model of living space is the courtyard resulting in a figure-ground expression. Indigenous buildings and settlement's expression in Bengal may also be interpreted similarly but a loosely laid setting in a compact urban situation.

The study, therefore, emphasizes the cultural basis for the evolving building and settlement pattern at any level and scale. It also focuses on the social explanation for its specific generation and also aims to identify the characteristics (both opportunities and constraints) to define a desirable building and settlement morphology. Problems lying in the physical articulation of contemporary

needs, where tradition or contemporary planning cannot offer a safe guide, need to be identified and solutions sought. In Alexander's (1977) words, "A pattern is a discovery in the sense that it is a discovery of a relationship between context, forces, and relationships in space, which holds absolutely." This study provides clues to that end, challenging Amartya Sen (2007).

#### **IV. Conclusion**

The study of historical forms is essential not only for drawing out principles and elements of building in different times and changing social situations, but it is also a prerequisite for identifying and proposing the presence of types-trans-historical forms that recur through changes in context and periods, and through styles and technologies. Deltaic morphology implies the disposition of isolated buildings in a fabric of paddy fields, gardens, orchards, lakes, and ponds. Clusters are formed by grouping pavilion "units", in a series, or around an amorously interiorized space (uthan). An understanding of deltaic urbanism lies, not in the dense labyrinthine fabric of cities but in the city forms of the Bengal delta, in the "rice-culture" matrix, where the distinction between urban and rural morphology has not been so oppositional, and where buildings took their place in the natural milieu with minimal turmoil.

The mode of building, although superior to what may be termed folk-architecture, never rose to classical heights in Bengal as observed by Amartya Sen (2007), but it possesses a freshness and spontaneity and makes an appeal as it is a reflection of certain racial characteristics. The architecture and settlement of Bengal is characterized by a synthesis between a built-form and space. In this way, covered and uncovered spaces are brought into a complex union. The relationship established in this manner is an axial one. However, there is not only a horizontal dimension to this relationship but also a vertical one. The yard is raised above the surrounding countryside and has the front wall of the structure at the rear. The horizontality of the landscape draws attention to the sky and further emphasizes the link between the open raised yard and the sky above. Thus, both dimensions are symbolized.

The study reveals the concept of shifting axis as elsewhere in the orient but with a unique tint. The fluidity of spaces, visual harmony of built-form with nature, the supporting role of movement, and connectivity are interwoven with the river system and topography may be brought into a planning and design framework in Bengal (at least Bangladesh) for sustainability.

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