Identification and Integration of Socio-Cultural Attributes of Urban Design in the Indian Context

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Abstract—One of the greatest challenges in architecture and urban design is to integrate the existing cultural fabric of a town or a city with the proposed built fabric. The degree of integration would include parameters ranging from land-use, user groups and footfall to transportation, built-form and post-design effects. This study focuses on incorporating "culture" as one of the primary parameters of consideration in the Indian context.

The traditional spatial entities such as "chowks", "ghats" and religious structures along streets, form an integral part of the culture and community lifestyle and has both, tangible and intangible values. These entities are the nuclei for cultural integration, which have been carried down through the ages and have adapted to the modern context.

This study aims at identifying and evaluating the significance of these spatial entities ranging from the micro to macro level in India with the help of a subjective survey through a Likert scale. The result of the survey is used to analyze and predict the effects of integration of the existing cultural fabric with the proposed built fabric for upcoming cities in India.

Index Terms—architectural conservation, socio-cultural attributes, urban design.

I. INTRODUCTION

Culture manifests itself in the built fabric in the form of architectural entities and spaces. Such entities or spaces, whether designed or incidental, over a period of time weave into the social fabric of the local population. The growth of towns and cities, and the rapidly changing socio-cultural environment, raise the question of the degree of significance of these socially responsive elements. One of the greatest challenges of urban design in modern India is to respond to the aspirations of a proposed modern built fabric integrated with the existing cultural fabric.

Urban design in India dates back to 3700 BCE during the Harappan Civilization [1]. During this time, parameters such as user groups, social classes and a systematic layout of civil services such as drainage and transportation were integrated into the urban fabric. Architectural elements such as wells and baths, and public spaces such as markets, granaries and dockyards played a vital role, integrating the socio-cultural fabric in these ancient towns. In the case of Jodhpur, the old Brahmin settlement at Brahmapuri continues to exist in the

traditional fashion it was originally built for [2]. The strong belief in unity is extensively expressed in the compact development of the dwellings, which share walls, connected by narrow lanes and are all painted blue to maintain the cultural uniformity. The "pols" or neighborhoods of old Indian cities such as Ahmedabad were generally classified according to caste and religion and were identified with gates. Each *pol* had its unique architectural significance creating socially responsive pockets within the walled city area. However, in the case of Ahmedabad, the change in land-use and pressure for the improvement of infrastructure and accessibility lead to the disintegration of the social fabric [3].

The challenge in the modern context has been observed in the case of Delhi's IGI T3 Airport in which the new runway 11/29 had to be tilted by 3 degrees from the original master plan due to the presence of an eighty-foot tall statue of the Hindu god Lord Shiva that interrupted the flight path. Thus, evidently, religious and social sentiments were chosen over the functional design parameters [4].

Thus, it is essential to identify the social attributes of urban design and to evaluate subjectively their tangible and intangible values in the modern context. The feasibility of retaining the existing fabric in the modern context is a measure of the socio-cultural and functional impacts it has on the common people living in the area and is an essential parameter for designing or developing towns or cities.

II. BACKGROUND STUDY

A. Identification of social attributes in urban design:

Culture is an essential part of architecture as it influences the way in which spaces are designed. At a microscopic level such as that of a temple, essential spaces evolve out of the ritualistic practices and socio-cultural attributes. Whereas, in the scale of villages or towns, a complex web of several socio-cultural and socio-economic factors, shape the development of spaces. The complexity increases with the increase in size, population, economic framework and cultural framework as towns grow into cities.

In older cities such as Kolkata and Delhi, the remainders of the existing cultural fabric is identified through the presence of spaces or architectural elements that have gained importance over prolonged periods of time. It ranges from tea stalls, minor religious entities along streets to areas of mass congregation such as markets, assembly areas and citadels, which continue to play their formal role in the urban fabric [5]. These comprise the social attributes of urban design. However, in some cases, they may no longer be identified for their original use and may become a cause of hindrance to the normal day-to-day

activities. Thus, it becomes essential to assess the impacts of these attributes before deciding their inclusion or exclusion from the built environment.

B. Site selection

In order to comprehend the overall effect of the cultural fabric in India, it is essential to study it at the microscopic level of streets and lanes in socio-culturally significant areas. One such area includes Bheemunipatnam in Visakhapatnam, Andhra Pradesh, which is identified as a site for micro level case study.

Location of Andhra Pradesh in India

Location of Visakhapatnam in A.P.

Location of Bheemunipatnam in Visakhapatnam

Area of study in Bheemli

Fig. 1. Location of site [6]

The social significance of this neighborhood is identified through the presence of a traditional market area, a clock tower and other relevant entities. The site is located about 250m from the coastline and is marked by the presence a Dutch cemetery and the clock tower (Refer Fig.1). The Asian Highway 45 connects the site to both, Vishakhapatnam City and Vizianagaram Railway Station. The traditional market area consists of a farmers market and a fish market that are functional during two times of the day. The market has been the source of daily food supplies for the local public and continues to exist as a socially relevant area in Visakhapatnam city. The clock tower on the other hand is located in its vicinity and has been an area of congregation for the people since the Colonial rule in India. However, the relevance of the clock tower in the region as a congregation space is gradually declining only to a symbolic heritage building.

Fig. 2 (a) Clock Tower (left) Fig. 2 (b) Market (right) [Source: Author]

III. METHODOLOGY

This study is an attempt to analyze a subjective survey that evaluates the opinion of people from different parts of the country regarding the integration of the identified socio-cultural attributes. The survey is conducted in two phases: The first phase comprising a pilot survey at macroscopic (country-wide) level and second phase at microscopic detailed (regional) level. While the pilot survey

includes a sample set of 410 persons from various parts of India, the detailed survey is focused on the local population of Bheemunipatnam in Visakhapatnam, Andhra Pradesh. Thus, a relationship between the macroscopic scenario and the stakeholders at a regional level is established.

The analysis of the survey is done on the basis of two categories: First, expert opinion survey and second, general survey. The analysis includes the basic parameters of age groups, profession, gender and place of origin. Phase I and Phase II of the study are analyzed using a Likert scale [7], separately evaluating the expert opinion and the general opinion in the case of phase I. Correlation between phase I and phase II is developed for further analysis. The following flow diagrams explain the process in detail:
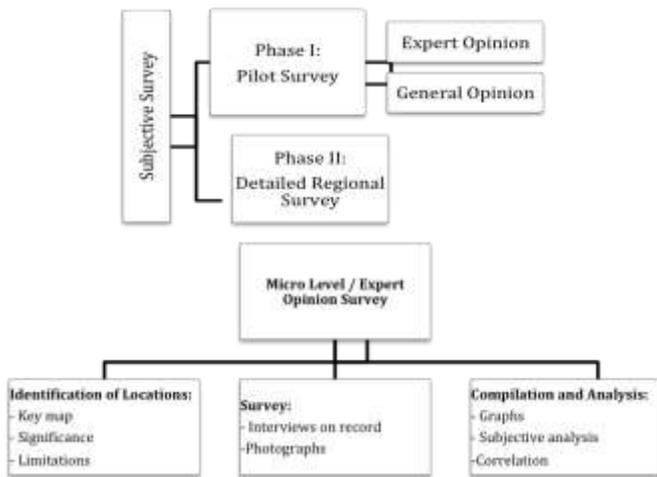

Fig. 3(a) Subjective Survey Flow Chart (Top), Fig. 3(b) Methodology Flow Chart (Bottom)

IV. RESULTS AND DISCUSSIONS

The responses obtained from the survey have been analyzed in the following manner:

A. Phase I – Pilot Survey:

The pilot survey comprised a sample set of 410 from all over India belonging to four different age groups (a. 15-19, b. 20-24, c. 25-44 & d. 45+). The analysis is done on the basis of expert opinion and general opinion. The first attribute of consideration is the significance of minor congregation spaces such as tea stalls or vendor stalls in comparison to modern cafes. It has been observed that 57 % of the people prefer local tea stalls located in the pocket of their neighborhood to air-conditioned cafes. On the other hand, 56% of the experts opt for cafes instead of the local tea stalls and vendor shops for minor congregation. These socially responsive entities constitute the urban tissues of a town or city and hold higher significance than the newly designed spaces for similar activities and functions as per the general opinion of the stakeholders.

TABLE I: SIGNIFICANCE OF MINOR CONGREGATION SPACES

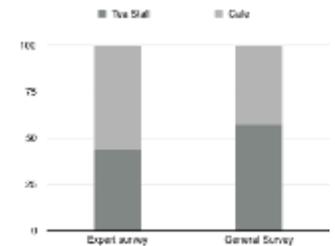| Percentage	Expert Survey	General Survey
Tea Stall	44	57
Cafe	56	43

Fig. 4 Micro-Spatial Significance

The second attribute of consideration was larger congregation or recreational spaces such as parks and incidental open spaces, which are generally used for social interaction and walks. Such spaces have been a part of the city morphology and have served as places for human interaction. It has been observed that 74% of the people prefer using these recreational spaces to other forms of public recreational facilities such as cinema theatres and malls. In this case, 79% of the experts prefer parks and other open spaces to the built recreational environments such as malls and theatres. It is observed that larger congregation spaces have greater significance and use for the public and has less probability (21-26%) of being replaced with designed recreational and congregational spaces such as malls and cinema theatres.

TABLE 2: SIGNIFICANCE OF RECREATIONAL SPACES

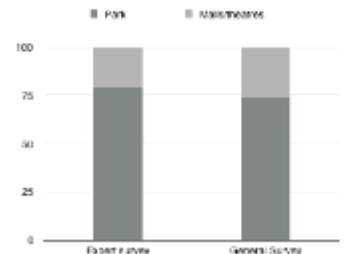| Percentage	Expert Survey	General Survey
Public Parks	79	74
Malls/Theatres	21	26

Fig. 5 Significance of public parks vs. malls or theatres

The next socio-cultural attribute taken into consideration includes minor religious entities along streets and pavements. The survey has revealed that about 56% of the general public feel that these socio-religious entities are an essential part of the urban fabric of their cities and must not be altered or demolished. However, the 57% of the experts believe that these entities are a hindrance in the urban fabric and they need not be retained in all cases. In this case, it is observed that there is a mixed opinion and no definite conclusion can be drawn on a general basis. This result is an outcome of the wide diversity of people belonging to different religious and socio-cultural backgrounds and is purely a subjective and region-specific condition that constitutes the characteristics of the urban tissue in consideration.

TABLE 3: SIGNIFICANCE OF SMALL RELIGIOUS ENTITIES

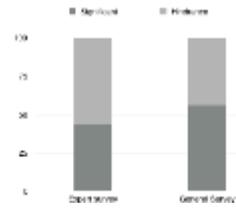| Percentage	Expert Survey	General Survey
Culturally Significant	43	56
Hindrance in Urban Fabric	57	44

Fig. 6 Significance of Religious Entities

In the case of markets, it was observed that 71% of the people preferred to purchase their daily food supplies from the existing traditional markets to the newly built supermarkets and groceries. The observations show that traditional markets continue to hold a higher significance in the Indian context as compared to supermarkets and groceries. The presence of such markets plays a major role in the micro-economic cycle within urban pockets of the city and also provide a symbolic space for informal public interactions.

TABLE 4: SIGNIFICANCE OF TRADITIONAL MARKET SPACES

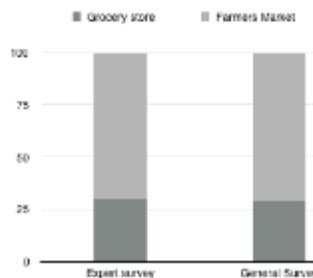| Percentage	Expert Survey	General Survey
Grocery Store	44	57
Farmers Market	56	43

Fig. 7 Significance of traditional market spaces

The next part of the survey recorded the public opinion for the quality of traffic control and connectivity within the various cities of the country. On a scale of 1 to 5 (1 referring to the least preferred value) the following results were recorded:

TABLE 5: QUALITY OF TRAFFIC/CROWD CONTROL

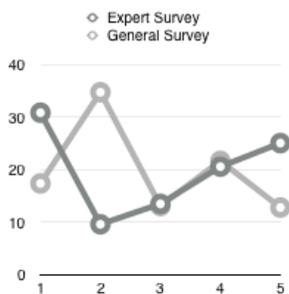| Score given by number of people	Expert Survey	General Survey
1	30.9	17.4
2	9.6	34.8
3	13.5	13.1
4	20.6	21.7
5	25.1	12.8

Fig. 8 Traffic/Crowd control rating (x-axis) vs. Percentage of people (y-axis)

It has been observed that a majority of the people has given a score of 2(poor) for the quality of traffic control in their cities in general. An expert opinion survey in this case shows a majority score of 1(very poor). Thus, a correlation between the two sets of opinion shows that in most Indian cities with an existing built fabric, traffic control and connectivity is weak. The possible reasons for the same may be due to the increasing population in these cities and the lack of opportunity for physical expansion beyond the existing built fabric. In such

cases, the feasibility of retaining traditional entities and socially responsive spaces becomes quite low.

The survey has also accounted for the opinion of the people regarding "chances of migration" on a similar scale of 1 to 5. In this case, while the experts majorly provide a score between 2 and 3 (low to moderate chances of migration), the general opinion ranges from a score of 3 to 5 (moderate to very high). Thus, interestingly, the degree of satisfaction for the local people living in their respective towns or cities in India is relatively low when compared to the observations and predictions made by experts in the field.

The following graph illustrates this observation:

TABLE 6: CHANCES OF MIGRATION

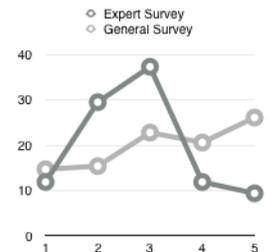| Score given by number of people	Expert Survey	General Survey
1	30.9	17.4
2	9.6	34.8
3	13.5	13.1
4	20.6	21.7
5	25.1	12.8

Fig. 9 Migration possibility score (x-axis) vs. Percentage of people (y-axis)

Thus in a nutshell, it has been observed that majority of people prefer using the elements of the traditional built fabric such as tea stalls, parks, markets and religious entities along streets and pavements and would opt to retain their existence in the urban fabric of their cities. However, the issues of traffic control and connectivity in most Indian cities and the urban living conditions do not reach a satisfactory level for the general public to choose against the idea of migrating elsewhere.

A. *Phase II – Detailed Survey:*

This survey was conducted at a microscopic level in Bheemunipatnam in Visakhapatnam, Andhra Pradesh. Four attributes, namely, present activity level, cultural significance, economic significance and ease of accessibility, were analyzed with the help of a Likert scale of 1 to 5(1 referring to the least preferred value). The following results have been recorded for a farmer's market and the clock tower located in the area:

TABLE 7: PRESENT CASE SCENARIO IN THE FARMERS MARKET

Activity Level	4
Cultural Significance	4
Economic Significance	5
Ease of Accessibility	4
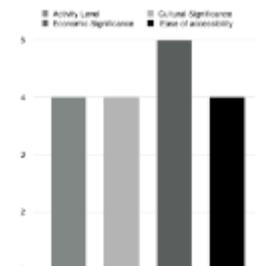
Fig. 10 Parameters of subjective survey

TABLE 8: PRESENT CASE SCENARIO AT THE CLOCK TOWER

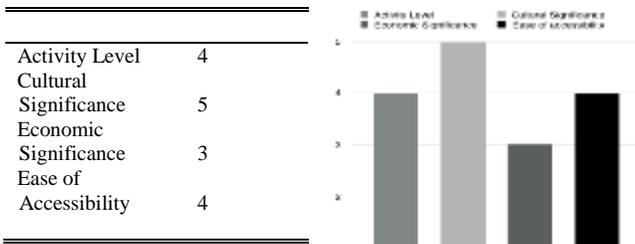|	
Activity Level	4
Cultural Significance	5
Economic Significance	3
Ease of Accessibility	4

Fig. 11 Parameters of subjective survey

It has been observed that for both, market area and the clock tower, there is a high level of activity (earning an average score 4 out of 5) that takes place on a daily basis. Their socio-cultural value in the region is also observed to be high (scoring 4 to 5 in the Likert scale). Economically, the market area still serves as the means of livelihood for many local farmers and fishermen and is of very high significance in the region. However, the clock tower scores moderately (3 in the Likert scale) in terms of economic significance it only serves as a space for limited economic activity during evenings. According to the local population, there is negligible hindrance in terms of accessibility and is a preferred area for congregation and local level economic activities making it an essential socially relevant pocket within the urban fabric of Visakhapatnam City.

In this micro-level analysis, it is observed that the significance of the urban tissue is relatively higher and plays a vital role for the stakeholders, both economically and socio-culturally. While the clock tower still retains its symbolic value, its purpose has adapted to serve as a moderately used congregation space with limited economic activity. On the other hand, the market area continues to serve its former purpose with minor adaptations in spatial characteristics and order. Thus, it shows that the existing socio-cultural attributes at the microscopic level may not, in all cases, be subject to spatial alterations when the stakeholders prefer to continue living in the existing social fabric despite occurring or predicted constraints.

V. CONCLUSION:

The socio-cultural layer of urban design plays a vital role in the development of the urban structure of any city. The results of the survey have shown that the socio-cultural elements ranging from vendor or tea stalls to the "chowks", "ghats" or traditional open market areas, contribute to the development of unique urban tissues in Indian cities. The combination of all the urban tissues in turn shapes the city character and morphology over time.

The identification of these attributes and their integration into the urban fabric is no doubt preferred to the development of an entirely new city with no traces of the existing built fabric. However, in the present existing built fabric of most Indian cities, the quality of life according to the general public opinion is compromised due to lack of amenities, infrastructure and traffic congestions. In many cases, these issues become a cause of migration for people. The growing population and the adoption of westernized lifestyles are often too rapid for the old Indian cities to adapt and they become over-crowded,

congested and inefficient as none of the socio-cultural attributes are actively used as they were in the past.

In some cases however, the existence of such socio-cultural attributes ensure the steady functioning of the region such as in the case of the urban pockets of the Brahmapuri settlement of Jodhpur, Rajasthan. So has also been observed through a detailed survey in the case of traditional markets and the clock tower of Bheemunipatnam in Visakhapatnam, Andhra Pradesh.

In such conditions, it is seen that the identified socio-cultural attributes hold greater significance for the stakeholders than other factors such as accessibility, footfall, public amenities and changing trends in lifestyle patterns. Thus the conservation of traditional architectural spaces and symbolic structures becomes an essential parameter of consideration for future design interventions and master plan developments.

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