Status of Childrens Outdoor Play in Urban Settings-Casestudy -Nagpur [Maharashtra, India]

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Abstract The built environment is a material, spatial and cultural product of human labor that combines physical elements and energy in forms for living, working and playing. It has been defined as “the human-made space in which people live, work, and recreate on a day-to-day basis”. The “built environment encompasses places and spaces created or modified by people including buildings, parks, and transportation systems”. Apart from the standards of neighborhoods and their delineation, residential built environments are also based on resident’s perception. It is multi-dimensional, dynamic changing with time, space, social groups, technology and lifestyle. Residential built environment also denotes the integrated built context in which individuals live. The study investigates the quantitative aspects of the residential built environments in the city of Nagpur. The paper brings forth the barrier between the perceived and real aspects of the shrinking playable spaces in the residential built environments. It also tries to understand the children’s perception of the play spaces in their neighborhoods. A variety of methods have been used to collect data which included literature survey, research review, observation survey and children’s interviews. The study assessed how children perceived their neighborhood built environment and play provisions offered and identifies their preferences for a range of play opportunities that can be established by community and peoples participation.

Keywords: residential built environment, neighborhoods, resident’s perception, children, value of play


1. Introduction

Residential environment stands for physical and social space referred to in subjective feeling and in the behavior of its residents that includes any population group or physical environment referred to by residents. Resident’s opinions about their neighborhoods offer important insights. They shed light on which aspects of the setting have a greater impact on the overall residential environment satisfaction.

The concepts unify the social and physical environment with value added spaces, emphasizing on the components of a satisfying social climate which also depends on social mix of people. As regards the residential satisfaction studies, man being a social animal, the satisfaction with the sub-domain as, social interactions is the most significant component of overall residential satisfaction and designs, polices and strategies that can encourage it need be put to further research. As the sense of place may be attributed to the physical layout of neighborhoods priority may be given to children and youth which stand as the marginalized segment of the society but children are our most important assets and our future.

In the researches on residential built environments done by (Parkes et al.2002), (Pinquart& Burmedi 2004), (Karsten et al.2006), (Pandey.R & Bharat.A et al.2010), people at large have been addressed to with the concerns for children in residential built environments being neglected. Childrens main activity being play, neighborhoods designs of formal and informal open play spaces need to be reinforced.Children's satisfaction with safety and play in a neighborhood contributes to the social environment and a major part in the residents overall satisfaction.In the Indian context the norms relating to children and informal open play spaces in neighborhoods needs its due attention as we design for the future and children stand as our society’s future (Bhonsle &Adane et al.2014).
This paper tries to show the study of neighborhoods in Nagpur. There are the quantitative and the qualitative aspects of the neighborhoods. The quantitative aspects included area, population, density, roads, parking, housing, and land use, open spaces, parks and playgrounds, public utility, play space frontages etc. were studied for the eight neighborhoods in the eight zones of Nagpur. In the qualitative aspects, the children were interviewed for their level of satisfaction with their neighborhoods play provisions as it is their fundamental right to play and if the neighborhood caters to it or not.

2. Objectives

The objective of this study is to identify issues affecting the residential built environments for children’s well being in Nagpur. The research intends to understand the effect of residential built environments on the satisfaction levels in youth and children while studying the child activity routine of the case study area. And finally to study children aspirations from their neighborhoods and creating development guidelines for child friendly spaces in residential built areas.

3. Methodology

A brief of the methodology that will be followed in the research analysis includes, Observation survey which has the categorization of open space, distance from center of neighborhood to neighborhood parks, open space infrastructure, park activity and usage, sidewalks, housing design, street width and parking design. Primary survey with Children of age group 7-12 years – this includes the mode of travel to play areas, frequency of visit, children go accompanied or unaccompanied with elders, purpose, preferred distances and their satisfaction with the available play areas. The Comparative study and the overlay of data collected to draw conclusions and generic parameters.

4. The Case Study

Nagpur is centrally located and well connected to major cities in India by air, rail and road. The total area of Nagpur Municipal Corporation is 21,756 hectares with population 2405420; Census 2011. The city enjoys the richness of the different typologies of segregated and mixed landuse. The old areas has vibrant mixed use environment that have evolved over time like Mahal and Satranjpura. The commercial or employment center (Central business district (CBD) and sub CBD) has dominant commercial landuse. These areas have high land and rental value making it non feasible for pure residential use so mixed land use leads to other uses like Itwari, Dhatoli and Gandhibagh. There are planned and semi-planned areas with a balance of residential and non residential activities, thus attracting the residents to be the part of these areas like Nehrunagar and Hanumanagar. There are planned segregated residential areas known as civil lines designed for automobile and not for pedestrians, but they form the greenest part of the city. The last type is the sprawl areas in the suburb planned or unplanned plotted development with residential development like Asinagar.

Neighborhoods provide both residential & non-residential functions through a built environment thus; eight neighborhoods were selected randomly from the eight zones of the city. They have variation in the land use,
spatial distribution, travel habits and socio-economic character. Neighborhoods were randomly selected from the 8 out of 10 zones of Nagpur city as each zone has a character and suitability with the present and potential use of land and building. The division of zones has facilitated transport, water supply, sewerage, schools, parks etc. Each zone intends to promote health and general welfare and works towards giving a quality of life to its people.

Figure 3. Shows the zone map of Nagpur city. Source – Nagpur Municipal Corporation

<table>
<thead>
<tr>
<th>Zones</th>
<th>Name of zone</th>
<th>Density pph</th>
<th>Area density ha/1000p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Laxminagar</td>
<td>72</td>
<td>0.62</td>
</tr>
<tr>
<td>2</td>
<td>Dharampeth</td>
<td>35</td>
<td>1.75</td>
</tr>
<tr>
<td>3</td>
<td>Hanuman nagar</td>
<td>97</td>
<td>0.47</td>
</tr>
<tr>
<td>4</td>
<td>Dhanoli</td>
<td>181</td>
<td>0.48</td>
</tr>
<tr>
<td>5</td>
<td>Nehrunagar</td>
<td>213</td>
<td>0.16</td>
</tr>
<tr>
<td>6</td>
<td>Gandhibagh</td>
<td>396</td>
<td>0.03</td>
</tr>
<tr>
<td>7</td>
<td>Satranjpur</td>
<td>430</td>
<td>0.05</td>
</tr>
<tr>
<td>8</td>
<td>Lakadganj</td>
<td>103</td>
<td>0.25</td>
</tr>
<tr>
<td>9</td>
<td>Ashinagar</td>
<td>139</td>
<td>0.54</td>
</tr>
<tr>
<td>10</td>
<td>Mangalwari</td>
<td>98</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Table 2. Shows neighborhoods selected in 8 zones

<table>
<thead>
<tr>
<th>S.no.</th>
<th>Zones</th>
<th>Name of zone</th>
<th>Neighborhoods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Laxminagar</td>
<td>Ramdaspath</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Dharampeth</td>
<td>Ravinagar</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Hanuman nagar</td>
<td>Hanuman Nagar</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>Gandhibagh</td>
<td>Chitnispark</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>Satranjpur</td>
<td>Shantinagar</td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>Lakadganj</td>
<td>Vardhamanagar</td>
</tr>
<tr>
<td>7</td>
<td>9</td>
<td>Ashinagar</td>
<td>Budhanagar</td>
</tr>
<tr>
<td>8</td>
<td>10</td>
<td>Mangalwari</td>
<td>Byramjitown</td>
</tr>
</tbody>
</table>

Table 1. Zones in Nagpur city from N.I.T. office

Graph 1. % area of zone in Nagpur city

Out of the 10 neighborhoods 8 were taken up for the studies and 2 were kept aside for the validation of the results and establishing a corollary. The average size of the neighborhoods selected is approximately 422418.65 sq.m. And the range varies between 208860 to 659310 sq.m. Mostly the neighborhoods are defined by the major roads enclosing them taking roads as edges.

Photograph 1. Roads and houses at the Budhanagar residential area (source – N.I.T., Nagpur)
4. a] Asi Nagar is a part of the sub-CBD with medium rise medium density development pattern. It has population density 255 persons per hectors with high commercial use only at the periphery major road. It’s a planned plotted development dated back to fifty years dominated by a single religious group (Buddhist) with adjacent neighborhoods of Punjabis (Sikh) and Muslim. Each of these neighborhoods has their own open spaces, religious and institutional structures.

4. b] Byramji town residential area is in the mangalwari zone with a density of 98pph.it is marked by large plots, narrow streets and on-street parking. It has mostly the rich business class Punjabi and Marwari families. Along the edges the neighborhood has commercial activities with very less parks for children and in the layout.

4. c] Chitins park residential area is the center of the old city established during the reign of Gond and Bhonsla kings of Nagpur. It is marked by low rise; high density neighborhood with narrow streets. This is close to main markets, bus stands and railway station too.
4.d] The area of Hanumanagar has come as a supportive residential area and a locality for the teaching staff at various schools and colleges nearby like GMC established in 1947, Mohota science college [1949], Pandit Bachharaj school [1962], Krida vidyalaya [1960] etc. in close proximity to the neighborhood. The selected area has 651 plots and a population of approximately 8510 and the density being 294 pph.

4.e] Ramdaspeth area is marked by large plots and parks and wide streets with very less on street parking. It has low rise low density development which is now converting to the high rise high density neighborhood with the plots being taken over by the developers and having apartment schemes due to the central location of the neighborhood. It has educated and upper middle class families with the density of population being 72 pph. This area is surrounded on edges by commercial and medical facilities.

4.f] Ravinagar has the police quarters and housing for the government officials and is established after independence and has low density, low rise development with large, unutilized open spaces at times used for traffic movement. The density of population is 35 pph.

4.g] Shantinagar area has low rise high density residential development with small size plots, on street parking. It houses mostly the Punjabi, Sindhi, Muslim and Maharastrian families belonging to middle class business and service sector with density at 430 pph.

4.h] Vardhamanagar residential area under study.
Photograph 8. Houses, streets with footpaths and parking at the Vardhamanagar residential area

4.h.] Vardhamanagar residential area has large plots and has the business class Marwari, Jain and Maharastrian families. The neighborhood is secluded with very few other land uses apart from residential has wide streets and parks and open spaces which tend to be vacant during afternoon and night encouraging anti-social activities. Such areas lacking natural surveillance in suburbs are more vulnerable to theft and physical assault especially for single occupants, children and elderly persons despite of each street having large gates at entry and exit.

Graph 3. Comparative study of % of roads in each neighborhood

Graph 4. Play area in % in each neighborhood

5] Observations - The study of the available road networks in the neighborhoods show that on an average the percentage of roads to neighborhoods in Nagpur is approximately 26.91%. The study of the available playable spaces in the neighborhoods show that on an average the percentage of play spaces to neighborhoods in Nagpur is approximately 9.42% which should be 18-20% of the neighborhood area as per the planning standards. More so they are ill maintained with only play equipments as the only opportunity or variety or type of play provision made available to children in neighborhoods ruling out other types of play among children like adventure play, exploratory play, etc.

Graph 5. Comparative study of Housing typologies

Graph 6. Parking provisions in each neighborhood

Housing typology in most of the neighborhoods show a drift from detached, semi-detached to apartment housing with parking at the ground floor and residences above,
which again is ruling out possibilities of children playing within plots and shrinking doorstep play spaces for kids as terraces on upper floors may be risky for children to play. Even in most of the neighborhoods, the detached or semi-detached houses show some type of commercial activity in the form of shops taking the road frontages again reducing the play spaces for children.

With more of streets in neighborhoods dominated by 2 wheelers movement, again presents the provision of increase in on-street parking of 2 and 4 wheelers again hindering the pedestrian movement and provision of doorstep playable spaces for children in neighborhoods. The on-street parking is around 50-53% of road areas of the neighborhoods in Nagpur.

**Graph 7. Comparative study showing plots with park frontages in each area**

**Graph 8. Landuse distribution of each neighborhood**

![Graph 8. Landuse distribution of each neighborhood](image)

The study of the percentages of plots in neighborhoods having closest accessibility to playable spaces and abutting them show that on an average its percentage is 10.56 of the overall area of neighborhood and enjoying park frontages and can afford to send their children unaccompanied for play accounting for free unstructured play.

All the studied neighborhoods in the various zones of Nagpur were seen to be governed by the roads for circulation i.e. 2 wheelers movement within neighborhoods. The frequency of the 2 wheelers is more than the pedestrian movement and the percentage of roads which should be 15-20% as per the UDPFI and TCPO standards is as high as 26.91%.

### 5. Results and Discussions

Linear range specified signifies the band width for the quantitative parameters in any neighborhood in Nagpur.

<table>
<thead>
<tr>
<th>S.no</th>
<th>Quantitative Parameters</th>
<th>Linear Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Road networks</td>
<td>24-28% of area of neighborhood</td>
</tr>
<tr>
<td>2</td>
<td>Play spaces</td>
<td>9-11% of area of neighborhood</td>
</tr>
<tr>
<td>3</td>
<td>On street Parking spaces</td>
<td>50-55% of road area of neighborhood</td>
</tr>
<tr>
<td>4</td>
<td>Play space frontages</td>
<td>8.5 – 11.5% of area of neighborhood</td>
</tr>
<tr>
<td>5</td>
<td>Public utility</td>
<td>11-15% of area of neighborhood</td>
</tr>
<tr>
<td>6</td>
<td>Density</td>
<td>150-300pph</td>
</tr>
</tbody>
</table>

The table clearly shows that the age old techniques of land use planning of the cities and layout is no more holding appropriate in the present times. This points to the need of having pedestrian friendly design of streets or reconsider the design of neighborhood streets. Residential neighborhood with commercial mix on the periphery road and other institutional mix tends to be more active and has better quality of life thus are socially sustainable.

Another important observation is that accessibility to play spaces is not necessarily a function of percent of road network and which will further be validated by the space syntax software. Design of layouts should be such that they give plots better frontages to play spaces.

### 6. Conclusions

With the existing condition of play spaces in the neighborhoods of Nagpur, it is time now to take due cognizance of the situation in planning the neighborhoods in cities and act upon the solutions involving citizens in partnership with authorities towards well maintained and
accessible play provisions for the overall wellbeing of our future our children.

Acknowledgements

I would like to thank my guide Dr.V.S.Adane and review progress committee members Dr.R.S.Kotharkar and Dr.R.Ralaegaonkar from V.N.I.T.,Nagpur for their guidance and support. I am also grateful to Prof. Gadkari, Prof.Purohit, Prof.Gujarkar and my seniors and colleagues at IDEAS, Nagpur for all their encouragement and goodwill.

References