Chapter 3

METHODOLOGY

The present study aims at investigating the level of crowding experienced by persons living in independent houses and those living in multi-storey apartments. Difference in social behaviour as exhibited by the two groups of residents is also a subject of this research.

LOCALITY

A particular locality within Guwahati city was selected for the research. The locality chosen was the Rehabari area comprising of wards 17, 21 and 22 of the Guwahati Municipality. This locality was chosen because it has both independent houses and multi-storey apartment buildings.

This characteristic was important because all areas within Guwahati do not have both types of housing and the houses of this study were selected from only one particular area to keep the outside density constant.

Rehabari is also a typical urban area characterized by relatively intense use of land due to its proximity to the business centres of the city, as shown in figure 3.1. The
population of Rehabari, according to the 1991 census is 26,150, while the area covered is 261 acres or 1056229.4 sq. metres. The density of Rehabari is, therefore 40.39 sq. metres/person or 434.75 sq. feet/person.

This locality is both residential and commercial. It is one of the old settlements of Guwahati and, therefore, some very old houses with large boundaries are present there along with smaller independent dwellings. As the area is close to the urban core, the commercial value of land is high. Apartment buildings have come up as a relatively recent development, using land more intensively to meet residential demand.

The main road running through the area (A. K. Azad Road) forms a major arterial for traffic from other parts of the city too. As such, it is one of the busiest areas at certain hours. Smaller lanes leading to inner areas, however, have lighter traffic flow.

SAMPLE

The sample of this study was selected in terms of households. In all 200 households were studied, of which 100 resided in independent houses and 100 in apartment buildings. After arbitrarily dividing the whole locality into east, west, north and south, 50 households (25 independent house and 25 apartments) were randomly selected from each direction.
The total sample consisted of 597 individuals (306 independent house dwellers and 291 apartment dwellers). All were above the age of 18 years as all adult members of each family/household were included in the sample. In a few cases, the very old members of the household were not included as their mental faculties showed some impairment.

The independent houses consisted mainly of Assam-type or concrete houses with an independent compound varying from small passages of space around the house to larger boundaries with lawns and garden. Some independent houses were double storied and concrete but housing only one family.

The apartment buildings were actually low-rise multi-family housing. The number of floors varied from 6 to 8 with all the buildings having lifts. Each building also had one entrance for access to the numerous apartments. Number of apartments varied from 12 to 29 per building.

The sample was further differentiated into two density levels comprising of high and low inside density. Putting both types of housing together, inside density of each residence was calculated on the basis of area per person. The densities were then divided into high and low density by taking the median as the cut off point. Those above median were low density and those below median were high density. The inside spatial density of the high density group thus ranged from 11.11 sq. feet/person to 175 sq. feet/person while that of the low density group ranged from
175.5 sq. feet/person to 900 sq. feet/person.

Two income levels were also identified. There was one group of subjects who paid income tax and another group that did not pay income tax.

MATERIALS USED

The following tools were used in measuring the different factors under study in the present research.

1. Personal Data Sheet.

This was included to gain information pertaining to age, sex, area of the house, ownership, number of inhabitants, duration of residence etc.

2. Feeling of Crowding Questionnaire.

An English version of the Feeling of Crowding Questionnaire developed by Dr. U. Jain (1984) was used to measure feeling of crowding. The questionnaire consisted of eighteen items, each item having five alternative responses ranging from the statement applying fully to the respondent to it not applying at all. In case of negative items the order was reversed. Higher scores represented greater feeling of crowding and vice versa. Validity indices obtained are greater than .20.
3. Environmental Response Inventory.

The Environmental Response Inventory (ERI) has been developed by George E. McKechnie (1974). It measures environmental disposition —— individual differences in the ways people think about and relate to the everyday physical environment. The ERI consists of 184 statements comprising 9 scales.

These scales are ---
1. Pastoralism
2. Urbanism
3. Environmental Adaptation
4. Stimulus Seeking
5. Environmental Trust
6. Antiquarianism
7. Need Privacy
8. Mechanical Orientation
9. Communality

The subjects had to respond to each item by giving them a score ranging from 1 to 5, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree. From these scales, only five are used in the present research as they seemed more relevant to the study. The five scales are ---
1. Urbanism (UR). Enjoyment of high density living; appreciation of unusual and varied stimulus patterns of the city; interest in cultural life; enjoyment of interpersonal richness and diversity.
2. Environmental Adaptation (EA). Modification of the environment to satisfy needs and desires, preference for high designed or adapted environments.

3. Stimulus Seeking (SS). Interest in travel and exploration of unusual places; enjoyment of complex and intense physical sensations; breadth of interest.

4. Environmental Trust (ET). General environmental openness, responsiveness, and trust; versus security of home; fear of being alone and unprotected.

5. Need for Privacy (NP). Need for physical isolation from stimuli; enjoyment of solitude; dislike of neighbouring; need for freedom from distraction.

All these five scales are of fully acceptable reliability, the split-half and Test-Retest reliabilities being quite high.

<table>
<thead>
<tr>
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<th>Split-half(r)</th>
<th>Test-retest(r)</th>
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<tbody>
<tr>
<td>UR</td>
<td>.75</td>
<td>87</td>
</tr>
<tr>
<td>EA</td>
<td>.75</td>
<td>86</td>
</tr>
<tr>
<td>SS</td>
<td>.87</td>
<td>90</td>
</tr>
<tr>
<td>ET</td>
<td>.77</td>
<td>81</td>
</tr>
<tr>
<td>NP</td>
<td>.74</td>
<td>86</td>
</tr>
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</table>

The validation of the ERI scales was carried out on two fronts; First, studies elucidating psychologically specific environmental data were carried out. Second, studies of the underlying personality dynamics involved in the scales, achieved
through correlation of ERI scales with standard assessment measures. The correlations obtained differed significantly from zero at or beyond the 0.05 level of confidence.

Norms of the ERI in the form of derived scores, are available for two samples, an unselected adult group \((N = 1565)\) and a college student sample \((N = 939)\). These samples, however, were comprised of American and Canadian residents. Though these can be used for research purposes, local norms too need to be developed.

Scoring was computerized following the scoring instructions given in the manual. In such a manner five scores pertaining to the five scales were obtained.

4. Alienation Scale.

This scale has been developed by R. V. Patil (1989). It consists of 20 items followed by three alternative answers -- YES, UNDECIDED and NO.

The reliability of the scale is quite high. Split-half reliability was found to be \(0.88\) \((N = 108)\), while test-retest reliability was found to be \(0.82\). All these values are highly significant at 0.01 level of confidence.

Validity was established through correlation with other alienation scales. The coefficient of correlation of the scale
with Reddy’s Alienation Scale is .76 and 'r' = .73 with the Kureshi and Dutt alienation scale (N = 100).

Norms have been provided in terms of percentiles for both males and females (N = 1392).

While scoring, a 'YES' response is assigned a value of three, 'UNDECIDED' is assigned a value of two and 'NO' a value of one. The higher the score, higher is alienation of the subject.

5. Altruism Test

This test has been developed by P. Jain (1989). It measures altruism which has been defined as "An act that offers help to another person." The test consists of 25 items; selected after extensive study and item analysis.

Reliability of the test is satisfactory with Guttman’s Split half reliability being .68 (N = 280) and Alpha reliability being .76 (N = 145).

The test was validated against Buss Durkee’s Aggression Inventory and Pal & Naqvi’s Aggression Inventory (N = 150 for each test) and correlation coefficients were - .47 and - .52 respectively.

Norms are provided in terms of raw scores for both male and female adults based on a sample of 1692 subjects.
As there are three alternative responses to each item ('agree', 'cannot say' and 'disagree'), the positive statements are scored 3, 2, 1 and the negative items scored 1, 2, 3. Summing up of these scores gives the Altruism score for the individual.

6. Social Behaviour Questionnaire

Additional information regarding social behaviour was gathered through the questionnaire, developed by M. Singh and L. Phookan (1991). This questionnaire involves an in-depth enquiry into the social behaviour of individuals with reference to their relationship with neighbours.

The areas included are interaction, neighbourhood cooperation, friendship and trust. These areas further included factors such as gossip / rumour, sacrifice, eating etc. All these behaviours were in relation to the individual's neighbours and consisted of different grades of personal involvement.

Interaction refers to the most superficial level of personal involvement and indicates factors such as recognition of neighbours, greeting neighbours in passing, etc. Neighbourhood cooperation includes behaviour where the subject invests time and personal resources in neighbourhood activities as a member of that neighbourhood and is thereby acquainted with neighbours. Friendship refers to social behaviour where there is one to one personal interaction characterised by a deeper level of involvement. Trust is characterised by behaviours where one is
willing to confide in and rely on another person and is the deepest level of personal involvement.

A copy of each of the tests is attached in Appendices a to f.

PROCEDURE.

The measurement tools were administered to the subjects. After the subjects gave their responses, the researcher met the subject and clarified any ambiguous or uncertain responses given by the subject. An intensive interview was also conducted to make sure that the subject's responses reflected his true behaviour.

ANALYSIS

Factorial analysis of variance was used to study the main effects and interactions between the three variables of residence, density and class. This method of analysis was applied on the scores of the four standardized tools by analyzing 2 x 2 x 2 tables as shown in table 3.1. The interactions studied were:

(I) Residence X Density
(II) Residence X Class
(III) Density X Class
(IV) Residence X Density X Class
Table 3.1. Subgroups studied through Factorial Analysis of Variance.

<table>
<thead>
<tr>
<th></th>
<th>Independent House</th>
<th>Apartment</th>
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<tbody>
<tr>
<td></td>
<td>High Density</td>
<td>Low Density</td>
</tr>
<tr>
<td>Pay Income Tax</td>
<td>N = 42</td>
<td>N = 70</td>
</tr>
<tr>
<td>Not Pay Income</td>
<td>N = 104</td>
<td>N = 90</td>
</tr>
</tbody>
</table>

Following analysis of variance, the t-test was applied to the means of interactions which had significant F-ratios. This was carried out to determine which cell means differed significantly from each of the other.

Further, in order to study the responses of the subjects on the Social Behaviour Questionnaire, non-parametric statistics were applied. The social behaviours pertain to interaction, neighbourhood cooperation, friendship and trust. The subjects were classified with the help of contingency tables and test of independence (χ²) was applied and contingency correlations worked out.

The results thus obtained are presented in the following chapter.