CHAPTER-III

METHODOLOGY
Chapter-III

METHODOLOGY

Methodology and procedure:

Knowledge of the research methodology is essential for all those who either take an active role in the conduct of research or desire to keep themselves abreast of the new developments in education. Research has proved to be an essential and powerful tool in leading to man's progress. Methodology reflects the authenticity and vividness of the whole research work. A well organized and sound methodology directs and leads the investigator to where she/he desires to reach.

A brief description of the methodology and procedure followed in the present study is given in this chapter. For the present study 'Descriptive Survey Method’ is used. Descriptive Survey Method is the most commonly used research method in education which tries to highlight the conditions and relationships that exists, opinions that are held by the major stakeholders of education.

This chapter mainly deals with the following major aspects

1) Population
2) Sampling
3) Data Collection

4) Statistical technique of the data

**Population**

A population is the total of all the persons about whom the information is desired. According to Guild Ford the term ‘Population’ includes all sets of individuals, objects or reaction that can be described by having a unique combination of qualities. The population of the present study consists of 1st year, 2nd year and 3rd year degree course Arts & Science students’ studying in the colleges under Gauhati University of Assam. It included both male and female students of both the stream of Govt/fully Provincial colleges under Gauhati University.

3.1 **Design of the study:**
3.2 Delimitation of the study

The study is delimited to the college students of both urban and rural colleges under Gauhati University, Assam.

3.3 Universe of the study

There are 239 nos of affiliated colleges to the Gauhati University as on April/2009. Out of which 101 nos are Provincial colleges and 2 nos are Govt. colleges. (List of college is given in the Table-3.1) (Annexure-I).

Among the 103 nos Colleges 44 nos are in urban area and 59 nos are in rural area (List of college is given in the Table- 3.2 & 3.3) (Annexure-II & III).
In the Urban area out of 44 nos colleges 32 nos College has the science steam and 40 nos colleges has the Arts stream (List of college is given in the Table-3.4 & 3.5) (Annexure-IV & V).

Similarly in rural area, out of 59 nos colleges only 20 nos colleges has the science stream and all 59 nos colleges has the Arts steam (List of college is given in the Table- 3.6 & 3.7) (Annexure-VI & VII).

3.4 Sampling

A sample is the small proportion of the population selected for observation and analysis (Best, 1981). By observing the characteristics of the sample, one can make certain inferences about the characteristics of the population from which it is drawn.

Sampling is necessary where population is large, where they are relatively inaccessible, and where the cost per unit of information is high. A sample is biased if all elements of the population do not have equal opportunities to be selected.

A sample selected from the population must be representative, adequate and free from bias, so that the data gathered from this source can provide reliable estimates and inferences about the characteristics of the population that are studied.
For this study random sampling technique was applied. On random selection of a college, it is also taken care of that entire District under Gauhati university area may consider.

In order to minimize the inter sample and intra-sample variability between the Arts and Science students, male and female students in the comparison area, the college where both Science and Arts stream available are selected as far as practicable.

Sample

Though the nature of the study was only on college students, but it is differentiated by Urban & Rural, Arts & Science and male & female student.

For the present study, multistage stratified random sampling technique has been used, where the first-stage sampling units are the rural and urban colleges and they differ in size, measured by streams (Arts and Science). In this situation, the first-stage sample is obtained by sampling method with probability proportional to size (PPS). (Fig. No.-3.1 & Fig. No.-3.2)
Fig no.-3.1: Percentage wise selection of colleges from rural area

- Rural
  - Total Colleges (59 nos.)
    - Only Arts Colleges (39 nos.)
    - Arts & Science Colleges (20 nos)
      - College Selected 40% (23 nos.)
    - Only Science Colleges (nil.)
      - Science Stream College (20 nos.)
      - College Selected 40% (8 nos.)
Fig. No.-3.2: Percentage wise selection of colleges from urban area

From the above figure, the universe of the study consists of 39 nos. of colleges, out of which 16 nos. are in urban area and 23 nos. are in rural area. District-wise location of both the rural and urban colleges along
with the name, stream and sample collected from male or female students are put forward in the table-3.8.

The situation of the college is indicated in the map of Assam within the area Gauhati University.

From the selected colleges (first-stage sampling units) second-stage sampling units (students) are obtained by using the simple random sampling technique. A uniform sampling fraction of five male and five female students from each stream i.e Arts & Science are randomly selected from the selected colleges.

The sampling breakage is shown in the Fig. No.-3.3 & Fig. No.3.4

**Fig no.--3.3: Sample breakage from rural area**
Accordingly a total of 600 students have been considered as sampling units for the study. Details of sample collection breakage are shown in the **Fig. No.-3.5, 3.5.a, 3.5.b, & 3.5.c.**

### 3.5 Tools

The following tools were constructed by the investigator as per requirement of the objective of the study –

1) Questionnaires were also prepared on Environment related questions for urban and rural college students in order to see their consciousness of environment for the **objective no.-1, 1(a), 1(b).**
# Table No.-3.8 : LIST OF THE SELECTED COLLEGES

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>District</th>
<th>Name of the college</th>
<th>Place</th>
<th>Stream</th>
<th>Area</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kamrup</td>
<td>B. Baruah college</td>
<td>Guwahati</td>
<td>A/S</td>
<td>Urban</td>
<td>M &amp; F</td>
</tr>
<tr>
<td>2</td>
<td>Kamrup</td>
<td>Cotton College</td>
<td>Guwahati</td>
<td>A/S</td>
<td>Urban</td>
<td>M &amp; F</td>
</tr>
<tr>
<td>3</td>
<td>Kamrup</td>
<td>Pandu College</td>
<td>Guwahati</td>
<td>A/S</td>
<td>Urban</td>
<td>M &amp; F</td>
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<td>B.P.Chaliha College,</td>
<td>Nagarbera</td>
<td>A</td>
<td>Rural</td>
<td>M &amp; F</td>
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<tr>
<td>5</td>
<td>Kamrup</td>
<td>Dakshin kamrup college,</td>
<td>Mirza</td>
<td>A/S</td>
<td>Rural</td>
<td>M &amp; F</td>
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<tr>
<td>6</td>
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<td>Dimoria College</td>
<td>Khetri</td>
<td>A/S</td>
<td>Rural</td>
<td>M &amp; F</td>
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<tr>
<td>7</td>
<td>Kamrup</td>
<td>J.N.College</td>
<td>Boko</td>
<td>A/S</td>
<td>Rural</td>
<td>M &amp; F</td>
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<td>Rural</td>
<td>M &amp; F</td>
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<tr>
<td>11</td>
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<td>Mangaldoi</td>
<td>A/S</td>
<td>Urban</td>
<td>M &amp; F</td>
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<td>A</td>
<td>Rural</td>
<td>M &amp; F</td>
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</table>
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<th>Area</th>
<th>Gender</th>
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<td>M &amp; F</td>
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<td>B.H.College</td>
<td>Howli</td>
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<td>Barpeta</td>
<td>A/S</td>
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<td>M &amp; F</td>
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<td>27</td>
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<td>Rural</td>
<td>M &amp; F</td>
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</table>
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<thead>
<tr>
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<th>District</th>
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<th>Place</th>
<th>Stream</th>
<th>Area</th>
<th>Gender</th>
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<td>M &amp; F</td>
</tr>
<tr>
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<td>Dhing College</td>
<td>Dhing</td>
<td>A</td>
<td>Rural</td>
<td>M &amp; F</td>
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<tr>
<td>38</td>
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<td>Raha College</td>
<td>Raha</td>
<td>A</td>
<td>Rural</td>
<td>M &amp; F</td>
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<tr>
<td>39</td>
<td></td>
<td>Dr B.K.B College</td>
<td>Puranigudam</td>
<td>A</td>
<td>Rural</td>
<td>M &amp; F</td>
</tr>
</tbody>
</table>

A = Art's    S = Science    M = Male    F = Female
Fig No.-3.5:- Total sample breakage.

Sample Colleges 39nos.

Urban Colleges 16nos.

Arts stream Colleges 16nos.

male 5x16=80 nos.

female 5x16=80 nos.

Science stream Colleges 13nos.

male 5x13=65 nos.

female 5x13=65 nos.

Rural Colleges 23nos.

Arts stream Colleges 23nos.

male 5x23=115 nos.

female 5x23=115 nos.

Science stream Colleges 8nos.

male 5x8=40 nos.

female 5x8=40 nos.

Total Sample =600 nos.
Fig No.-3.5.a :- Area wise total sample breakage.
Fig No.-3.5.b: Stream wise total sample breakage.

Sample Colleges 39 nos.

Urban Colleges 16 nos.

Arts stream Colleges 16 nos.
- Male: 5x16 = 80 nos.
- Female: 5x16 = 80 nos.

Science stream Colleges 13 nos.
- Male: 5x13 = 65 nos.
- Female: 5x13 = 65 nos.

Rural Colleges 23 nos.

Arts stream Colleges 23 nos.
- Male: 5x23 = 115 nos.
- Female: 5x23 = 115 nos.

Science stream Colleges 8 nos.
- Male: 5x8 = 40 nos.
- Female: 5x8 = 40 nos.

Total Arts Students = 390 nos.

Total Science Students = 210 nos.

Total = 600 nos.
Fig No.-3.5.c: Gender wise total sample breakage

Sample Colleges 39nos.

Urban Colleges 26nos.

Arts stream
Colleges 16nos.

male
5x16=80 nos.

female
5x16=80 nos.

Science stream
Colleges 13nos.

male
5x13=65 nos.

female
5x13=65 nos.

Arts stream
Colleges 23nos.

male
5x23=115 nos.

female
5x23=115 nos.

Science stream
Colleges 8nos.

male
5x8=40 nos.

female
5x8=40 nos.

Total male = 300 nos.

Total female = 300 nos.

Total = 600 nos.
1) Following Likert method, an attitude scale was constructed by investigator herself in relation to environment for the **objective no.-**

2, 2(a), 2(b).

**Description of the Tools**

**Questionnaire:**

A questionnaire is prepared to collect the data from the students with 20 nos. of questions each consisting of 1(one) mark. It is an important instrument for survey method in Research work. In the questionnaire set, the students were asked to give tick(\(^\vee\)) in the column marked ‘Yes’ if they agree with the question, and if they disagree with the question they were asked to give tick(\(^\checkmark\)) in the column marked ‘No’.

**Attitude scale:**

This is a Likert type of scale to know the attitude of the students regarding their environment. The scale is constructed on the basis of feeling about their environment to be expected from a student of rural and urban colleges.

The statements of the scale constructed in such a way that, about some of these a response of ‘agree’ indicates favourable attitude and the other some, a response of ‘disagree’ also indicates favourable
attitude. Students can give their response on a five point response alternatively such as

i) Strongly agree (SA)

ii) Agree (A)

iii) Uncertain (U)

iv) Disagree (D)

v) Strongly disagree (SD)

The scoring procedures of favourable items were decided as 5, 4, 3, 2, and 1 for the response SA, A, U, D, and SD respectively. It was decided to follow the reverse order for the unfavourable items i.e. 1, 2, 3, 4 and 5 for the response SA, A, U, D and SD. The sum of the item credits represented the individual's total score. The scoring of the individuals statements ranges between 31 and 155 with 93 as the neutral point. Hence, on the basis of the score, the results of the scale have been found out.

A Reliability Test was conducted to find out the Reliability and validity of the statements selected for the scale. The split-half method was applied to find out the test reliability.

In order to determine the validity of the scale a panel of experts was drawn and the attitude scale was distributed to them for their judgement. On the basis of satisfactory opinion from the experts the attitude scale is found to be valid.
Necessary instructions were given in the beginning of the attitude scale, so as to enable the students to answer the item properly and avoid inconvenience and misunderstanding.

3.6 **Data collection**

As per the design of the study, the principals of the colleges were approached with a letter explaining the purpose and nature of the study and requesting them to give the opportunity to collect the data from the student of the colleges. Accordingly, in consultation with the principal and nominated professors the date and timing were fixed for implementation of the attitude scale among the students, which were randomly selected from the college. The investigator had collected the data from the 39 colleges, covering entire District, under Gauhati University from September, 2009 till October, 2011.

At the very beginning of the discussion, it is made them clear that there is no question of examination; the only thing required from them is their response to the question. They are also asked to give the answer honestly and frankly without discussing with others.

3.7 **Statistical technique of the Data**

As the study is based on the criterion group design involving comparison of group performance, the statistical technique suited for the
purpose was t test. The computation of data was done through the most widely used computer package for analyzing quantitative data, known as the Statistical package for the social Science (SPSS).

3.8 Report of the Pilot Study

During the month of June, 09 to August, 09 the investigator conducted a Pilot study in 10 nos. of Colleges (5 nos from Urban & 5 nos from Rural) under Gauhati University, with a sample collection of 100 nos., to collect the first hand knowledge of students about environment and environmental awareness. Questionnaire method was adopted by the investigator for the collection of data for the Pilot study.

Sample distribution for the Pilot study was as given in the **table no.-3.9**

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
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<tr>
<td>Male</td>
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<td>25</td>
<td>50</td>
</tr>
<tr>
<td>Female</td>
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<tr>
<td>Total</td>
<td>50</td>
<td>50</td>
<td>100</td>
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</tbody>
</table>

Sample colleges for the Pilot study was as given in the **table no.-3.10**
Table no.-3.10

Sample colleges for the Pilot study

<table>
<thead>
<tr>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton College, Guwahati</td>
<td>Damdama College, Kulhati</td>
</tr>
<tr>
<td>Handique College, Guwahati</td>
<td>Suren Das College, Hajo</td>
</tr>
<tr>
<td>M.C.college, Barpeta</td>
<td>Saraighat College, Changsari</td>
</tr>
<tr>
<td>M.N.C Balika Mahavidyalaya, Nalbari</td>
<td>Bhawanipur Anchalic College</td>
</tr>
<tr>
<td>Nalbari College, Nalbari</td>
<td>Baosi Banikanta College, Nagaon</td>
</tr>
</tbody>
</table>

Findings of the Pilot study:

1) 53.59% Of Urban college students are aware about the environment and 46.95% of urban college students are not aware about the environment. Whereas 46.41% Of Rural college students are aware about the environment and 53.05% of Rural college students are not aware about the environment. It means that Urban college students are too some extent more aware than the Rural college students about the environment.

2) 51.24% of Male college students and 48.76% Female college students stated that they are aware to the environment and almost same (48.95% Male & 51.05% female) response for not aware towards environment.
3) The opinion of the urban college students towards the environmental condition is positive and the opinion of the Rural college students towards the environmental condition are negative. There is significant difference among them at 0.05 levels.

4) The opinion of both Male and Female college students towards the environmental condition is positive. There is no significant difference among them at 0.05 levels.

5) The opinion of both the Urban and Rural college students towards the environmental awareness is positive. There is no significant difference among them at 0.05 levels.

6) The opinion of both Male and Female college students towards the environmental awareness is positive. There is no significant difference among them at 0.05 levels.

***************