CHAPTER - III

METHODOLOGY

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The step-by-step procedure adopted to carryout the investigation is presented in this chapter under various sub-heads.

1. Research design
2. Conceptual framework of the study
3. Variables
4. Operational definitions
5. Development of the tool to collect data
6. Selection of the sample
7. Data analysis.

1. Research Design

The main purpose of the present investigation was to study homemakers' environmental concern in their buying, consumption and waste disposal behaviour. As it was an attempt to discover relationship between existing variables, descriptive research design was considered to be the most suitable one.

2. Conceptual Framework

The conceptual framework to study the environmental concern of homemakers in their buying, consumption and waste disposal behaviur is shown in the figure.

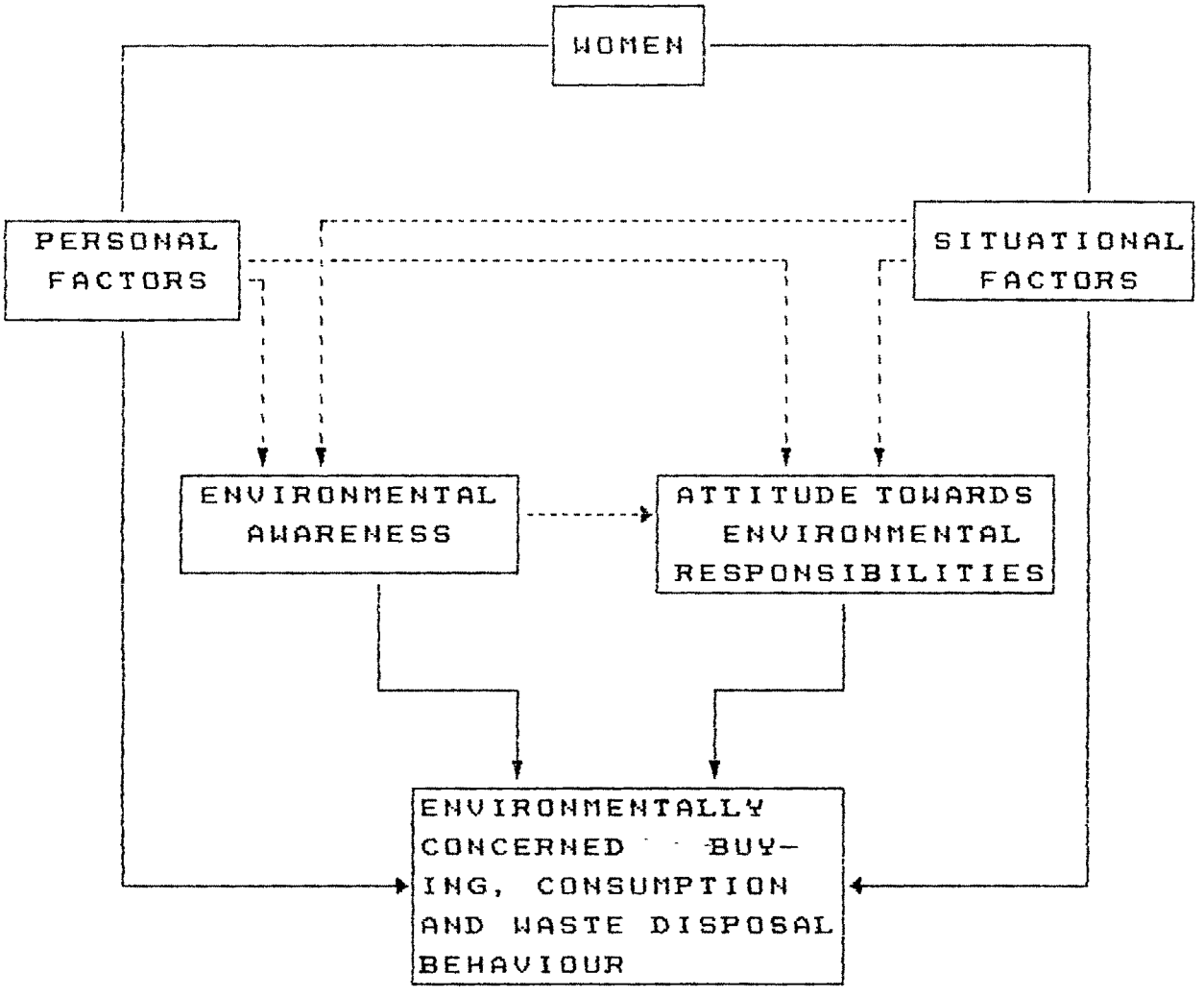

Fig.2a: Conceptual Framework to Study Environmentally Concerned Buying, Consumption and Waste Disposal Behaviour of Home-makers.

2.1 The components of Framework are :

1. Personal Factors
2. Situational Factors
3. Environmental Awareness
4. Attitude towards environmental Responsibilities
5. Environmental concern in buying, consumption and waste disposal behaviour.

2.2 It is theorized that the environntal concern in buying, consumption and waste disposal behaviour of individuals is influenced by certain personal and situational factors, their awareness towards environmental situation/problems and attitudes towards environmental responsibilities as consumers.

3. Variables Under Study

There are three sets of variables selected for the present research. The independent set of variables, acts through the intervening variables, as well upon the dependent variable directly. The intervening set of variables act as independent variables, so far as the dependent set of variables are concerned but act as dependent variable in relation to independent variable.

3.1 Variables under Consideration

Independent Variables

A. Personal Variables

1. Age of Respondent
2. Education of Respondent
3. Employment Status of Respondent.

B. Situational Variables

1. Family Income per month
2. Extent of use of sources of information.

Intervening Variables

A. Environmental Awareness

B. Attitude towards environmental Responsibilities as consumers.

Dependent Variables

Envronmentally Concerned Buying, Consumption and

Waste Disposal Behaviour.

3.2 **Dependent Variable**

In the present study, the extent to which homemakers exhibit their environmental concern in buying, consumption as well as waste disposal behaviour was considered as dependent variables. Each behaviour was considered separately as dependent on certain intervening as well as independent variables.

3.3 **Intervening Variables**

In the present study Environmental Awareness and Attitude towards Environmental Responsibilities of consumers were considered as intervening variables. They act as dependent variables,being directly influenced by the personal and situational factors of the homemakers. They also operate as independent variables in their relationship to the environmentally concerned behaviour in buying, consumption and waste disposal.

3.4 Independent Variable

For the present investigation, independent variables were classified in two categories, namely (1) Personal variables (2) situational variables.

3.4.1 Personal Variables

These included age, education, and employment of the homemakers.

Age : Since environmental issues and problems are being realised and pointed out recently, it was assumed that the young homemakers may be more aware about environment and may exhibit more concern for the environment in their behaviour, than the older homemakers. Anderson (1972) suggested that environmentally responsible consumers tend to be younger. Hence it was thought appropriate to consider age as one of the independent variable.

Education : It was considered to be an important variable as it influences awareness, attitude one has towards environmental responsibilities and environmental concern reflected in one's behaviour.

A few studies have shown that education level influences the energy consumption, and conservation behaviour and perception regarding energy crisis (Ayotollahi,1980; Uusitalo, 1983; Kaul, 1984; Goel, 1986; Morrison et al, 1988). Therefore education was included in the present investigation as an independent variable.

Employment Status of the Homemaker: Employment gives an opportunity for wider exposure to the homemakers to meet and talk with various people, come in contact with various communication media and so on because employed homemakers generally go out of the house for earning. It was presumed that by wider exposure the knowledge regarding environment is increased leading to environmental concern in buying and consumption behaviour. Social resposibility was found to vary directly with occupational status by Anderson (1972). Hence occupational status of homemakers was considered as an important independent variable.

3.4.2 Situational Variables

Family Income: The relationship between income and environmental quality is difficult to state but it is considered to be "income elastic". The households with higher income are willing to pay more for better environment (Karpagam, 1991). Hence, it was thought appropriate to study the relationship between income and environmental concern in buying and consumption behaviour of homemakers.

Extent of Use of Sources of Information: There are various consumer information sources such as personal, commercial, public and experiential from which consumers receive information and which in turn influence the subsequent buying decisions (Kotler, 1988). It was assumed that the homemakers using many sources of information would be having more concern for the environment as they would

come to know the information regarding environmental impact of various products. Hence the extent of use of sources of information by the homemakers was considered as an important variable in the present investigation.

4. Operational Definitions

Certain terms were operationally defined for the measurement of variables of the present investigation which are described below.

1. Environment

Encyclopedia of Environmental Sciences (1975), defines it as the "sum total of all conditions and influences that affect the development and life of organisms."

As cited by Nadkarni (1992), Environment is defined in Environment protection Act (1986) as :

> that which includes water, air and land and the interrelationship which exists among and between water, air, land and human beings, other living creatures, plants, micro-orgaisms and property.
>
> - Section 2(a).

The above definition has been accepted for the present investigation.

2. Environmental Awareness

Environmental Awareness refers to the consciousness of the individual about general environmental conditions/issues/ problems at present and projected for the future regarding

following aspects : (1) Pollution of the environment. (2) Resources of the Earth. (3) Ozone layer, Green-house effect and Global warming. (4) Ecological Balance. (5) Quality of Environment.

3. **Environmental Responsibility of Consumers**

These refer to the responsibility or duty of consumers to behave in the manner which is consistent with maintenance or betterment of environmental quality.

The responsibilities considered in the present study are the protection of environment, the prevention of pollution, the conservation of resources and the participation in activities to save the environment.

4. **Attitude Towards Environmental Responsibilities**

For the present investigation this was operationally defined as having favourable or unfavourable feelings towards environmental responsibilities as consumers.

5. **Environment Friendly Behaviour**

Environment Friendly Behaviour was considered as those practices of individuals in which such goods/ materials were purchased/consumed/disposed causing minimum harm to the environment when compared with other goods/services/ materials serving the same purpose.

6. **Environmental Concern in Buying, Consumption and Waste Disposal Behaviour**

The individual was judged as having environmental concern when (1) her choice of goods/services or her practices reflect environmentally friendly behaviour, and (2) the reasons for her choice reflect the environmental concern.

7. **Consumer Goods**

The goods needed for consumption by the consumers are termed as consumer goods in the present study.

5. Development of the Tool for Data Collection

Questionnaire was used as an instrument for gathering data so that a large number of respondents could be contacted within a short period of time and the respondents can be given enough time to fill it up. Since the present investigation tried to find out environmental concern in their various behaviour, there were chances that the respondents would give their responses according to socially expected behaviour in the presence of the investigator. They might not give true information which may not be socially expected as well as accepted. Hence, the questionnaire was thought to the most appropriate tool for the present investigation.

5.1 Description of the Tool

The questionnaire was constructed keeping in view the objectives of the study. It comprised of seven sections.

Section I contained questions to elicit background information of the respondents. It also contained a rating scale to find out the extent of use of sources of information.

Section II comprised of a rating scale to examine the "Environmetal Awareness" of the respondents. The scale contained statements aiming to measure awareness of the respondents regarding various aspects of environmental situation.

Section III contained some questions to find out the knowledge of respondents about Eco-mark and willingness to buy products bearing Ecomark. It also attempted to find out the awareness of respondents about organizations working for the cause of environment, and their membership in such organization. It also had questions to explore the knowledge of respondents regarding harm/pollution created by certain products during various stages of their life-cycle.

Section - IV was a Likert type attitude scale constructed to assess the attitude of homemakers towards environmental responsibilities as consumers. It contained statements pertaining to various environmental responsibilities of consumers.

Section V, VI and VII included rating scales to find out environment friendly behaviour in buying, consumption and waste disposal practices regarding selected goods or materials. These sections also contained open-end questions to find out the environmental concern reflected through the reasons for following the stated practices.

5.2 Development of Environmental Awareness Scale

An attempt has been made in the present investigation to develop a Scale to assess the awareness of homemakers regarding various environmental situtions/issues/problems.

5.2.1 **Item Collection:** The scale comprised of statements (the items) relevant to study environmental awareness. A thorough review of literature helped to frame the statements indicating the environmental situation/issues/problems. A care was taken to include important aspects of the environmental situation/problems under the categories of (1) pollution of environment, (2) resources of the earth, (3) ozone layer depletion, global warming, green-house effect, (4) ecological balance and (5) quality of environment. The most important factor considered in collecting and framing the items was that it should be within the level of homemakers' understanding. Each item was thoroughly screened and edited so as to make it simple, clear and meaningful. The items were so framed that the respondents could say whether the statement was correct/incorrect or she did not

know. In all, 60 statements were selected representing different aspects of environmental issues/problems.

5.2.2 **Content Validity of Environmental Awareness Scale:** The items framed were then, distributed to a panel of 13 judges who were experts from the Centre for Environment Education, Ahmedabad; members of three non-governmental organizations from Baroda actively working for the cause of environment; members from the Centre for Environmental Studies, Faculty of Science, M.S.Unversity of Baroda; experts from the Faculty of Technology and Engineering and Faculty of Home Science, M.S. University of Baroda. Objectives of the study and relevant operational definitions were supplied to them. The judges were requested to give their judgment on the correctness, clarity and relevance of each item. They were also requested to indicate whether the items were positively or negatively framed. In addition, they were requested to check each statement and indicate under which of the specified five categories each statement exclusively fell. The responses of the judges were tabulated. The screening of the items was done on the bases of the following criteria.

All the items agreed upon by minimum 80% of judges for clarity, relevance to the topic and positive/negative framing were retained in the scale. The items which were relevant but not clear, as reported by 80% of judges, were reworded and again given to three judges. If approved, then were included in the scale. Each item was considered to be

exclusively falling under the category if reported so by 80% of judges.

Out of the original set of 60 items, 54 items which fulfilled the above stated criteria were included in the Environmental Awareness Scale for the pilot study. Two statements did not fall exclusively under one category hence they were modified,re-judged and then were included in the scale.

5.2.3 **Reliability of Environmental Awareness Scale** : The procedure followed in establishing the reliability of the scale is reported below.

5.2.3.1 **Scoring of Responses on the Environmental Awareness Scale** : The questionnaire was pre-tested on thirty homemakers selected for pilot study, but were not included in the final sample. Their responses on each item of Environmental Awareness scale were quantified by ascribing scores. The respondents were asked to indicate for each item whether it was correct, incorrect or they did not know. Thus, there were three categories. Correct responses were given a score of one and the "incorrect" as well as "I do not know " were given a score of zero. Incorrect answer was considered as good as having no awareness. There was thus, a possibility of a respondent scoring the minimum of zero if all answers were either wrong or she did not know and maximum of 54 if all the answers were correct as the scale had 54 items.

5.2.3.2 **Item analysis of Environmental Awareness Scale** : The item analysis of environment awareness scale was done to eliminate inconsistency of the items in the scale, there by increasing reliability of the scale. The responses of the respondents were scored as described earlier. Thus, the weighted score for each item and also for each respondent was summed up. Correlation coefficient between the item scores and total scores of each respondent were computed by using the Pearson-Product-Moment formula. Items showing significant Correlation Values were selected for inclusion in the final scale. Out of 54 items, 46 items were retained for the environmental awareness scale (Appendix - I). Care was taken that the items selected finally covered or represented all the relevant aspects about environment as listed earlier.

5.2.3.3 **Reliability Coefficient of Environmental Awareness Scale** : Split-half technique was applied to determine the reliability coefficient of the scale. The whole scale was divided in to two halves employing odd-even method. Each of the two sets of items were treated as separate scale. The respondents who scored high on odd items should score high on even items as well, if empirical errors have been kept to a minimum and the same applies in the case of low scores as well. The total scores of each respondent in the odd and even categories were found out. The coefficient of correlation between odd and even score of thirty respondents was computed by the formula of Pearson Product Moment

Correlation Coefficient. The value for the split half test was r=0.77.

From the correlation of the half tests, the reliability coefficient of the whole test was estimated using Spearman-Brown Prophecy formula which is

$$r_{xx'} = \frac{2\ roe}{1 + roe}$$

Where

$r_{xx'}$ = reliability coefficient of the whole test

roe = correlation coefficient of the half test obtained by the Pearson Product Moment formula.

The reliability coefficient thus computed was 0.87, which was found to be highly significant at 0.01 by using the following formula (Best and Kahn, 1989).

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}} = \frac{0.87\sqrt{30-2}}{\sqrt{1-(0.87)^2}} = 9.39 \quad (df=28)$$

5.3 Development of Attitude Scale to Measure Attitude Towards Environmental Responsibilities as Consumers.

For the present investigation, Likert's method of Summated Rating was used to develop the attitude scale having three point continuum. The survey of literature revealed that Likert technique of summated rating gives results comparable to those obtained by other more time consuming and laborious methods such as Thurstone Equal-

Appearing Interval Scale. Moreover, the subjective influence of judges as in Thurston technique is also eliminated (Seltiz et al, 1959; Compton and Hall, 1984; Best and Kahn,1989).

5.3.1 **Item Collection** : Since the concept of environmental responsibilities is recent in origin, it was very difficult to find relevant literature. Based on the available literature and original ideas of the investigator, the statements which expressed the environmental responsibilities as consumers were framed. The following criteria were borne in mind while editing the statements.

1) The statement should be simple, brief, clear and direct as far as possible.
2) The statements should be such that it can not be interpreted in more than one way.
3) Each statement should contain only one complete thought.
4) No statement should have double negatives or other confusing expressions.
5) The statement should be in simple rather than in the complex form of sentence.
6) The statements should be worded such that they are expressive of a range of attitude from positive to negative.

Initially 40 statements were thus constructed initially for the attitude scale.

5.3.2 **Content Validity of the Attitude Scale** : The carefully edited statements were submitted to a panel of 13 judges consisting of experts from the Faculty of Education and Psychology; Faculty of Home Science, M.S. University, Baroda, and the Centre for Environment Education, Ahmedabad. Relevant operational definitions and objectives of study were furnished to them. The judges were requested to indicate the following points.

(1) The direction of the attitude as expressed by each statement. A statement that favoured the environmental responsibility of consumers was to be considered positive and vice versa.
(2) Clarity of the Statement.
(3) Relevance of the statements to the attitude in question.
(4) Under which of the following categories of environmental responsibility each statement exclusively fell: (a) Prevention of pollution (b) Protection of environment (c) Conservation of Resources (d) Participation in activities to save the environment.

The judges' responses were assessed by the following criteria for the selection of statement.

(1) Those statements where at least 80% of the judges agreed on the direction of the attitude, clarity and relevance were to be included in the scale.
(2) Any statement reported as ambiguous by three or more number of judges was to be modified and re-submitted to

a panel of 5 judges for scrutiny, if approved,then it was to be included in the attitude scale.

(3) The statement on which there was 80% agreement among judges for the category of responsibility under which it fell was considered to be belonging to that category.

All the criteria were considered simultaneously. Thirty four statements were chosen for inclusion in the attitude scale to be used in pilot study.

5.3.3 Reliability of the Attitude Scale to measure Attitude toward Environmental Responsibilities as Consumers

5.3.3.1 **Scoring of Responses on the Attitudes scale:** A three-point scale was developed to assess the attitude of homemakers towards environmental responsibilities as consumers. The responses sought were in terms of agree, uncertain and disagree. It was thought that a three point scale would enable the homemakers to express their feelings in a more definite manner. The attitude in question being a comparatively new aspect, the women might not have formulated clear/strong attitude and hence they might not be able to differentiate the intensity of their feeling in the usual five point scale. The scale containing 34 items was pre-tested on 30 respondent selected for the pilot study. The responses of each of the item of the scale were quantified by ascribing scores. For the responses agree, uncertain and disagree, the scores of three through one were

assigned respectively for statements depicting positive to negative attitude. The scoring was reversed for those depicting a negative attitude.

5.3.3.2 **Item Analysis of Attitude Scale** : The total score obtained by all 30 respondents were arranged in descending order. Thirtyhree per cent (10 respondents) each from top and bottom scores were selected for item analysis as the high and low groups. These were taken as criterion group to evaluate individual statements. Then each item was analysed to determine how effectively it differentiated between the high and low groups. The `t' value for each item was computed to find the discriminating power of each item of attitude towards environmental responsibilities as consumers. Only those items which showed a significant difference between high and low scores were retained for the final scale (Appendix -3)

Besides this, correlation values between the item score and total scores of each respondent were computed by using Pearson Product Moment Correlation formula for determining internal consistency of items. Items having significant correlation values were selected for the final scale. Out of 34 items 30 items were retained in the attitude scale after item analysis (Appendix -2).

5.2.3.3 **Reliability Coefficient of Attitude Scale** : Using Split-half method,reliability coefficient of the attitude scale was worked out in the same way as it was done

for Environment Awareness scale. The correlation coefficient of the half test was r=0.84 and that estimated for the whole scale was r=0.91 after using Spearman Brown Prophecy Formula. On computing t-test to find out statistical significance of `r', the value of t=11.45, which was highly significant at 0.01 level (df=28).

5.4 Development of Scale to Study Environment Friendly Buying, Consumption and Waste Disposal Behaviour

Three scales were developed to study environment friendly buying behaviour, consumption behaviour and waste disposal practices. These were summated rating scales having multiple-choice like questions. Each statement had three possible alternatives. Each alternative was assigned a score based on the environmental friendliness reflected through it. The choice of alternative showed the extent of environmentally friendly behaviour. Higher the score on the scale, more was the environmentally friendly behaviour. The respondents were asked to give reasons for following the stated practice. The importance given to the environment was judged from the reasons which reflected the environmental concern.

5.4.1 **Item Collection** : As no study of similar dimension was found, the items were framed with the original ideas of the investigator based on the available relevant literature and her own experiences. For the present study only such consumer goods were included for which various alternatives/choices were available when buying. Care was

taken while framing the alternatives that they reflect a range of environmental friendliness from the least to the most agree. Observations made by the investigator in the market from time to time helped her to select goods for the study.

For the buying behaviour scale goods included were (i) same or similar products available in different packaging materials, (ii) throw-away or reusable items, (iii) household utensils/ appliances and (iv) detergent.

For consumption behaviour the goods/services included were (i) uses of plates, cups, napkins made of different materials, (ii) use of paper, (iii) use of fuel and electricity, (iv) use of empty packing containers and (v) use of insecticide.

The practices regarding disposal of solid waste material from the house were studied in relation to (i) paper, (ii) empty milk bags and shopping bag/packages of plastic, (iii) disposable cups and plates, (iv) empty small bottles and tins, and (v) general waste material from the house.

5.4.2 **Content Validity of Buying, Consumption and Waste Disposal Scales** : The statements with their alternatives thus formulated were given to a panel of 13 judges who were experts from three non-governmental organizations working in Baroda, Center for Environment Education, Ahmedabad, Faculty

of Engineering and Technology as well as Faculty of Home Science, M.S. University of Baroda. They were furnished with the objectives of the study and relevant operational definitions.

The judges were requested to indicate :

(1) whether the contents of statements reflected environmentally friendly behaviour in buying, consumption and waste disposal of selected goods or not.

(2) to judge the environmental friendliness of each alternative and assign a score accordingly. The most environment friendly alternative was to be given a score of 3, friendly to some extent was to be given 2 and the least friendly alternative was to be given a score of one.

(3) whether the statements with the alternatives were clear or not.

(4) relevance to the consumer goods in question.

The responses of the judges were tabulated and statements based on the following criteria were selected to be included in various scales. Those statements having minimum 80 per cent agreement among the judges regarding clarity, scoring of alternatives according to environmentally friendliness, content of statement showing environmentally friendly behaviour and relevance to the goods in question were retained in the scale. Any statement having some suggestions by 3 or more judges or reported as

ambiguous was to be modified and checked by at least three judges and if approved were included in the scale.

Considering all the criteria simultaneously, out of 22 statements 14 were selected for buying behaviour, out of 26 for consumption behaviour 20 were selected and out of 15 for waste disposal practices 9 were selected for the inclusion in the scale for pilot study. One or two statements from buying and consumption behaviour scale, reported ambiguous by 4 judges were reworded and re-submitted to 3 judges for their approval. Then they were included in the scale.

5.4.3 Reliability of Buying, Consumption and Waste Disposal Behaviour Scales

5.4.3.1 **Scoring of Responses on Buying, Consumption and Waste disposal Behaviour Scale** : The scale to assess environmentally friendly behaviour in buying, consumption and waste disposal consisted statements which were indicative of practices of homemakers and were considered as their behaviour. Each statement had three alternatives, framed in a multiple-choice question format, having 3-point continuum. The alternatives ranged from most environment friendly to the least environment friendly and were assigned scores of three through one respectively. Thus, the responses of each of the item of the scale were quantified by ascribing scores. After getting responses from 30 respondents selected for the pilot study the scores were summed up.

5.4.3.2 **Reliability Coefficient of Buying, Consumption and Waste disposal Behaviour Scales** : These scales aimed to study the practices regarding frequently used goods/services. The practices might vary from time to time. Hence, to establish stability of the test (scales) over a time, test-retest method of establishing reliability was thought to be the most suitable one. Moreover the number of items were less in each scale because they were concerning only those goods/services for which various alternatives were available in the market ranging from `the most' to `the least' friendly to the environment. After a period of 21 days of first administration of the questionnaire to 30 homemakers selected for pilot study, days only these three scales were readministered to the same respondents. The responses obtained after the test and re-test were scored.

A correlation coefficient was computed between first test and second test scores by using Peasron Product-Moment formula for each scale separately. For buying behaviour scale `r' = 0.70, for consumption behaviour r=0.66 and for waste disposal behaviour r=0.70. On computing test of the statistical significance of a coefficient of correlation (procedure already explained) the t values for buying behaviour and waste disposal scales was t=7.26, for consumption behaviour scale it was t=4.655 which were significant at 0.01 level at 28 degrees of freedom.

5.4.3.3 **Judgement of Environmental Concern Reflected in the Reasons for the Choice of Alternative** : The reasons given by the respondents for the choice of alternatives were given to three judges to analyse the environmental concern reflected in them. Agreement of minimum two judges was required for considering the reason as reflected environmental concern.

6. Selection of the Sample

The present investigation was carried out in Baroda city mainly due the nature of the problem under investigation. As it was understood through the review of literature that those people who are on the verge of subsistence, seldom worry about the quality of the environment. It is only after they assure themselves of basic necessities and some of the luxuries, that they turn their attention to other less immediate needs and other problems of the environment. It was thought that people living in urban area, having good income as well as education might have turned their attention towards environmental problems. Also, if alternatives are available, they would select the goods which are less/least harmful to the environment. Such options can be available only in the urban market. Hence, it was thought appropriate to conduct research in Baroda City.

6.1 Criteria for Selection of Sample

The respondents for the present investigation were women-the homemakers. Only those homemakers were considered eligible to be included in the sample who -

1) live in Baroda city
2) could read and write english, as the tool for data collection was a questionnaire framed in english having some open-end questions.
3) themselves purchased goods for their households.
4) themselves cooked food for their families.
5) used L.P.G. or pipeline gas as a fuel to cook food.
6) were not employed in educational institutions.

6.2 Collection of Data

The homemakers living in few residential colonies of Sama, Alkapuri, Akota, Fatehgunj and Karelibag areas of Baroda city were contacted for the administration and collection of the questionnaire by the investigator herself. It was made sure that the questionnaire was completely filled. Two hundred and twenty five homemakers were admistered the questionnaire, the rate of return being 90.66 per cent. Thus, the sample of the present study comprised of 204 homemakers selected through purposive sampling method. The period for data collection was from September 1993 to January 1994.

7. Analysis of Data

7.1 Categorization of the Variables for the Purpose of Analysis

(1) Age of the Respondent

Age was measured in terms of number of full years the respondents completed at the time of data collection. It was then categorized as :

(i) Young : 30 and less years

(ii) Middle : 31 and 45 years

(iii) Old : 46 and above

(2) Education

Formal education attained by the respondent was categorised as

(i) Below graduation

(ii) Graduate

(iii) Post Graduate.

(3) Employment Status

It was categorized according to gainful employment of respondents as -

(i) Non Employed : who were not working out side home or were not having self employment outside/ within home.

(ii) Employed : who were gainfully employed for wages and those were self employed.

(4) **Family Income**

Family income referred to the monthly income accrued from various sources of respondent's family such as income of her husband as well as that of other family members. It was categorized as

(i) Rs.5000 and below

(ii) Between Rs. 5001 and 9000

(iii) Between Rs. 9001 and 13,000

(iv) Rs. 13,001 and above

(5) **Extent of Use of Sources of Information**

The frequency of use of sources of information in terms of always, sometimes and never were ascribed scores of two through zero respectively. The scores of each respondents were summed up. The possible range of score was divided into three categories having almost equal interval of numbers shown as below.

Extent of use	Range of Scores
(i) Lower extent	Between 0 and 8
(ii) Medium extent	Between 9 and 16
(iii) High extent	Between 17 and 26.

Higher the score more was the extent of use of information.

(6) **Level of Environmental Awareness**

Environmental Awareness scale contained three categories of response namely correct, incorrect and "I do not know". Correct statements were given a score of one and

incorrect as well as "I do not know" were considered as zero score. The scores of each respondents were summed up. Mean (M) and Standard Deviation (S.D.) were calculated which were used as a basis to formulate the categories for level of Environmental Awareness.

Level of Awareness	Range of Scores
(i) Low level - Score above Mean + SD	0 - 24
(ii) Medium level - Scores between Mean - SD and Mean + SD	25 - 40
(iii) High level - Score below Mean-SD	41 - 46

(7) **Attitude of respondents towards environmental responsibilities as consumers**

On a three-point attitude scale, positive items were scored 3,2,1 and negative items vice versa, the responses being agree, uncertain, disagree.

The attitude was determined in two ways.

(a) Extent of favourableness of attitude or level of attitude.

(b) Group attitude

(a) Extent of favourableness of attitude was determined by formulating 3 categories on the basis of mean and standard deviation, as follows.

Extent (level) of favourableness of attitude		Range of Scores
(i) Highly Favourable	Scores above Mean+SD	88 - 90
(ii) Moderately Favourable	Scores between Mean - SD and Mean + SD	75 - 87
(iii) Less Favourable	Scores below Mean - SD	30 - 74

(b) Overall Group Attitude was computed according to the method suggested by Shah and Gupta (1993). All the respondents' scores on all the items were summated and then divided by the total number of respondents. The resulting sum was divided by the total number of items.

(c) Attitude per item was computed by summating scores of all the persons on an item and dividing the sum by the total number of persons (respondents). The resulting Intensity Index for the group and each item attitude was compared with the Intensity Index suggested by Shah and Gupta (1993) which is as follows.

Attitude	Intensity Index
(i) Favourable	2.61 to 3.00
(ii) Neutral	1.60 to 2.59
(iii) Unfavourable	1.00 to 1.59

7.1 Extent of Environment Friendly Behaviour in Buying, Consumption and Waste disposal

These scales had 3 point continuum having 3,2 and 1 score for the most environment friendly, friendly to some

extent and the least friendly practice. The scores for each item and of respondents were summated. On the basis of mean (M) and Standard Deviation (S.D.) the categories were formulated for all the three scales.

Extent of Environment Friendly Behaviour		Range of Scores		
		Buying behaviour	Consumption behaviour	Waste disposal behaviour
(i) Most	More than Mean+SD	32-42	51-60	23-27
(ii) To some extent	Mean-SD to Mean + SD	24-31	42-50	18-22
(iii) Least	Below Mean - SD	14-23	20-41	9-17

7.2 **Statistical Analysis of Data**

The data collected were coded and were analysed employing descriptive as well as relational statistics. Complete analysis was carried out on computer using SPSS/PC1 package.

7.2.1 **Descriptive Statistics**

The data were presented in frequencies, percentage, mean and standard deviation for analysing the following information.

(i) Personal and situational variables, namely, age, education, employment status, family income, extent of use of sources of information.

(ii) Data related to Environmental Awareness scale,

(iii) Data related to attitude towards environmental responsibilities as consumers.

(iv) Data related to Environment friendly behaviour and environmental concern in buying, consumption and waste disposal practices.

(v) Data pertaining to filler information such as knowledge about environmental organizations, name of organizations, knowledge about "Ecomark", willingness to buy product bearing "Ecomark", the harm/pollution created by various products on environment and so on.

7.2.2 **Relational Statistics**

Statistical analysis was carried out to test the relationship between selected variables and the hypotheses postulated for the study. Analysis of variance were computed to study the differences among the respondents in the environmental awareness, attitude towards environmental responsibilities and environment friendly buying, consumption and waste disposal behaviour due to variation in personal and situational factors. When significant `F' values were found, `t-test' were computed to find out the groups of respondents varying from each other.

The variables were found to be normal, non-normal, categorical, approximately normal and even discrete. There existed five mulitvariate outliers. Due to these, such a multivariate analysis technique was chosen which could take care of these aspects. The Canonical Correlation Analysis

was found to be the most suitable one, as it has following features :

(1) In the canonical analysis an effort is made to simultaneously predict a set of criterion variables from their joint co-variace with a set of explanatory variables.

(2) Both metric (quantitative) and non metric (qualitative) data can be used in the context of this multvariate technique (Kothari, 1985, p.376). Thus, even if the variables are categorical, non-normal, approximately normal, this technique is applicable.

(3) Canonical correlation technique is least affected by the presence of multivariate outliers.

(4) This analysis tries to obtain a set of weights for the dependent and independent variables in such a way that linear composite of the criterion variables has a maximum correlation with the linear composite of the explanatory variables. (Kothari, 1985 p.376). Thus, it studies the relationship between two sets of variables by means of maximising the correlations of the linear combinations of these two sets of variables.

For Example : Suppose one set has four variables and another has two variables, measured on the same individuals. Then, one can combine the first four variables into a single score by the formula

$$(U_1 = X_1W_1 + X_2W_2 + X_3W_3 + X_4W_4)$$

and similarly the second set can be combined in to another

score as :

$(V_1 = Y_1W'_1 + Y_2W'_2)$.

The correlation between U_1 and V_1 is in a sense, the correlation between the two sets of variable. However, this correlation depends not only on the inter-relationships among X's and Y's but also on what W's and W's are chosen.

The resulting canonical correlation solution then gives an overall description of the presence or absence of a relationship between the two sets of variables.

Pearson Product Moment correlations were computed to find out the connections between the scores of various environment friendly behaviour, environmental awareness score and attitude towards environmental responsibility.