

CHAPTER - I
INTRODUCTION

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We are indeed at the edge of an environmental catastrophe.

- Mohd Idris (1992)

There is a resource and environmental crisis on a global scale, not only at national or local scale (Khoshoo, 1986; Peng, 1992; Idris, 1992; National Report to UNCED, 1992). The entire planet is in peril and the humanity is critically placed over it, as Sahoo (1993) perceives.

"Such a crisis not only threatens the chance for the human being to achieve an adequate standard of living for the present population, but it also threatens the chance for humans to continue as a species."

- Collier (1976).

This is the result of his, the human being's, own actions.

The interaction between man and environment is as old as the very existence of mankind on the earth (Kukreti, 1993). Its present deterioration has come about mainly as a result of human activities especially those concerned with industrialization, unrestrained growth of human population and the mismanagement of the world environment.

1. **The Causes and Consequences of Major Environmental Crisis**

The agricultural and industrial revolution and subsequent modernization process have been responsible for the pollution and degradation of air, water and soil, with consequent adverse effects on human health and well-being (Yong, 1992). The environment is being degraded as a result of unsustainable exploitation of natural resources and environmentally unsound agricultural practices. The increasing urbanization and the development of transport systems also have significant environmental impact (Rodda, 1991).

The explosive growth of human population is exerting an increased pressure on the utilization of the resources. The problems of population and poverty are to a large extent responsible for environmental degradation such as denudation of forests, over grazing and pollution. At the same time, developmental efforts are also responsible for creating environmental denudation upto a certain extent, though, development is essential for the progress of a nation and for the prosperity and welfare of its citizens.

Each year, 5 million hectares of tropical rainforests are disappearing worldwide as they are used for various purposes such as commercial logging, grazing lands, constructing huge dams and making available clear land to meet urban and industrial sprawl (Mohd Idris, 1992).

With the loss of forest cover, millions of tonnes of agricultural soils are washed away each year. The results

are floods and soil infertility. At the same time, wild-life is systematically decimated by wild-life trade.

Agricultural pests and disease ravage cultivated lands because the insects and other creatures which have positive roles to play in agriculture, too, are becoming less.

Deforestation in tropical countries is seriously affecting the global climatic conditions (Mohd Idris, 1992). Changing global climate is realised in the form of 'Global Warming'. This is directly the result of the gases and pollutants spewed by the human being, into the atmosphere. These are mainly those gases that increase the green-house effect.

Green House effect is the process in which the heat radiating from the earth's surface is trapped by gases such as carbon dioxide, methane, nitrous oxides and chlorofluorocarbons in the atmosphere. Without the green house effect the world would have been too cold to be livable by humans. But due to human activity of burning fossil fuel, the amount of carbon dioxide has increased in the atmosphere. This has resulted in the earth's "green house" trapping more heat. The result is gradual warming of earth. It is projected that the global temperature will increase between 2 and 5 degrees Centigrade by the middle of the next century. This may result in melting polar ice-caps, which will raise sea levels, which consequently could inundate low-lying areas, erode beaches, and flood the coastal areas. Global warming significantly alters climatic conditions such as changes in rainfall patterns, more

frequent storms and more extreme temperatures (Kannan, 1991; Karpagam, 1991; Makower, 1992; Silveira, 1993).

Similar to "green-house", the ozone layer in the stratosphere of the earth acts as a shield against the ultraviolet radiation of the Sun. The ozone layer is being depleted progressively through the release of gases from certain human activities such as the use of CFCs (Chlorofluorocarbons) in air-conditioning, packaging and insulation, solvent for cleaning electronic circuit boards and aerosol propellants in perfumes and hair-spray containers.

In 1985, an "Ozone hole" over Antarctica was reported. In 1991 a team of scientists discovered that the ozone layer over the United States was thinning more rapidly than expected, thus increasing the risk of skin cancer (Makower, 1991).

The stratospheric ozone "depletion" is commonly confused with the ground-level ozone "pollution" problem. In the latter problem, the ground automobile exhaust and other gases react with sunlight to form photochemical smog, which is another problem area. This ozone causes eye irritation and respiratory problems. This has made life unpleasant for millions of people in and around Los Angeles to cite one among several such cases. The ground level ozone is undesirable, whereas the ozone in the upper atmosphere is desirable due to its protective function.

The increasing amount of gases and pollutants in the air due to man's activity are causing "Acid-Rain". This can pollute rivers and lakes, kill fish and other aquatic life, affect drinking water by leaching of toxic chemicals such as aluminum, asbestos, cadmium which all cause serious diseases. The chemicals that cause acid rain are sulphur dioxide and nitrogen oxide which can also harm respiratory system. These gases form chemicals which are acidic in nature. When these chemicals mix with rain, sleet, snow, they fall on the earth, where they can wreck havoc on just about everything - kill trees and even peel off the paint of cars (Makower, 1993).

Man uses a great number of different chemical substances, generally pesticides in home, in industry, in agriculture, forestry and so on. Toxic chemicals such as DDT, aldrin and dieldrin have caused great ecological damage. Through the food chain, they ultimately get concentrated in man.

Water pollution is posing health problem. Air pollution, acid rain, garbage etc. ultimately end up in drinking water supply which is only 0.1% of the earth's total water supply. Rain water and melted snow in the course of their run off through parking lots, roof tops, streets and farms, carry with them deadly substances from worn brake linings, chemical fertilizers, old tires, and a variety of other materials contained in our garbage. During a storm, the pollutants are washed into streams and rivers. Once they

get into the water cycle, they never seem to leave. Water in the creeks, stream, rivers, sea are mainly polluted through the industrial and sewage waste water flow. This is again the result of human activity.

Garbage, apart from gaseous and liquid wastes, is increasing with the human population, industrialization and with the changing life-style which is turning towards "throw-away culture". Although the problem has been around for years, it seems to be getting worse. Americans discard 3.6 pounds of solid waste per capita every day, which will be 4.5 pounds per capita per day by the year 2000 (Kannan, 1991). The problem is where to put it all. Majority goes into land fill (dumps), which pose health problems apart from being a breeding place for pests and micro organisms. Moreover, much of the garbage is made of materials that do not breakdown easily or quickly, such as plastic. Some waste materials are toxic in nature, such as batteries, as these contain lead.

Poisoned rivers, poisoned seas, poisoned soils and poisoned air. The polluting tide has upset the natural environmental balance. It now threatens to upset the delicate chemistry of our own biochemistry.

- Mohd Idris (1992)

Thus, there are enough evidences of increasing deterioration of the environment in some forms on a worldwide scale. This condition, although primarily caused by relatively small number of nations, affects all of humanity (The Belgrade Charter, 1975).

2. Actions Taken to Deal With Environmental Problems

Some efforts have been made internationally and nationally to deal with some of the environmental problems.

2.1 International Actions

Laws and Treaties among nations now exist as a result of various conferences held at global level. The United Nations Conference on the Human Environment was held in June 1972 in Stockholm which has put the environment on world agenda. It concluded that development must be compatible with the environment, and declared 5th June to be celebrated as World Environment Day.

In 1987 World Commission on Environment and Development published Brundtland Report entitled "Our Common Future : A global agenda for change". It proposes long term strategies for achieving sustainable development in the next century and the ways to increase ties between developing and developed countries (The Tribune, Sept. 1991). The United Nations Conference on Environment and Development (UNCED), also known as "The Earth Summit", was held in Rio de Janeiro in Brazil in June 1992. Agenda 21, the major document of Earth Summit outlines a series of recommended actions at all levels to move the earth's people towards a sustainable and equitable development (The Tribune, Feb. 1993).

Sustainable Development is defined in Brundtland report
as :

The development which seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future. Far from requiring the cessation of economic growth, it recognizes that the problems of poverty and underdevelopment can not be solved unless we have a new era of growth in which developing countries play a large role and reap large benefits.

- Shiva (1991)

The U.N. Declaration for a New International Economic Order calls for a new global ethics to be developed with the new concept of development. This is an ethic which espouses the behaviour for individual and societies which are consonant with humanity's place within the biosphere.

An environmental ethics is basically a human ethics based on social justice for all without discrimination of race, sex, religion, ideology, caste, region or nation.

- Rodda (1991)

Such ethics would apply to all facets of society producing and consuming goods (Compton and Hall, 1984) hence to the family also.

Before examining the linkages between family and environment, it would not be out of place to view the actions taken by the Government of India in relation to various environmental problems.

2.2 National Actions

In recent years there has been a growing concern in India regarding the steady deterioration in the country's environment (Powar, 1993).

Environmental problems in India can be classified into two broad categories (a) those arising as negative effects of the very process of development and (b) those arising from conditions of poverty and underdevelopment (India, a Reference Annual, 1993).

In India both poverty and economic development pose serious environmental challenges. In their desperate attempt to survive today, and to feed the hunger of ever increasing population, people are forced to forsake their tomorrow and over use their environment. At the same time uncontrolled economic growth, urbanization, and industrialization can rip apart forests, mine the land, over use the ground water system, dam rivers, pollute water and air and stuff the land with unknown poisons. In this way, economic growth not just poisons and destroys cities but also erodes rural base, setting in motion a vicious cycle. Rural ecosystem, unable to support its growing populations, push more people into cities (Agarwal, 1993).

The Government of India has set up the Department of Environment in 1980 on the suggestions of Tiwari Committee and subsequently in 1985, it was upgraded to a full-fledged Ministry of Environment and Forests. There are about 30 major enactments related to protection of environment administered by Central and State Government (Roy, 1992;

India, a Reference Annual, 1993). The Indian Government has taken a number of actions for environment impact assessment, prevention and control of pollution, for protection of wildlife, for forest conservation and for cleaning up major rivers and so on. There is National Conservation strategy as well. It also gives away fellowships and awards to individuals for their significant contribution in the field of environment. Recently, it has declared to provide "Ecomark" on the consumer products that are environment friendly. Sixteen products have been identified for this purpose.

The Ministry has accorded priority to promote environmental education, create environmental awareness among various age groups and to disseminate information through Environmental Information System (ENVIS).

2.3 Non-Governmental Organizations in Environmental Protection

It is since the fifties that the non-governmental organisations (NGOs) have been playing an increasingly important role in environmental protection around the globe. In India, "Chipko Movement" in the Himalayan regions by Shri Sunderlal Bahuguna is a good example (Rodda, 1991; Silveira, 1993). A much older precedent from the past is cited, of 'Bishnoi' village women clinging to trees to prevent the Maharaja from felling trees in an arid area (Silveira, 1993; Bahuguna, 1993). The Ministry of Environment and Forest has launched a new scheme of "Paryavaran Vahini" during 1992-93

by involving local people in activities related to environmental protection (India, a Reference Annual, 1993). Khoshoo (1986) reported that about 187 NGOs were involved in environmental awareness and education, nature conservation, afforestation and social forestry, wildlife conservation and eco-development programmes.

It is now clear that without awareness and involvement of people, at the grass root level, the environmental problems can not be tackled successfully.

3. Role of Family and Individuals in Environment

It is said that as far as environment is concerned, there is no better person to be informed and used than women, since their life is closely woven with various issues of environment and development (News and Views, 1993). Women play a crucial role in environmental management as farmers, stock breeders, suppliers of fuel, fodder and food and water, as consumers, managers and often as preserver of natural resources (Rodda, 1991; Critical Linkages, UNEPA, 1992).

Women are an important link in the goal of achieving a satisfactory balance between nature, natural resources and human activities because of their central role in the family as managers of production and as consumers of scarce resources.

The family is generally viewed as a semi-open system. Inputs from the environment enter into the family and help

to shape its decision outcomes. In turn, families help shape environments by the decisions they make (Paolucci et al, 1977; Martlow and Silver, 1991; Kinnear and Taylor, 1973).

The family is a consuming unit and the environment contains the resources essential to life functions. The natural environment is the source of all energy, which, when transformed, provides the means for human activity. The family organizes and orders the activities of family members for taking basic resources from the natural environment and utilizing them.

Family can be viewed as production unit as well. It makes the resources obtained from the environment into useful forms for consumption. The multitudinous decisions that the family organization makes in order to transform resources from the environment to useful forms for the family's satisfaction illustrate their consumption choices (Paolucci, 1977).

Family decisions do affect environments, and the environment can influence the quality of resources coming in the family. For instance, adequate food must be supplied by the environment to the family but the quality of food that is produced is affected by air, water and soil in which it grows. Family decisions can develop or destroy nutritious food resource, which the family may not even realise. The family whose car burns excessive oil is contributing to air pollution, which can affect the growth of plants and animals.

Families which accept a responsible consumer role make the decisions about products very carefully. They are aware of the interdependence of family and environment. Their decisions would be based on the knowledge of these resources from the environment which could be transformed and used for the family and what effects the family consumption activities will have on the environment. For instance, they would consider what kinds of wastes will the family release into the environment? Can these wastes be recycled? The choices which consumers make are a never ending series of votes `for' or `against' the environment (Kinnear et al, 1974; Makower, 1993).

Family members who consider their decisions as small and insignificant are forgetting the combined impact of many families living within the confines of the environment. Viewed singly, these decisions may appear to make little impact but viewed cumulatively, they can result in a major force shaping the quality of life possible on for the family and affecting the destiny of humankind (Paolucci, 1977). Clearly, the cumulative effect of every day decisions made and implemented by the members in the arena of the family gives meaning to life and shapes the world of today and tomorrow.

3.1 Green Consumers

Consumers are becoming increasingly interested in assessing the environmental impacts of their purchase, use and disposal decisions. In the past few years, consumers in

many, mainly in developed nations, have demonstrated their environmental concern through the products they buy and do not buy. They are considered as new breed of "Green Consumers" (Shaw and Stroup, 1990; Makower, 1993). Tulley (1990) points out that in Europe leading the drive for a better environment - not only with votes, but with pounds - is the "Green Consumer". This took the shape of "Green Movement" which started in the 1960's at the grass-root level (Garelik, 1989). The movement is known as "Green Consumerism" in which shopkeepers sell and consumers seek out environmentally sound products (Oza, 1990). The green consumers buy the "Green Products" bearing a seal or label which claims that the product is "green".

A truly green product is one that :

1. is not dangerous to the health of people or animals.
2. causes minimal damage to the environment during the manufacture, use and disposal.
3. does not consume a disproportionate amount of energy or other resources during its manufacture, use or disposal.
4. does not cause unnecessary waste, due to either excessive packaging or to a short useful life.
5. does not cause unnecessary cruelty to animals.
6. does not use materials derived from threatened species.
7. does not cost any more than its "ungreen" counter part.

- Makower (1993)

Thus, after doing life-cycle or "Cradle-to-Grave" analysis, a third party approval is given to the product in the form of Eco-mark (Troumbis, 1991). Topfer (1991) says that taking the German environmental label as an example,

Japan and Canada have introduced their own environmental labeling, followed by many other countries. India will also provide "Eco-Mark" on 16 products to begin with (Suresh, 1992). Some of them are soaps and detergents, paints, paper, plastic and packaging material (National Report to UNCED, 1992; India, a Reference Annual, 1993).

Troumbis (1991) and Makower (1993) point out, that entirely environmentally sound products do not exist. Nothing is safe for the environment. Each product has an impact on the environment and can therefore be called environmentally friendly only a relative sense, that is, in comparison with other products serving the same purpose. Eco-labeling process gives due consideration to this fact.

The products bearing Eco-label are relatively scarce in the market of foreign countries and yet to be found in the Indian market. The goal, then for green consumers is to choose the products that have minimal impact on the environment.

There are products which are environmentally preferable, even though their manufacturers do not make specific claim. Such products are considered as "Good-Green-choices" (Makower, 1993), which are found everywhere. To cite a few examples, buying product in bulk to avoid excessive packaging, choosing a product with fewer layers of packaging, choosing coffee powder in glass bottle instead of refill pack - assuming that glass will be recycled whereas the refill pack would not be.

The environmentally conscious consumers, who make "good-green-choice", see that they reduce buying wasteful and polluting products and they reuse the product as far as possible. They do not prefer "throw-away" products which are discarded after single use, though the market is flooded with such products. These throw-away products contribute to an enormous amount of waste generation. Per capita per day solid waste generation is 2 Kg in the United States, 1 Kg in United Kingdom; 0.7 Kg in Australia and 0.5 Kg in India (Bhide, 1975; Southwick, 1976; Kut and Hare, 1981). The world evolved towards a "throw-away" society when population was less, energy was inexpensive and raw materials were abundant (Brown and Shaw, 1982). But now, with increasing environmental problems, essentially the choice is between one-time-use of materials leading to a "throw-away" society and use of recycled materials, leading to "sustainable society". This is due to the fact that some of the important non-renewable materials like metals are permanently lost, if they are not recycled. The green consumers make their green choice for the recycled or recyclable materials. Thus the "Three R's" that is, Reduce, Reuse and Recycle are considered important for the Green consumer.

Being a green-consumer means adding "E-Factor", the Environmental consideration, with other factors considered while buying a product. Generally consumers consider price, brand, quality, design, size, durability, utility and such other aspects of the product but very few consider

environmental impact of the product. Hence, to consider "E-Factor" would help to meet environmental problems to some extent. It is essential to create awareness in people, especially women, regarding being an environmentally conscious consumer.

3.2 Awareness Regarding Environmental Problems

People who are aware of environmental problems would make not only their purchases but also their consumption of various goods in the manner which does minimum harm to the environment. Hence, it is most important to increase awareness in people. Environmental education is one of the ways to widen the base of awareness. It is also considered as one of the critical elements of an "All-round" attack on the world's environmental crisis (Recommendation 96 of the Stockholm Conference on the Human Environment, 1972). If individuals are environmentally educated, the society and the government are automatically educated, because the latter two are only an extension of an individual (Khoshoo, 1986). It is important that women are given environmental education to increase the awareness because environmentally aware and concerned women influence the entire family circle, especially the children, in their perception, values, attitude, behaviour and in ethical considerations. They influence all family members in the use of natural resources, energy consumption and in waste recycling. Environmental awareness and concern in women can be increased by Family Resource Management experts, not only in

formal educational set up but also through informal and extension education.

Rationale for the Study

Since Family Resource Management is mainly concerned with the management of available resources for the achievement of desired goals, it is very important to consider availability and consumption of the resources by the family from the environment. This is essential especially when it is realised that man's survival depends on preservation of scarce, life-sustaining resources, such as, oil, coal, clean air, pure water and others, for future generations (Nickell, Rice and Tucker, 1976).

As the general concern about environmental quality has been increasing, a totally new problem area in consumption and welfare research has emerged : the impact of private consumption on the quality of physical environment (Uusitalo, 1983). The behaviour of consumers, both with respect to the environmental compatibility of consumption processes and to consumers' interest in environmental quality has yet to gain due attention in the researches (Bernward, 1983).

Though there are studies concerning environmental concern, awareness, buying and consumption behaviour, attitude and similar aspects but they have mainly been conducted in foreign countries. To name a few, Dunlap and Hefferman (1975), Dunlap and Van Liere (1978), Kinnear,

Taylor and Ahmed (1974), Tucker (1980), Uusitalo (1983). In India, the environmental impact of some immediately relevant areas of consumption, such as, private energy consumption, are beginning to attract considerable attention as revealed through studies conducted by Chaturvedi (1984), George (1983), Goel (1986). But compared to the West, they are very few.

The reason may be :

On the verge of subsistence, people seldom worry about the quality of the environment. Once the man assures himself of food and other necessities along with good deal of luxuries, he can turn his attention to other less immediate wants, including enjoyment of environmental quality.

- Karpagam (1991)

Though it is difficult to state relationship between income and environmental quality, it is considered to be "income elastic" in the sense that households with higher income are willing to pay more for better environment (Karpagam, 1991). But with the West, now turning environment conscious, we (Indians) are becoming more concerned towards the environment, (Khoshoo, 1986; Jethwani, 1991).

Moreover, buying behaviour in relation to consumer goods have been studied but environmental concern in buying goods is relatively uninvestigated in India. Hence, a need was felt to find out, to what extent Indian women are concerned about environment when they buy or consume any product or throw away the waste. It is essential to find out

their knowledge regarding present environmental crisis so as to study the relationship between their knowledge and their concern for environment in their behaviour. With such a background, the present investigation was planned.

Objectives of the Study

1. To study the background information of the respondents.
2. To ascertain the awareness of the homemakers regarding general environmental problems/ situations.
3. To study the attitude of homemakers towards the environmental responsibilities as consumers.
4. To assess the extent of environment friendly behaviour and environmental concern reflected in the buying, consumption and waste disposal practices of selected consumer goods by the homemakers.
5. To examine the association between personal and situational variables and the environmental awareness; attitude towards environmental responsibilities; environment friendly behaviour reflected in buying, consumption and waste disposal practices of the homemakers.

Hypotheses of the Study

1. There will be a relationship between the extent of environmental awareness of homemakers and their -
 - (i) age
 - (ii) education

- (iii) employment status
 - (iv) extent of use of sources of information.
2. The homemakers' attitude towards environmental responsibilities as consumers will be influenced by their -
- (i) education
 - (ii) family income
 - (iii) extent of use of sources of information
 - (iv) environmental awareness.
3. The environment friendly buying behaviour of homemakers will be affected by their -
- (i) education
 - (ii) employment status
 - (iii) family income
 - (iv) extent of use of sources of information
 - (v) environmental awareness
 - (vi) attitude towards environmental responsibilities as consumers.
4. The environment friendly consumption behaviour of homemakers will be influenced by their -
- (i) education
 - (ii) employment status
 - (iii) family income
 - (iv) environmental awareness
 - (v) attitude towards environmental responsibilities as consumers.

5. The environment friendly waste disposal practices of homemakers will be influenced by their -
- (i) education
 - (ii) family income
 - (iii) environmental awareness
 - (iv) attitude towards environmental responsibilities as consumers.
6. There will be an interrelationship between homemakers' environment friendly buying, consumption and waste disposal practices.

Delimitations of the Study

- A. The study was limited to the homemakers
- (1) living in Baroda city
 - (2) who could read and write English
 - (3) who themselves purchased goods for their households
 - (4) who themselves cooked food for their families.
- B. The study was limited to buying and consumption of selected consumer goods and waste disposal practices regarding selected materials.