

CHAPTER I
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The concept of environment is very complex, although the word environment is not new to us. The word environment comes from the French verb "ENVIRONNER" - to surround, and means surroundings or something that surrounds (Sharma, 1994).

In very broad or loose sense environment could cover every conceivable thing on earth but operationally environment is defined as "that bundle of resources which support, develop or enrich human life" (Doraiswamy, 1988).

Panel of the U.S. President's Science Advisory Committee in 1965 has also defined the environment as :

"The sum of all social, biological and physical or chemical factors which compose the surroundings of the man. Each element of these surroundings constitutes a resource on which man draws in order to develop a better life"

(cited in Bandhu, et al., 1978).

Environment is more than physical surroundings. It also includes the social environment and the psychological environment. It may, therefore, be viewed

in its totality comprising the whole set of natural or biophysical and man-made or socio-cultural systems in which man and other organisms live and interact.

Encyclopedia of Environmental Science (1975) defined the environment as :

"The sum total of all conditions and influences that affect the development and life of organism"

(cited in Khoshoo, 1986).

According to Sharma (1994), the term environment refers to definite place where an organism lives, including both physical and biological, socio-economic features of the place. Environment is the aggregate of external conditions that influence the life of an individual or population, specifically the life of man. It ultimately determines the quality and survival of life.

Thus, life owes its existence and obtains its subsistence, growth and fulfillment from the environment, which is a product of complex and dynamic interaction of physical, chemical, biological and social systems.

The biological environment includes the living things of the plant and animal kingdom and the human beings. The social environment comprises a complex

interplay of factors and conditions such as cultural values, customs, habits, beliefs, attitudes, economic status, occupation, religion, standard of living, social and political organizations.

The physical environment includes not only the physical structures but also the related services and facilities (Parikh, 1980). It encompasses the non-living things and physical forces affecting man such as air, water, ventilation, illumination, temperature, sound, sanitation and so on. This definition of environment is adopted by the investigator for the present study.

Degradation of Environment

The story of man's relationship with his environment dates back to the dawn of man's emergence as the dominant species on our planet earth. The interaction between man and his environment is as old as the very existence of mankind on the earth (Kukreti, 1993). Man with his varied activities affects the environment in which he lives and in turn is being affected by his environment. He has been engaged in efforts to improve his standard of living from the very beginning of his civilization. Apart from the natural world of plants and animals, of soils, air and water he builds social institutions and artifacts using

his tools, science and his dream to fashion an environment obedient to human purpose and direction. With growing population the needs of man also increased. To cater for these needs, more and more natural resources are utilized. In doing so man faced the problems of pollution and deterioration of environment. The inevitable outcome of the development and human evolution is the environmental pollution (Khoshoo, 1986).

Ever since mankind learned to light fires and use tools some 70 millennia ago, the human race has been polluting the environment. The term "pollution" is interpreted in various ways, but, in normally accepted sense, it means the deliberate or accidental discharge into the environment of waste products of human activities resulting in harmful or offensive consequences (Wagle, 1989). The unfavourable alterations of our surroundings, largely, as a by product of man's action and particularly by his technology, is pollution (Murdoch, 1975).

Generally speaking environmental contamination is due to man's alteration in the environment quality. According to Murdoch (1975) :

"Environmental pollution is the unfavourable alteration of our surroundings wholly or largely as a by product of man's action through direct or indirect effects of changes in energy pattern, radiation levels, chemical and physical constitution and abundance of

organisms. These changes may affect man directly or through his supplies of water and of agricultural and other biological products, his physical objects or possessions or his opportunities for recreation and appreciation of nature".

The key phrases here are "unfavourable alteration" meaning, the changes that are harmful for living organisms, and "by product of man's action" meaning, the residues of things he makes, uses and throws away. They are concomitants of a technological society with an effort for a high standard of living.

Environmental pollution has existed from the time man has started using fire for cooking, lighting and heating purposes. Man has lived on the earth exposed to various kinds of pollution for millions of years, probably because man has the ability to adapt himself to different environmental situations. He has learnt to tolerate ugly surroundings, dirty skies and polluted streams.

The roots of problems lie in too many people using too many resources wastefully. There is a positive correlation between population size and the magnitude of environmental impact (Detwyler, 1971). The more advanced a civilization becomes, the more complex are the problems related to man's environment namely, congestion, crime, poor housing, pollution, traffic, noise, etc. (Rossano, 1969).

The deterioration of environmental quality has existed as a serious problem under the ever increasing impacts of exponentially increasing population and of industrializing society. Environmental contamination of air, water, noise, etc. has become a threat to the continued existence of many plant and animal communities of the ecosystem and may ultimately threaten the very survival of human race.

There are innumerable environmental problems at local, regional, national and global level. There are local environmental problems such as, unsafe water, accumulation of urban garbage, untreated sewage, polluted urban air due to vehicular transport and / or polluted indoor air due to smoke from fuelwood stoves, etc. There are also regional and national environmental problems such as polluting industries, acid rain, river pollution, deforestation, etc. Finally, there are global environmental problems such as accumulation of greenhouse gases in the atmosphere (Reddy, 1995).

The deterioration of the environment through the population explosion, pollution of air, water, land and other disruptions of the ecological balance pose a major international health hazard. At global level people, scientists, environmentalists are concerned with various issues of environmental degradation such as rapid depletion of natural resources, climatic changes,

soil degradation, deforestation, ozone depletion, loss of biodiversity, increasing pollution of air, water and land. The increasing population aggravates these problems. All these have forced us to consider the interdependence of man and his environment.

More than 1 billion people in the developing world live without adequate food, health care, education and housing. Environmental pollution due to urbanization and industrialization, especially in developing countries is associated with excess morbidity and mortality. While overcrowding and inadequate housing in the semi-urban areas contribute to respiratory diseases, tuberculosis, meningitis and other health problems (Patel, 1994).

Realizing the seriousness of the problems, number of laws have been formulated and are being implemented for the protection of environment at Global and National Level. The sudden interest in checking pollution has arisen because the quality of man's life and his continued survival within limited environmental setting are reaching an alarming level and hence, receiving national and international attention.

In the Citizen's Report the major sources of environmental degradation identified in India, which have an impact on human conditions are misplaced

investment priorities such as, neglect of housing, sanitation, cooking and energy (Agarwal, 1982). Urbanization, industrialization, advancement in technology, etc. further add to the pool of atmospheric substances. Increasing air and water pollution which used to be a local problem has begun to receive attention at all levels. Health hazards associated with pollution is perhaps the most compelling reasons to study environmental deterioration.

The Household Environment - Micro Environment

The most immediate and the most intimate of the environment surrounding the family is the household environment. Transactions with this environment is concerned with such resources as the family's shelter and surroundings, their furnishings, equipments, transportation etc. Housing in the modern concept includes not only the "physical structure" providing shelter, but also the immediate surroundings, and the related community services and facilities.

According to WHO (1973), a "residential environment" is defined as :

"The physical structure that man uses and the environs of that structure including all necessary services, facilities, equipments and devices needed or desired for the physical and mental health and the social well-being of the family and the individual".

An expert committee of the WHO (1973) recommended following criteria for healthy residential environment similar to the Basic Principles of Healthful Housing Published by the American Public Health Association. Healthy residential environment is the one which -

- provides physical protection and shelter.
- provides adequacy for cooking, eating, washing etc.
- is designed, constructed, maintained and used in a manner such as to prevent the spread of communicable diseases.
- is free from unsafe physical arrangements due to construction or maintenance and from toxic or harmful bacteria.
- provides the protection from hazards of exposure to noise and pollution.
- encourages personal and community development, promotes social relationships, reflects a regard for ecological principles and by these means promotes mental health.

To put it briefly, it is the environment in which a family can develop and flourish physically, mentally and socially.

1.1 Rationale of the Study

Much has been said and done about outdoor pollution due to industrial wastes, agricultural wastes, pollutions caused by use of fertilizers and pest control, pollution due to automobile exhaust and noise, etc. Studies related to contamination of outdoor environment and its effect on human beings are large in number. Very little information is available about the indoor environmental quality and the pollution at micro level within the homes. The indoor pollution is not new. It dates back to the early cave man who discovered fire. Having discovered this as an invaluable source of energy for keeping warm and cooking food; he had to flee out from time to time in order to escape the smoke and gases from the fire. However, information on indoor air quality and its effects on human health is scanty (Ahuja, 1985).

For hundreds of millions of the world's poorer citizens, smoke and fumes from indoor use of biomass fuel such as wood, straw and dung pose much greater health risks than any outdoor pollution. Women and children suffer most from this form of pollution, and its effects on health are often equivalent to those of smoking several packs of cigarettes a day (World Development Report, 1992).

Women and Environment

Cooking, washing clothes and many more are the tasks performed by millions of women every single day of their lives. Despite some progress in correcting unequal gender relations, such tasks remain primarily "women's work" (The Hindu Survey of the Environment, 1995).

Women spend long hours and much effort and labour on repetitive operations resulting in fatigue and drudgery. It has been widely reported that women shoulder the prime responsibility of house hold work and spend considerable amount of time on performing household tasks (Munjal et al., 1985; Sandhu, 1985; Devadas et al., 1988).

Halpern (1978) indicated that most people spend maximum amount of their time indoors which is as much as 80 per cent. Women are often worst affected by deprivations in respect of living conditions. Among other reasons, it is because women usually spend longer hours in the micro environment, that is, kitchen than men. They are generally responsible for ensuring the availability of basic necessities for their households. Living in a degraded environment can take a heavy toll on the health and well-being of women (Swaminathan, 1985).

Among all the activities carried out in the house, attention is given first to meal preparation and related activities, since the woman, who spends more time in the home than any other member, normally devotes more of that time to this activity (frequently upto a third) than any other duties she performs during the day (Beyer, 1958). By necessity, most people spend more time in their kitchen than in any other room. Not only are meals prepared and shared there, but many people settle down in the kitchen between meals to attend to other activities (Thomas, 1986). Kitchen occupies an important place in the house and cooking is the primary activity carried out in the kitchen, but in most shelters it is least cared for.

Micro environment of the kitchen is affected by many facets of total environment of a man. The quality of the environment in the kitchen is affected by certain features, such as, combustion of different fuels, various activities carried out by the members of the family, use of different appliances, sanitation practices followed by the home makers, water storage methods in the house, availability of ventilation, lighting, etc.

Various pollutants present in the indoor environment are produced from the type of fuel used. The WHO (1979) report indicated that indoor concentration

of air pollutants are sometimes 50 to 100 percent higher than outdoor concentrations. A healthy and clean water supply and method of storing and purifying drinking water are prime needs for the health of the people.

Noise is also an important environmental aspect in the household kitchens. Many a times people themselves are responsible for the noisy environment around them. Noise produced from the different equipments and activities can be hazards to the users and nuisance to the neighbours.

Good lighting in the kitchen is essential for the efficient vision. The position of doors, windows, the colour of the unit also affects the light. Modern medical authorities strongly recommended sufficient light in the buildings for healthy conditions of human body (Birdie, 1979; Park, 1986).

Ventilation affects the level of temperature in the kitchen. Although related to comfort, temperature is not the only measure of comfort; humidity and air movement also should be considered.

Poor sanitary conditions in and around the house and faulty sanitation practices followed by the homemakers affect the quality of environment. This

may further be influenced by the extent of exposure of respondents to media in relation to various aspects of environment and level of knowledge of the respondents regarding the quality of environment.

Ventilation, heat stress, poor lighting, air pollutants, contamination of water, poor drainage system, various sources of sound have influenced the micro environmental conditions of kitchen and housing sanitary standards (Sharma, 1984; Sardana, et al., 1990; Veerbala, 1990). The factors such as traffic density, ventilation, surrounding environment and type of fuel used for cooking seem to alter the indoor air quality (Mohan, et al., 1992).

After going through the review, it was found that most studies conducted in India and other countries were pertaining to outdoor pollution. Very little scientific data were available regarding indoor environmental quality. Therefore, it becomes extremely significant to study various aspects affecting the quality of micro environment of the kitchen.

As study of ecology and environment, especially micro environment, is one of the thrust areas in the field of Home Management, the present investigation would throw more light on the existing quality of micro environment. It would also enhance the knowledge that

would provide a basis for modifying curriculum according to the needs of the time as would be reflected through the findings of this study. Hence, the present investigation was planned with the objective to assess the existing micro environmental quality of household kitchens, knowledge of respondents regarding quality of environment and practices followed by the respondents influencing the quality of environment. The study was carried out on the existing working conditions of home makers in the kitchen.

1.2 Objectives of the Study

- 1) To find out the socio-economic and demographic characteristics of the respondents.
- 2) To assess the existing quality of micro environment in the kitchen and related problems faced by the respondents.
- 3) To find out the extent of exposure of respondents to media in relation to various aspects of environment.
- 4) To ascertain the level of knowledge of the respondents regarding the quality of environment.
- 5) To identify the practices followed by the respondents which affect the quality of environment in the kitchen.
- 6) To find out the health problems experienced by the respondents and their family members.

- 7) To measure the environmental quality in the kitchens in terms of
- a) air analysis
 - b) water analysis
 - c) sound levels
 - d) temperature levels
 - e) illumination levels

1.3 Hypotheses of the Study

- 1) The knowledge of the respondents regarding quality of environment will vary with following selected variables namely,
- a) age of the respondent
 - b) educational level of the respondent
 - c) occupational status of the respondent
 - d) extent of exposure to media by the respondent
- 2) The practices followed by the respondents which affect the quality of environment will vary with following selected variables namely,
- a) age of the respondent
 - b) educational level of the respondent
 - c) occupational status of the respondent
 - d) income of the family
 - e) size of the family
 - f) extent of exposure to media by the respondent

- 3) There exists a positive relationship between knowledge and practices followed by home makers influencing quality of micro environment.
- 4) There exists a positive relationship between level of knowledge of the respondents and quality of environment.
- 5) There exists a positive relationship between practices followed by the respondents and quality of environment.
- 6) The quality of environment will vary with the locality in which respondents live.
- 7) There exists a positive relationship between quality of environment and health problems experienced by the respondents.

1.4 Delimitations of the Study

- 1) The study was limited to three selected localities of Baroda city namely,
 - a) Industrial cum residential area
 - b) Commercial cum residential area
 - c) Residential area
- 2) The study was limited to 150 households comprising of 50 households from each locality.
- 3) The experiments were limited to measure the quality of environment in terms of
 - a) air analysis
 - b) water analysis
 - c) sound levels
 - d) temperature levels
 - e) illumination levels